DIRECTORY OF

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+

DATA

SPECIFICATION

SUPPLEMENT

1914

PUBLISHED BY SPECIFICATION DATA, LIMITED

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Grouped Catalogue of Building Trades in One Volume

SPECIFICATION DATA

SUPPLEMENT

1914

Indexed According to Trades for
Building Construction

Devised, Compiled and Edited by

Specification Data, Limited

Head Office: 34 Melinda Street
Toronto, Canada

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INTRODUCTION

CATALOGUES in some form or other are indispensable to the Builder and Contractor, and any scheme that tends to improve or solve the catalogue problem will be a boon to them as well as the manufacturers who publish same.

In publishing the third edition of the **"Supplement"** to our **"Specification Data,"** which is now so well-known throughout the Architectural and Engineering communities of Canada, the publishers feel they have succeeded in creating a medium whereby the person who purchases building materials may have constantly before him that vital information which is so essential to him at the time he so urgently requires it.

The advertisements contained herein, which are drawn up in a purely technical manner, are identical with those contained in our **"Specification Data,"** in the hands of the Architectural and Engineering professions. This arrangement will be readily appreciated, as any material specified by an Architect can be immediately traced by the Builder or Contractor in his **"Supplement"** copy.

The publishers have endeavoured, so far as they possibly could, to bring this **"Supplement"** entirely within the scope of the Builder and Contractor. It embraces every trade entering into the construction of a building. The advertisements are drawn up in a technical manner and are very comprehensive in their scope. Careful consideration has been given to the presentation of practical details. Unnecessary pictures and display type have been entirely avoided. The Builder and Contractor has, therefore, before him a medium by which he can obtain competitive prices on practically every building material known. He obtains the information he desires on a moment's notice.

Builders and Contractors who find the work useful can help to make it still more complete, not only by sending information of a technical character and local needs, but by letting the advertisers know the book is approved of by them, and in this connection also the publishers earnestly solicit the valued co-operation of Builders and Contractors in mentioning "SPECIFICATION DATA" when specifying therefrom.

THE EDITOR.

NOTE.—A feature which should prove mutually profitable both to the Builder and Contractor on the one hand, and the advertiser on the other, is the establishment of a well-equipped Information Bureau at the Head Office of the publishers. This Information Bureau contains the catalogues of all the leading manufacturers of building materials and equipment, together with prices and information of all kinds. This department is at the free disposal of Builders and Contractors, who are cordially invited to send in their enquiries when desiring information on any building material which may not be fully listed in this volume. Should such information not be immediately available upon receipt of the enquiry the publishers will obtain same and forward it without delay. No enquiry is too small to receive attention, as it is the publishers' aim to make this Information Bureau of practical and definite value to the users of **"Specification Data."**

KINDLY NOTE.

This **"Supplement"** is sub-divided according to trades and follows the same sequence as our loose-leaf **"Specification Data,"** These sub-divisions run, according to their respective folios, as follows:

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Dominion Ornamental Iron Co., Ltd. 189

Wire (Insulated and Bare).
Canadian General Electric Co., Ltd. 230–231

Wire Cloth.
Goldie & McCulloch Co., Ltd. 314
Pedlar People, Ltd. 64–65

Wire Work and Fencing.
Canadian Ornamental Iron Co., Ltd. 176–186
Canadian Steel Studding & Mfg. Co. 111
Dennis Wire & Iron Works Co., Ltd. 172–174
Dominion Ornamental Iron Co., Ltd. 189
L. H. Gaudry & Co., Ltd. 236
John Watson & Son of Montreal, Ltd. 188

Wired Glass.
L. H. Gaudry & Co., Ltd. 236
Hobbs Mfg. Co., Ltd. 137
Wm. N. O'Neil Co., Ltd. 2–4
A. B. Ormsby Co., Ltd. 332–334
Geo. W. Reed & Co., Ltd. 342
Roofers' Supply Co., Ltd. 56–57
Toronto Plate Glass Importing Co., Ltd. 138–139

Wiring Devices (Electric).
Canadian General Electric Co., Ltd. 230–231

Wood Block Flooring.
Jas. G. Wilson Mfg. Co. 83

Wood Fibre Wall Plaster.
Alabastine Co., Paris, Ltd. 112
Crown Gypsum Co., Ltd. 114
Dominion Gypsum Co., Ltd. 116
Manitoba Gypsum Co., Ltd. 108–110
Stinson-Reeb Builders' Supply Co., Ltd. 115
Waite-Fullerton Co., Ltd. 5

Wood Preservatives.
Samuel Cabot, Inc. 128–129
International Varnish Co., Ltd. 117–126
Lowe Bros., Ltd. 131
Pratt & Lambert, Inc. 134
Sturgeons, Ltd. 133

Wood Tiling (Bathroom).
Standard Paint Co. of Canada, Ltd. 70–73

Woodwork (Interior).
Batts, Ltd. 79
Berlin Interior Hardwood Co., Ltd. 91
Burton & Baldwin Mfg. Co., Ltd. 94
Canada Lumber Co., Ltd. 78
Canadian Office & School Furniture Co., Ltd. 89
Cushing Bros. Co., Ltd. 93
Knight Bros. Co., Ltd. 92
Wm. N. O'Neil Co., Ltd. 2–4
Plastic Relief Mfg. Co. 103
L. H. Peters, Ltd. 87
Rat Portage Lumber Co., Ltd. 80
Rhodes-Curry Co., Ltd. 90
Thornton-Smith Co. 218–222

Woodworking Machinery.
Goldie & McCulloch Co., Ltd. 314

Wrapping Paper (Waterproof).
Standard Paint Co. of Canada, Ltd. 70–73

Wrought Iron.
(See Ornamental Iron and Bronze.)

Z

Zinc.
Canadian Steel Studding & Mfg. Co. 111
Wm. N. O'Neil Co., Ltd. 2–4
Pedlar People, Ltd. 64–65
Geo. W. Reed & Co., Ltd. 76

E. G. CULLEN

IMPORTER AND MANUFACTURERS' AGENT,

326 Drake Street,

VANCOUVER, B.C.

ARCHITECTURAL TERRA COTTA.

BRICK. Representing Coast Clay Company, Bellingham, Washington.
Denver Pressed Brick Co., Denver, Col.

BUILDING DIRECTORIES. Representing C. M. Kinney Co.
Successors to U. S. Changeable Sign Co., New York City.

DOORS—Elevator, Kalameined, Tin Clad.
Representing The B. C. Ceiling and Roofing Co., Ltd., Vancouver, B.C.

DOORS—Wood (Rolling), Steel.
Representing Jas. G. Wilson Mfg. Co., Norfolk, Va.
(See their ads. on pages 83 and 360.)

DOORS—Sidewalk. Representing Luxfer Prism Co., Limited, Toronto, Canada.
(See their ad. on page 140.)

EXPANDED METAL LATH AND REINFORCING. Representing Steel & Radiation Limited, Toronto, Canada.

ORNAMENTAL IRON AND BRONZE. Representing Chicago Ornamental Iron Co., Chicago, Ill.

PLASTER—Hardwall, Wood Fibre, Board, Blocks.
Representing The Manitoba Gypsum Co., Winnipeg, Canada.
(See their ad. on pages 108-110.)

PARIPAN LACQUER ENAMEL. Representing Randall Bros., London, England.

SHEET METAL, CORNICES, FIREPROOF AND UNDERWRITERS' LABEL WINDOWS.
Representing The B. C. Ceiling & Roofing Co., Ltd., Vancouver, B.C.

SHINGLE STAINS. Representing Major & Company, Hull, Eng.
(See their ad. on page 133.)

STEEL SASH (Fenestra). Representing Steel & Radiation Limited, Toronto, Canada.
(See their ad. on pages 330-331.)

STEEL CASEMENTS. Representing Geo. Wragge, Ltd., Manchester, Eng.
(See their ad. on pages 335-337.)

SLATE (BLACKBOARD AND ROOFING). Representing Pennsylvania Slate Co.

WATERPROOFING. Representing Ceresit Waterproofing Co., Chicago, Ill.
(See their ad. on pages 42-43.)

CONTRACTORS' EQUIPMENT. Concrete Cars and Carts, Wheelbarrows, Hoisting Engines, Saw Rigs, Chicago Cube Concrete Mixers, and Austin Trench Excavators.

CLOTH LINED METAL WEATHERSTRIPS. Representing Athey Company, Chicago, Ill.
(See their ad. on page 86.)

WM. N. O'NEIL COMPANY, LIMITED

IMPORTERS AND MANUFACTURERS' AGENTS.

HIGH-GRADE BUILDING MATERIAL.

OFFICE AND SHOW ROOM:
548 SEYMOUR STREET.
BRANCH OFFICE: 512 FORT STREET, VICTORIA.

WAREHOUSE: 1200 HAMILTON STREET,
VANCOUVER, B.C.

The following material carried in stock, and special attention is paid to filling orders promptly:

	Hardwood Mantels—Coal, Wood and Gas Grates. Fireplace Trimmings and Accessories.
TILES.	"Rookwood" Faience, Enamelled, Satin and Lustre Finish. Vitreous Mosaic for floor and walls, etc. Embossed and Glazed for walls. "Rust's" Vitreous and Glass Mosaics, for floors, walls and ceilings—a beautiful iridescent tile. Interlocking Rubber of highest quality. "Cork Tile" for elevators, dwellings and public buildings—durable, sanitary and noiseless. Marble Slabs, Mosaic and Terrazzo.
GLASS.	Plate, Window, Figured, Rolled, etc. Polished and Cast Wired. Art Glass, Domestic and Memorial Windows. Lead or metal glazed. Special designs submitted upon receipt of request. American 3-Way Sheet Prisms in sizes up to 100" x 60". American 3-Way Units, glazed in hard white metal or solid copper. American 3-Way Pavement Prisms set in galvanized steel frames.
METAL.	Store Front Construction—all finishes. Easyset Construction Co. See their ad. on page 194.
DUPLEX JOIST AND WALL HANGERS.	Post Caps and Base Plated. See their ad. on page 81.
MISCELLANEOUS.	Parker's Metal Corner Bead, for exterior plaster corners. "Preston" Metal Corner Bead, for exterior plaster corners. Coal Chutes, Model and Majestic pattern. "Humphrey's" Metal Scaffold Brackets—great labour-saving device. "Diamond" Expansion Bolt Shields. "Rutty's" Metal Wall Plugs. "Securo" Concrete Bar Spacers. "Wainwright" Galvanized Steel Concrete Curb Corner Bars. "Herringbone" Expanded Metal Lath. Self-centering for concrete roofs, floors, walls and ceilings. "Perfection" Steel Studding and Furring Strips. "Collins" Interlocking Steel Studding and Furring. "Perfection" Wire Fabric. Twisted Steel Rods, for reinforcing concrete work. Metal Wall Ties, Miami and Bull Dog. "Dayton's" Concrete Inserts. "Howarth's" Reversible Metal Sash Centres. "Giesey's" Elevating Window Pivots. "Hope's" Steel Sash. Metal, Embossed Ceilings, New Designs.

CONTINUED ON NEXT PAGE

READY-ROOFING.

"Neponset" Paroid—High-grade material, standard size of rolls.
"Lonabond" Textile Ready Roofing—good for 15 to 20 years. The base is 10 oz. duck. Thoroughly saturated with special preparation and coated with pure gum asphaltum.

BUILDING PAPERS.

Ordinary white and tarred.
"Neponset"—Double-coated building and insulating paper.
Asbestos Paper—8, 10, 12, 16, 18 and 22 lb. weights carried in stock.
Asbestos Roofing Tiles.
Asbestos Lumber Sheets, 4′ x 4′ and 4′ x 8′.
Asbestos Theatre Curtain.

SOUND-DEADENING MATERIALS.

Linofelt, Lith and Flax Fibre Slabs.
Mineral Wool, ½″ thick, in rolls of 125 ft.
Mineral Wool in bulk.
See Union Fibre Co.'s ad. on page 349.

HARDWOOD.

Interior Capitals and Brackets.
Embossed and Turned Mouldings and Beads.
Veneered Doors.
¼-cut and Plain Sawed Oak Flooring.
Maple, Beech and selected Red Birch Flooring.

CEMENT.

Victoria Brand, Keen's Cement, as manufactured by Messrs. Cafferata & Co. of England. We stock four grades—superfine, fine, No. 1 and No. 2.
"DeVigans" Caen Stone Cement.
"Hydrolite," for waterproofing cement, mortar and concrete in the aggregate.
"Toxement," a compound successfully used for waterproofing cement and concrete.

PLASTER.

Hardwall Gypsum Plaster and Wood Fibre.
"Satin Spar" Plaster of Paris, in barrels.
Plaster Partition Tile, "Parobar" or "Empire."
Plaster Board, "Sacketts" or "Empire."
Lime, Victoria and Texada Brands.
Ornamental Mouldings and Centrepieces.
Mortar Colours.
Composition Capitals, Brackets, etc.

WATERPROOFING.

Pinchin, Johnson Co. (Canada), Ltd., Waterproof Paints. For walls, foundation work, steel structural work, metal roofs, iron pipes and ship plates. Electrical insulating paint, cement floor filler and paint. See their ad. on pages 39-41.
Master Builders' Method Concrete Hardener—wearproof, dustproof and waterproof.

CREOSOTE SHINGLE STAIN.

(Manton Bros.)—A Canadian product; Imperial gallon; fixed colours. Dries slowly and soaks into the wood, protecting it from the weather.

ENAMEL, "RIPOLIN."

The very highest grade enamel, manufactured in Holland, and extensively used in all parts of the world where high-class work is required. Is perfectly sanitary and used largely in hospitals, ships, yachts, dwellings, lighthouses, buoys, and butcher shops.

GLAZED BRICK.

English size, 9″ x 2⅞ x 4½″, stocked in white only. Highest quality manufactured by Leeds Fireclay Co. of Wortley, Leeds, England.

PRESSED FACING BRICK.

"Sparta" Impervious and Salt Glazed Buff Colour.
Standard Canadian and American makes in all colours.

CONTINUED ON NEXT PAGE

In addition to the aforementioned materials, which we carry in stock, we are Western Sales Agents for the following:

ORNAMENTAL METAL WORK.

Bronze Work of all description.
Metal Elevator Cars and Enclosures.
Metal Stairs and Bank Railing.
Metal Mouldings, etc.
Metal Lockers for Banks, Gymnasiums, Departmental Stores, etc.
Metal Stable Fittings, etc.
As manufactured by the Dennis Wire & Iron Works, Ltd.
See their ad. on pages 172-174.

DOOR HANGERS, BALL BEARING.

As manufactured by the Reliance Ball Bearing Door Hanger Co. Extensively used for Elevator Doors. 1 to 3 Speed Door Hangers; work like clockwork; the very best on the market; write for catalogues. See their ad. on pages 204-205.

METAL COVERED DOORS & TRIM.

Any finish. We represent the well-known "Richardson" Door, as manufactured by the Thorpe Fireproof Door Co. of Minneapolis, Minn. See their ad. on pages 340-341.

MAIL CHUTES.

The Cutler Mail Chute Co. Write for catalogues, prices and particulars. Every up-to-date Public Building should have one of these chutes. See their ad. on page 191.

KINNEAR ROLLER STEEL DOORS AND SHUTTERS.

Slates of No. 16 to 22 gauge galvanized steel; equipped with Metal Hood; self-releasing device to permit door closing in case of fire; chain gear for operating doors. All in accordance with the Board of Fire Underwriters' requirements. See their ad. on pages 352-353.

SHEET METAL GOODS.

Metal Ceilings, Siding and Shingles, Cornices, etc., as manufactured by the Metal Shingle & Siding Co., Preston, Ont.

"Hoist"—The G. & G. Telescopic Hoist, for raising and lowering material from basement to sidewalk. See their ad. on pages 148-149.

(Fire Exit Latch) Von Duprin Self-Releasing Fire Exit Latch—absolutely reliable safeguard against panic disasters.

"Furniture"—School Desks.
Opera Chairs.
"Carbonal" Blackboards, Black and Green.
Church and School Bells.
Safety Treads—Universal Safety Treads.

TERRA COTTA.

We represent the Leeds Fireclay Co. of Wortley, Leeds, Eng., Manufacturers of the highest grade Terra Cotta in the world.

SANITARY WARE AND FITTINGS.

Cliff's Porcelain Fireclay Baths, Lavatories, Urinals, Closets, Sinks, Wash Tubs, etc., of the highest grade, manufactured by the Leeds Fireclay Co., Ltd.

VAULT DOORS AND SAFES.

We represent the National Safe & Lock Co., Manufacturers of a complete line of Safes, Vault Doors and Safety Deposit Boxes, etc. Special catalogue sent you on request.

MARBLE AND SLATE.

We handle Foreign and Local Marble and Slate, and will be pleased to submit samples and estimate on material fixed in position complete.

"Vitrolite," milk-white colour, slabs 3-16 to 1" thick, for walls of hospital operation room, counter and table tops for restaurants, etc.

HARDWOOD INTERIOR FINISH.

We represent Knight Bros., Ltd., of Burk's Falls, Ont., Manufacturers of High-Grade Office Fittings, Interior Trim, Veneered Doors, etc., and will be pleased to furnish estimates at any time. We are furnishing the Hardwood Finish for the Bower Building, Vancouver, and Pemberton Building, Victoria, B.C. See their ad. on page 92.

We invite correspondence, and will be pleased to forward special catalogue, bearing on any of our lines, to intending purchasers.

Estimates furnished to Contractors and Builders from plans and specifications.

THE WAITE-FULLERTON CO., LIMITED

BUILDERS' SUPPLIES.
CONTRACTORS' EQUIPMENT.

101 Willoughby
Duncan Block,
Regina.
TELEPHONE 2187.

402 Builders' Exchange,
Winnipeg.
TELEPHONE MAIN 5404.

228 Lougheed Block,
Calgary.
TELEPHONE M. 4778.

CONTRACTORS' EQUIPMENT.

LAKEWOOD CONCRETE SPOUTING PLANTS and MIXERS, STEEL BUCKETS, CLAMSHELL BUCKETS, STEEL CARS.

Sole Agents in Manitoba, Saskatchewan and Alberta of The Canadian Patent Scaffolding Co., Lessors of Patent Safety Scaffolding.

Other Contractors' Equipment:

Mortar Mixers.

Metal Forms.

Hoisting Engines.

Derricks.

BUILDERS' SUPPLIES.

We also handle Builders' Supplies of all kinds.

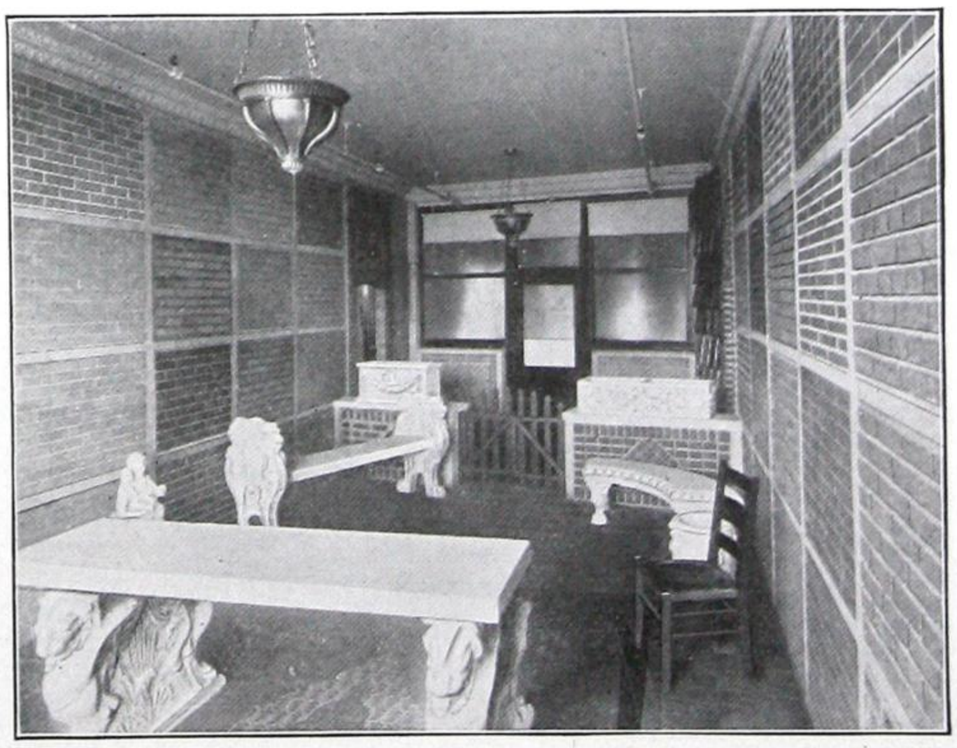


A Spouting Plant in Action.

We carry in stock ready for immediate delivery GENUINE CAEN STONE CEMENT, which we import direct from France; also Hydratite and Dehydratine Waterproofing Compounds, Mantel Brick, Roofing Slate, Bay State Coating, Fire Brick, etc.

DISPLAY ROOMS.

We maintain brick displays at all points of importance in Manitoba, Saskatchewan, Alberta and British Columbia.



THE DON VALLEY BRICK WORKS

HEAD OFFICE, 36 TORONTO STREET,
TORONTO, ONT.

MONTREAL AGENT:
DAVID McGILL,
83 BLEURY STREET.

WORKS:
DON VALLEY, TORONTO.

PRODUCTS. We are the largest manufacturers in the Dominion of High Grade BURNT CLAY PRODUCTS and have exceptional facilities for turning out PRESSED BRICKS, ENAMELLED BRICKS, ordinary KILN RUN STOCK BRICKS and TERRA-COTTA HOLLOW TILES for fireproofing.

PRESSED BRICKS. Our Standard Red and Buff Pressed Bricks are of the highest grade, and we are prepared to supply Bricks for special work that are selected from the finest stock.

SPECIAL BRICKS. We carry in stock large quantities of Bullnoses and Base Bricks and are prepared to make Specially Moulded Bricks or Arch Bricks from Architects' drawings.

STOCK BRICKS. We also manufacture and carry large quantities of Red and Gray Stock Bricks of excellent colour, hard-burned, with faces and arrises true.

CLINKER BRICKS. We make hard-burned Clinker Bricks, vitrified throughout, suitable for paving and heavy foundations.

SIZES. Standard size Pressed Bricks, approximately: Red, $8^{3}/_{8} \times 2^{3}/_{8} \times 4^{1}/_{8}$; Buff, $8\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{1}{4}$.

Standard size Stock Bricks, approximately: $8^{5}/_{8} \times 2\frac{1}{2} \times 4\frac{1}{4}$.

FACILITIES. Our facilities are exceptional for turning out first-class material. The extensive clay-beds in the Don Valley are so widely known as being one of the few clay deposits that are suitable in quality, free from lime, and having the necessary ingredients to form a good Brick.

CAPACITY. Our total annual capacity is 75,000,000; we always carry a large stock and can fill orders promptly. We have excellent shipping facilities and will be pleased to quote prices, including freight.

We will gladly supply samples of our bricks to prospective users, express prepaid.

CONTINUED ON NEXT PAGE

ENAMELLED BRICKS.

We manufacture High Grade ENAMELLED BRICKS in the following colours: Yellow, Brown, Chocolate, Sage Green, Light Green, Dark Green, Cobalt Blue, Robin's Egg Blue, Dark Blue, Light Buff, Dark Buff, Granite, Mottled, Black Manganese, White and Red.

UNIFORMITY OF SHADES.

We guarantee uniformity of shades.



ADAPTABILITY.

Enamelled Bricks are used where light and cleanliness are essential; for instance, Light Shafts and Courts, Elevator Shafts, Bakeries, Restaurants, Markets, Subways, Tunnels, Railway Depots, Fire Engine Houses, Bank Vault Interiors, Sanitariums, Mausoleums, Stables, Swimming Pools, Turkish Baths, Kitchens, Laundries, Smoking Rooms, Power Houses, etc.

SPECIAL SHAPES AND COLOURS.

We are at all times pleased to make special and ornamental Enamelled Bricks in any colours or shapes desired by architects to fill peculiar conditions, and invite correspondence in regard to same.

See also our ad. under tab—"Terra Cotta Fireproofing."

THE HAMILTON PRESSED BRICK CO., LIMITED

HEAD OFFICE, 608 SPECTATOR BUILDING,
HAMILTON, CANADA.

ROBERT W. NEW, PRESIDENT.
GORDON B. NEW, VICE-PRESIDENT.
HERBERT H. NEW, SEC'Y-TREASURER.

PHONES:—HOUSE, 345. FACTORY, 1992. OFFICE, 2931.

TORONTO AGENT—WALTER E. HUNTER & CO., 34 VICTORIA STREET.
PHONES: OFFICE, MAIN 5099. HOUSE, PARK 3170.



PRODUCTS. HAMILTON PRESSED BRICK.

FACILITIES. Owing to the great demand for our Pressed Brick, we have this year doubled our plant.

This new equipment enables us to *ship more promptly than ever*.

LOADING. We load *direct from kilns to cars*, and pack carefully with straw.

NOTE. Be sure that "**HAMILTON**" is stamped on every brick.

WRITE FOR PRICES.

SAMPLES ON APPLICATION.

GEO. CARPENTER

BUILDERS' SPECIALTIES.

OFFICE AND SHOW-ROOM: 314 UNIVERSITY STREET,

MONTREAL.

"RUS" ART BRICKS.

Manufactured by the Ravenhead Brick Co., Ltd., St. Helen's, Eng., from a mixture of very hard rocks and shales, producing an impervious brick with rusticated surface, having A PECULIAR RANGE OF COLOUR TONES, which blend perfectly and give the appearance of WELL-PRESERVED AGE directly they are set up. Made in all sizes and any shape that may be required; also CARVED, in which case each tablet is CARVED FROM DESIGN, and not produced from a mould or pattern.

"RUS" ART WALLING.

An adaptation of Brickwork, composed of blocks of different sizes, with or without a percentage of regular sized bricks. Proportions usually specified, 50% to 75% blocks. This walling possesses all the ARTISTIC MERITS OF "RUS" ART BRICKS.

"SANDRUFF" PAVING.

HAND-MADE TILES, manufactured by the Coalbrookdale Co., Ltd., Shropshire, Eng., from highly suitable materials mined from great depths, in sizes from 2" x 3" x ½" to 12" x 12" x 2", with a slightly sanded surface, in BEAUTIFUL SHADES OF REDS AND BROWNS, and having NO GLARE, HARD METALLIC APPEARANCE OR GLAZE.

ROOFING TILES.

PLAIN AND ORNAMENTAL, with all Fittings (Hips, Valleys, Ridges, Finals, etc.), both HAND AND MACHINE MADE, in Red, Brown and Dark Brindled, from same materials as "Sandruff" Paving. Though the hand-made tiles have been manufactured for upwards of 70 YEARS, NO SINGLE CASE OF DAMAGE BY FROST WAS EVER KNOWN.

ARCHITECTURAL TERRA COTTA.

Manufactured by the Bispham Hall Terra Cotta Co., Orrell, near Wigan, Eng. PLAIN AND VITREOUS, in all shades and finishes of Buff and Grey. MATT SURFACE AND FULL GLAZED, in White, Cream and Granite Colours or to special requirements. FINEST QUALITY ONLY. SPECIALTY: LARGE BLOCKS, ONE-PIECE SILLS, HEADS, etc.

TILES.

Manufactured by Messrs. Craven, Dunnill & Co., Ltd., Jackfield, Shropshire, Eng. All descriptions of ENCAUSTIC TILE PAVEMENTS AND MOSAICS. SPECIAL TILES for Boiler and Engine Rooms, Baths, Ships, etc., in Red, Buff and Black, and FOR PAVEMENT LIGHTS, having a permanent non-slip surface and giving better service than any other tile or material on the market. GLAZED AND ENAMELLED TILES of every description. ROUGHED, MATT-SURFACE AND ANTIQUE FINISHES. WALL MOSAICS, LUSTRES, etc., etc.

A highly skilled staff of designers at your service.

OTHER PRODUCTS.

FIRE BRICKS AND BLOCKS for all purposes; SILICA BRICKS for high temperatures; BUFF AND BLUE PAVING BRICKS, etc., etc.

NOTE.

New ideas, special designs, etc., welcomed. WE ARE SPECIALISTS IN CLAY GOODS OF EVERY DESCRIPTION.

CLARENCE E. POSTON

ATTICA, IND., U.S.A.

CANADIAN AGENTS:
ALSIP BRICK, TILE AND LUMBER CO.,
502 BUILDERS' EXCHANGE,
WINNIPEG, MAN.

POSTON-ORIENTAL BRICK.

This is the Brick that taught the world the beauty of rough-surfaced burned clay, and is manufactured by Clarence E. Poston, the originator of Oriental face brick.

DESCRIPTION, COLOURS, ETC.

It is a vitrified shale Brick, cut rough to give it "Texture," and burned in the opulent colours of a Persian rug.

The colours range from delicate pinks to black, with intermediate shades of golden browns, purples, greenish golds, blue-blacks, etc., in endless variety. These colours, as they come from the kilns, when in the wall of a building, form masses of colour, beautifully composed, which give pleasure to the senses of sight.

The Poston-Oriental excels all the Oriental brick in the gradation and blending of colours. Sharply defined colours do not show in a wall of this material; the figurations show perfect harmony and rhythm throughout the whole wall. Each brick is a colour study, owing to the variegation in colour of a single unit, but, when in masses, the colour effect equals the product of the Oriental loom.

Architects find this material a potent means of artistic expression.

SIZES.

I produce these Oriental colours in bricks of the following sizes:

Portal size - - - - - - - - - -	1½ x 3½ x 8½
Poston-Oriental size - - - - - - -	2 x 3½ x 8½
Postonian size - - - - - - - - -	2¼ x 4 x 8¼

NOTE.

The Alsip Brick, Tile and Lumber Co., Winnipeg, represent my product in their territory, and have handled it successfully for a number of years. In their display rooms may be seen panels of the different kinds.

CO-OPERATION.

I am desirous of extending my trade to Eastern Canada, and solicit correspondence from dealers.

CATALOGUE.

Write for my booklet, "He Turned a Brick Inside Out." It's said to be worth reading.

THE SUN BRICK CO., LIMITED

411 Traders Bank Building,
TORONTO, ONT.

Works: Don Valley.

PRODUCTS. We are manufacturers of and specialize in the very highest grade of HARD BURNT SHALE BRICK. These Bricks can be had in all shapes, sizes and colours, according to the architect's or builder's requirements.

OUTPUT. Our present capacity is 70,000 bricks a day.



P. TEXTURE



TEXTURE.



P. TEXTURE.



TEXTURE.



M. TEXTURE.



ROUND CORNER SMOOTH.

INFORMATION. We shall be pleased at all times to furnish architects, builders and others interested with information and samples upon request.

WE INVITE YOUR INSPECTION OF OUR PLANT.

NOTE. See our tile display on page 45.

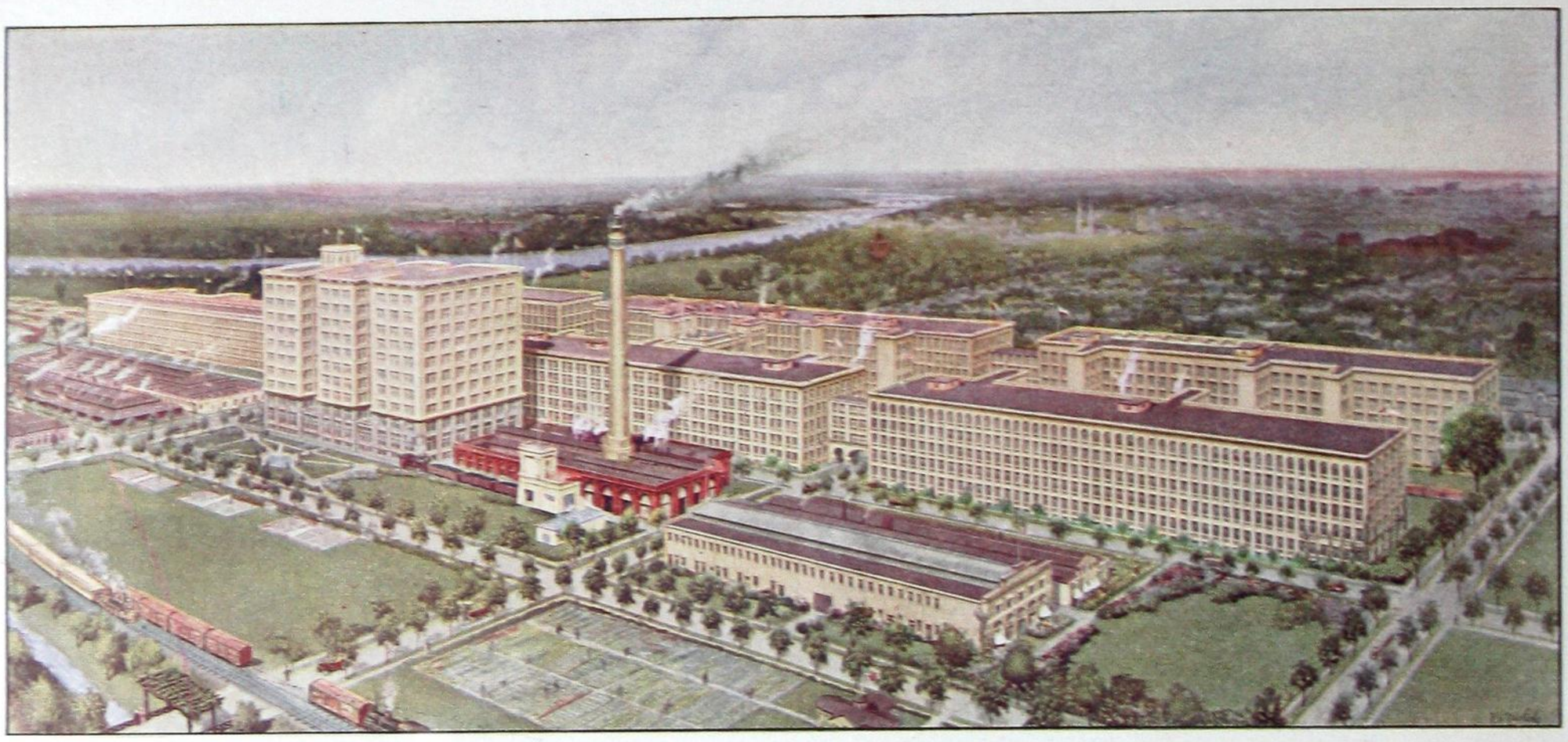
THE COLUMBUS BRICK & TERRA COTTA CO.

ESTABLISHED 1885.

MAIN OFFICE: COLUMBUS, OHIO. WORKS: UNION FURNACE, OHIO.

CANADIAN AGENCIES:

HAMILTON: Gordon K. Fraser.
TORONTO: Black Building Supply Co., Ltd.
CALGARY: The Waite Fullerton Co., Ltd.
HALIFAX: Brookfield Bros., Ltd.
MONTREAL: David McGill.
WINNIPEG: The Waite Fullerton Co., Ltd.
SASKATOON: The Waite Fullerton Co.
VANCOUVER, B.C. The Waite Fullerton Co., Ltd.



OFFICE AND FACTORY BUILDINGS OF THE NATIONAL CASH REGISTER COMPANY, DAYTON, OHIO.
2,500,000 Buff and Gray Brick, manufactured by The Columbus Brick and Terra Cotta Company, Columbus, Ohio, were used in the facades of these buildings.

PRODUCTS. HIGH-GRADE DRY PRESSED AND WIRE CUT FACING BRICKS, BRICK MANTELS and ARCHES made to order.

COLOURS. Buff, Gray, Buff Speckled and Gray Speckled in Dry Pressed; Ivory and Gray in plain Wire Cut; Buff, Onyx Gray, Granite, Flemish, Terra Cotta Astrakhans.



KINDS. Standard and Norman sizes in Dry Pressed; Standards only in Wire Cut

SIZE. Standards, $2\frac{5}{16}$ x 4 x $8\frac{5}{16}$, Dry Pressed; Standards, $2\frac{3}{8}$ x 4 x $8\frac{3}{8}$, Wire Cut; Normans, $2\frac{5}{16}$ x 3 x $11\frac{7}{8}$.

ESTABLISHED WEIGHTS. Standard Dry Pressed, 5,630 pounds per thousand; Wire Cut, 5,730 pounds per thousand; Normans, 6,030 pounds per thousand.

IMPERVIOUS BRICK. Attention is called to our Ivory Impervious Brick, which are especially adapted for light courts, and all inside and outside facings.

EFFLORESCENCE. Our brick are free from efflorescence.

SPECIALTY. We make a specialty and carry extra large stocks of ASTRAKHAN rough texture brick. Notwithstanding the fact that the faces of these brick are rough, the form is perfect, and they run very even in size, and we claim they are the best brick of this character on the market to-day. We make three assortments of the Buff Astrakhans: Buff, Onyx and Buff-Onyx; of the Gray Astrakhan: Gray, Granite and Flemish. The Flemish Astrakhans, used mostly for Headers in Flemish Bond, are flashed almost to a brown.

PROMPT SHIPMENTS. We carry at all times a large and well-assorted stock, insuring prompt shipments.

CATALOGUE SAMPLES. Catalogues and samples cheerfully forwarded on application to main office or nearest agency.

AMERICAN ENAMELED BRICK AND TILE CO.

INCORPORATED 1893.

ENAMELED BRICK IN STANDARD AND ORNAMENTAL SHAPES.

CENTURIAN BUILDING, 1182 BROADWAY,

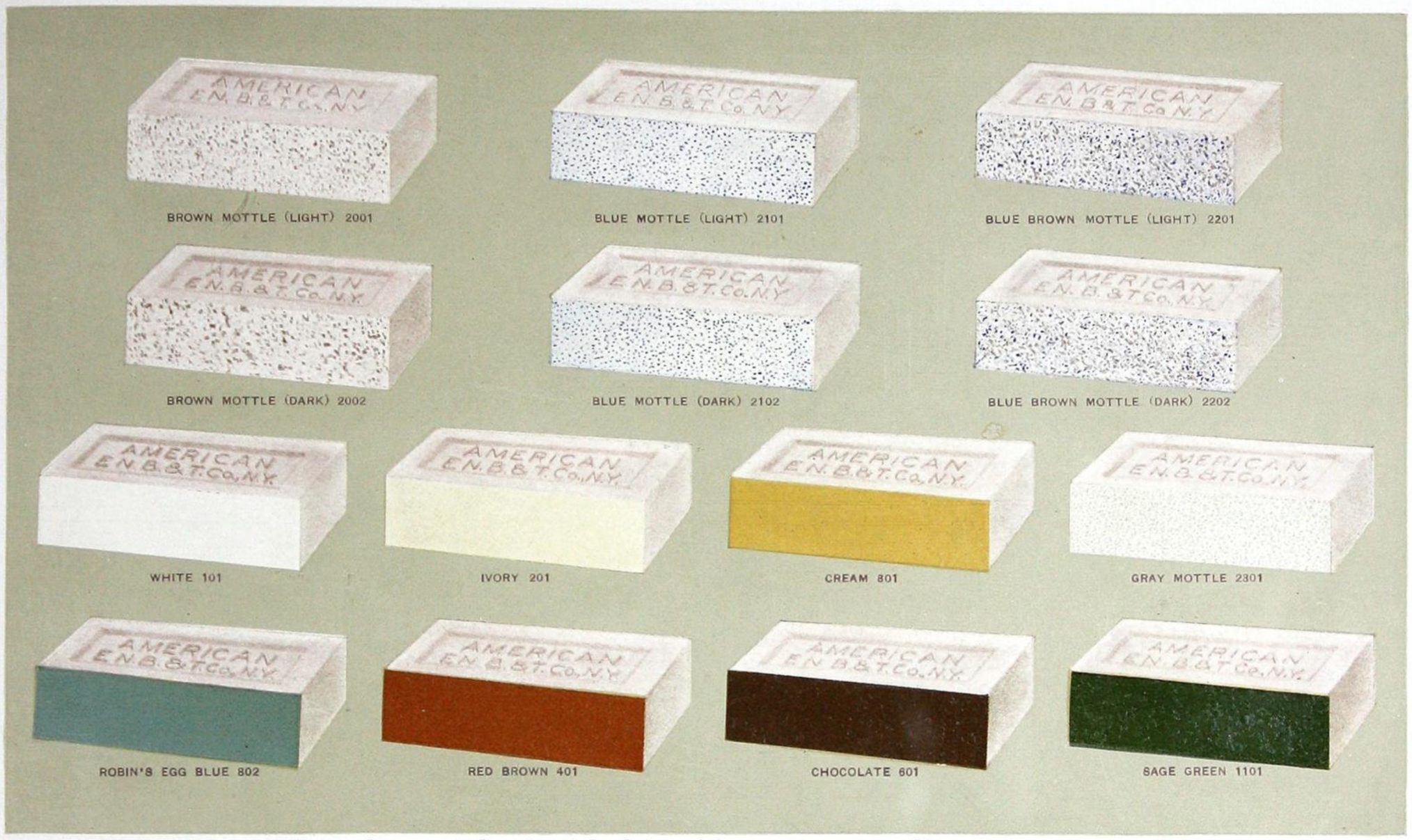
NEW YORK, N.Y

TELEPHONES, 4160-4161 MADISON SQUARE.

CABLE ADDRESS, "AMEREBRICK."

REPRESENTED IN ALL LARGE CITIES OF UNITED STATES, AND IN

MONTREAL, OTTAWA, TORONTO, HAMILTON, LONDON, WINDSOR, WINNIPEG, CALGARY AND VANCOUVER, CANADA.



Above Colors can be furnished in either Bright, Medium or Matt Finish.

PRODUCTS. ENAMELED BRICK in Standard Sizes and Ornamental Shapes. (See plates.)

TERRITORY. The business operations of this firm cover the entire United States, Canada and South America.

DETAILS REQUIRED FOR ARCH BRICK. When ordering arches, please furnish details as long as possible in advance of the time the arches will be required. We should be allowed from three to six weeks' time to make up Arch Brick. Arch Brick should be made to order to secure satisfactory work. We keep no standard arches in stock. We cannot always guarantee uniformity of shade in arches as in regular deliveries of first quality plain stock brick.

We particularly call attention to the cut showing study of a window opening, wherein are used stock Specials, eliminating particularly Flat and Circular Arches, which, having to be made special, often cause annoying and sometimes serious delays.

WORKING DRAWINGS FOR ARCHES. We make full-sized working drawings (shrinkage scale), and mark drawing so that each different brick has its own designating letter or number in arch, and make typewritten schedules. We ship you copy of drawing and schedule with the brick to serve as guide in setting. The mason should lay each brick on its place on drawing before attempting to set the arch. We pack arches separately in barrels, and mark barrels distinctly to avoid confusion at job.

SPECIAL FEATURES AND ADVANTAGES OF OUR ENAMELED BRICK. In making our product we follow the English and Scotch systems, working on the stiff mud process. This is without question the only process which insures durability and the closest relation of bond obtainable between body and glaze.

Our brick are burnt in but one fire, thus making the chemical change in the body and the glaze simultaneously.

Where manufacturers use the dry pressed process, the brick have to be burnt first as front brick before the enamel can be applied, and fired again for the fluxing of the glaze.

Where the enamel is applied on an already burnt brick and fluxed in a second fire, the bond is weak and peeling is sure to follow.

We use hard and durable glazes, not soft lead glazes frequently seen on inferior grades of Enameled Brick.

We have not a single case during our twenty years of business where any peeling has been seen or reported. This is better than any guarantee which we might be asked to give, as it covers a distributed output of nearly 100 million brick located all over the United States, Canada, and South America, and subject to all varieties of climatic conditions.

CLEANING. Enameled Brick are best cleaned with some alkaline solution such as Caustic Soda or Sodium Carbonate. This cleans the enamel and does not affect the cement or lime mortar.

ACIDS: Sulphuric, Nitric or Hydro-Chloric Acids, even in concentrated form, will not affect our glazes, but if used as a wash, even when diluted, they will attack the cement or lime mortar. The only commercial Acids which will attack and destroy our enamel are Hydrofluoric and Hydrofluosilicic.

SPECIAL DESIGNS. New designs of special moulded shapes are always an enigma when untried, and frequently afford unsurmountable difficulties in avoiding the troubles they give, although an explanation of the cause is usually easy to find.

STOCK DESIGNS. Much delay is saved by use of stock designs of moulded brick.

These designs are chosen to reduce manufacturing troubles and delays to a minimum; to enable composite mouldings to be made up, and to enable prompt filling of orders. No other manufacturer offers the variety we do. (See plates.) Two stock sheds are devoted exclusively to these specials.

COLOURS AND THEIR DESIGNATIONS. We show herewith several samples of colour of our brick, together with their title and numerals. Colour is indicatd by hundred-numerals, and shade by unit-numerals. For example, we indicate White by Nos. 101, 102, 103, and 104, No. 101 being the lightest shade and 104 the darkest. These are but a few of the many colours we manufacture in both the matt and bright finish glazes.

UNIFORMITY OF SHADES. We guarantee uniformity of shades in all first-quality deliveries to the limit of practicability. Colours giving most uniform results are, in order of degree of uniformity, white, red-brown and sage green. Other colours follow in irregular positions.

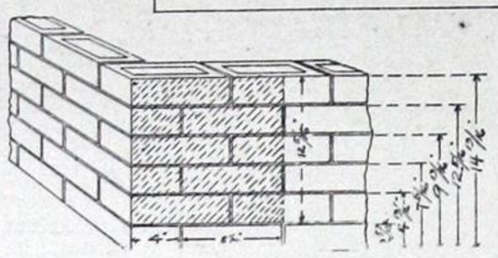
We will try on orders of moderate size, or on larger orders, if ample time be given, to match in shade the moulded and stretcher stock on any order, but cannot always guarantee to uniformly shade shipments of specials.

N.B.—Uniform Shading in First Quality White, Brown, Sage Green, and Chocolate a specialty.

ILLUSTRATIONS. In the following pages are shown designs that we recommend as being most satisfactory in manufacturing results. We try to keep a stock of these on hand, in standard colours and in English and American sizes.

CONTINUED ON NEXT PAGE

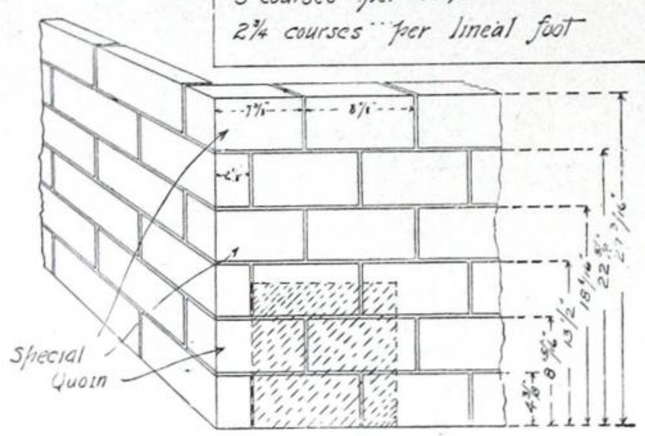
7½ brick with ⅜" joint - 12 5/16 x 12 7/16 or
Approx. 7 brick per ▣ sq. ft.
5 courses per lineal foot.



$2\frac{5}{16}$" x $8\frac{1}{4}$" Enameled Face x 4" Deep.

Standard American Size.

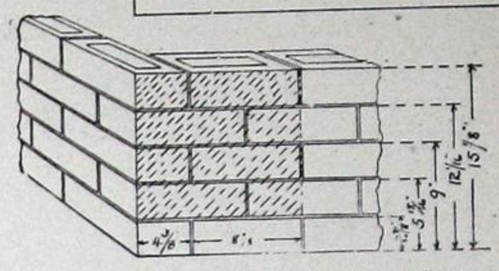
6 brick with ½" joint - 13½" x 18 7/16"
or approx 3.48 brick per ▣ sq. ft.
3 courses per 13½"
2¼ courses per lineal foot



4" x $8\frac{1}{4}$" Enameled Face x $2\frac{5}{16}$" Deep.

Standard American Size Flatters

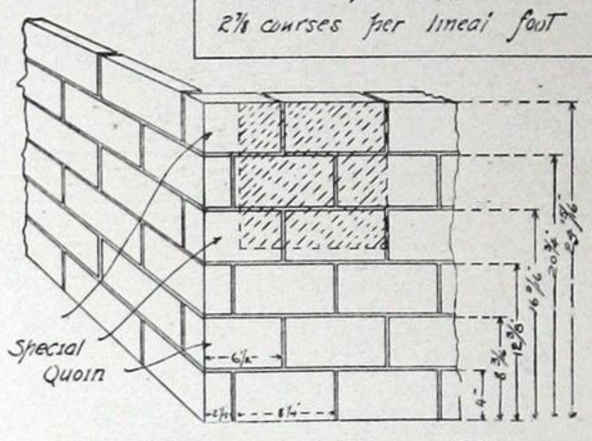
6 brick with ½" joint - 13⅜" x 12⅞"
or approx 5.19 brick per ▣ sq. ft.
4 courses per lineal foot



$2\frac{7}{8}$" x $8\frac{7}{8}$" Enameled Face x $4\frac{3}{8}$" Deep.

Standard English Size

6 brick with ⅜" joint - 12⅜" x 16 7/16"
or approx 4.08 brick per ▣ sq. ft.
3 courses per 12⅜"
2⅛ courses per lineal foot

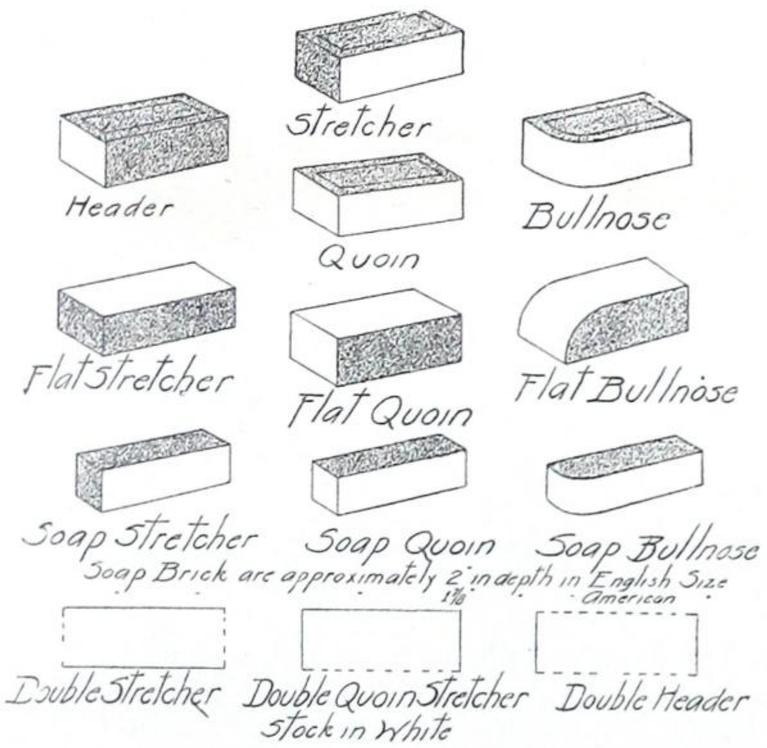


$4\frac{3}{8}$" x $8\frac{7}{8}$" Enameled Face x $2\frac{7}{8}$" Deep.

Standard English Size Flatters

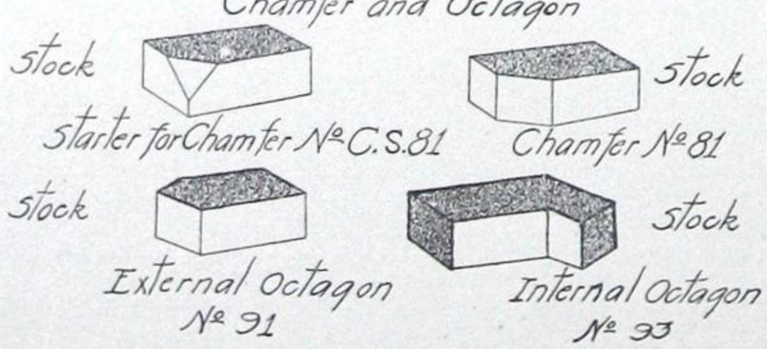
COMPARISON OF SIZES, SHOWING NUMBER OF BRICK PER SQUARE FOOT.

All dimensions are approximate.



Lipped Stretchers and Quoins are enameled
⅞" Top and Bottom All other brick lipped on order.

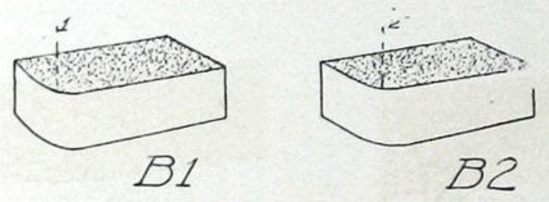
Chamfer and Octagon



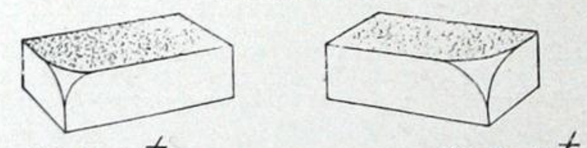
ILLUSTRATIONS OF TYPES.

External and Internal
Starters and Stops.

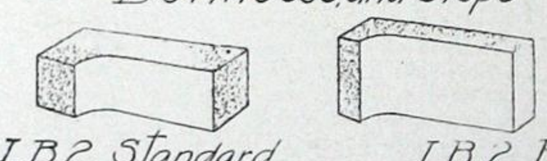
Figures indicate radius



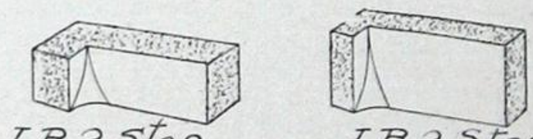
Bullnoses



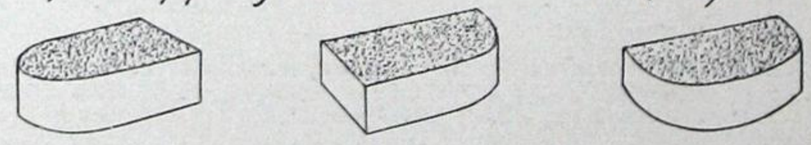
Bullnoses and Stops



Internal Bullnoses

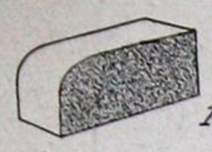


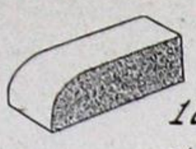
For stopping internal Bullnose to square finish

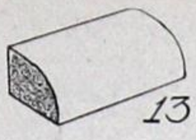


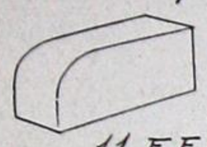
BULLNOSES AND STARTERS.

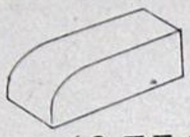
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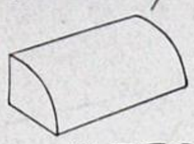

11
Header on Edge


12
Header on flat


13
Stretcher on flat


11 F.E.S.

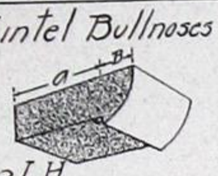

12 F.E.S.

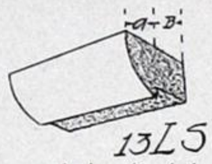

13 F.E.S.

Flat end Stops


11 Q
Quoin

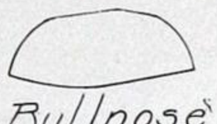
Lintel Bullnoses

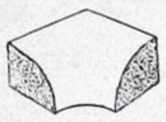

12 L.H.
Lintel Header

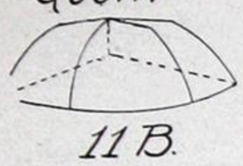

13 L.S.
Lintel Stretcher

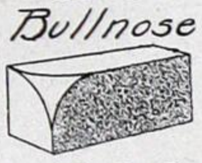

13 L. Stop
Lintel Stop


Left hand
13 Q
Quoin
used with 12 or 13


Left hand
13 B
Bullnose
used with 12 or 13


13-I-B-2
Internal Bullnose
used with 12 or 13

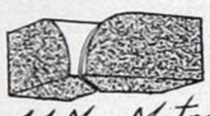

11 B.
Bullnose

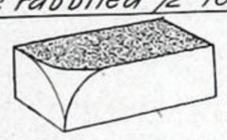

B-2-S-
as used with 11

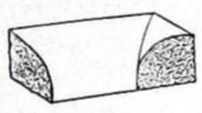
Approximate dimensions of Lintel Bullnoses

12 L.H.	A, American	6"	B 2¾"	English	A, 7"	B 1⅞"
13 L.S.	"	2⅛"	1⅞"	"	1⅞"	2½"
13 L. Stop	"	6"	2¼"	"	7"	1⅞"

all Lintel Brick are rabbited ½" to receive Lintel Iron


11 M - Mitre


B-2-S - as used with 12 or 13

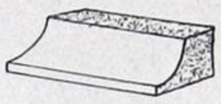

13 M
used with 12 or 13

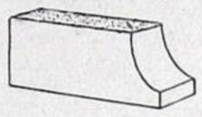
BULLNOSE SPECIALS.

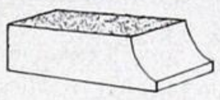
Rowlock

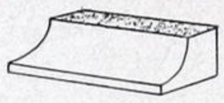

21
Header on edge


22
Header on flat

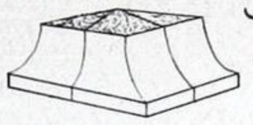

23
Stretcher on flat

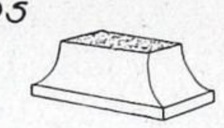

21 F.E.S.


22 F.E.S.

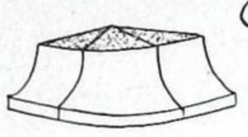

23 F.E.S.

Stops


21 Q

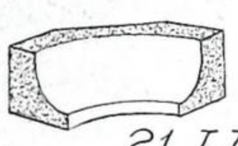

Right
23 Q.
used with 22 or 23

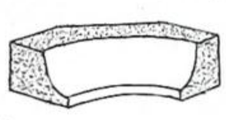
Quoins


21 B

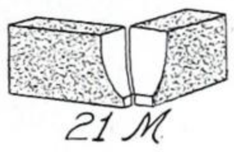
Bullnoses


Right
23 B
used with 22 or 23


I.B.2. fits on top
21, I.B.2.


I.B.2. fits on top
23, I.B.2.

Internal return for Sanitary Base Cove

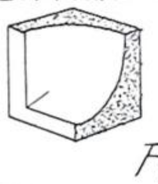

21 M


23 M
Mitres and Stops


23 S.
Stop or Mitre

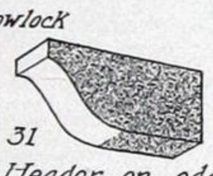
23 M and 23 S, used with 22 or 23

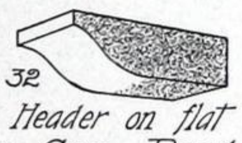

21
21 A
Cove Panel & Architrave


21 P.M.
Panel Mitre end

COVE MOULD.

Rowlock


31
Header on edge


32
Header on flat


33
Stretcher on flat

Bullnose Cove Band Course

Rowlock


31 - FE Stop


32 - FE Stop

33 - FE Stop

Flat End Stops

Rowlock

31 - Q

Left
33 - Q
used with 32 or 33

Quoins

Rowlock

31 - B

Left
33 - B
used with 32 or 33

Bullnoses

Rowlock

31 - M

33 - M

Right
33 - Stop
also as mitre

Mitres and Stops
33 M and 33 Stop used with 32 or 33

Header
31
31-A
Stretcher
Cove Panel and Architrave

31 - PM
Panel Mitre

EMT

BULLNOSE COVE MOULD.

Rowlock

41
Header on edge

42
Header on flat

43
Stretcher on flat

Ogee Band Course

Rowlock

41 - FE Stop

42 - FE Stop

43 - FE Stop

Flat End Stops

Rowlock

41 - Q

Left
43 - Q
used with 42 or 43

Quoins

Rowlock

41 - B

Left
43 - B
used with 42 or 43

Bullnoses

Rowlock

41 - M

43 - M

Right
43 - Stop
also as mitre

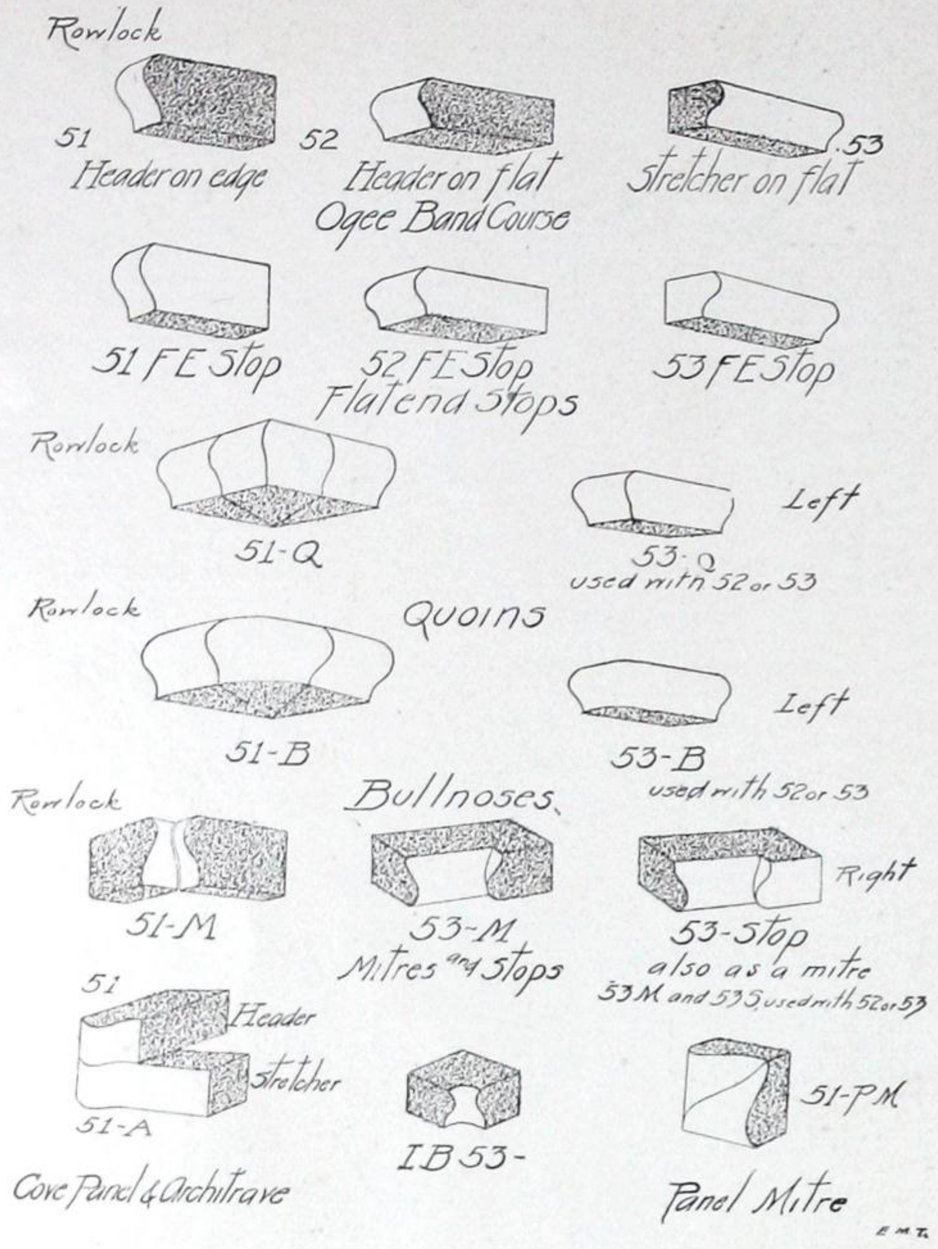
Mitres and Stops
43 M and 43 S used with 42 or 43

41
Header
Stretcher
41-A
Reveal back to wall glazed on order only
Cove Panel and Architrave

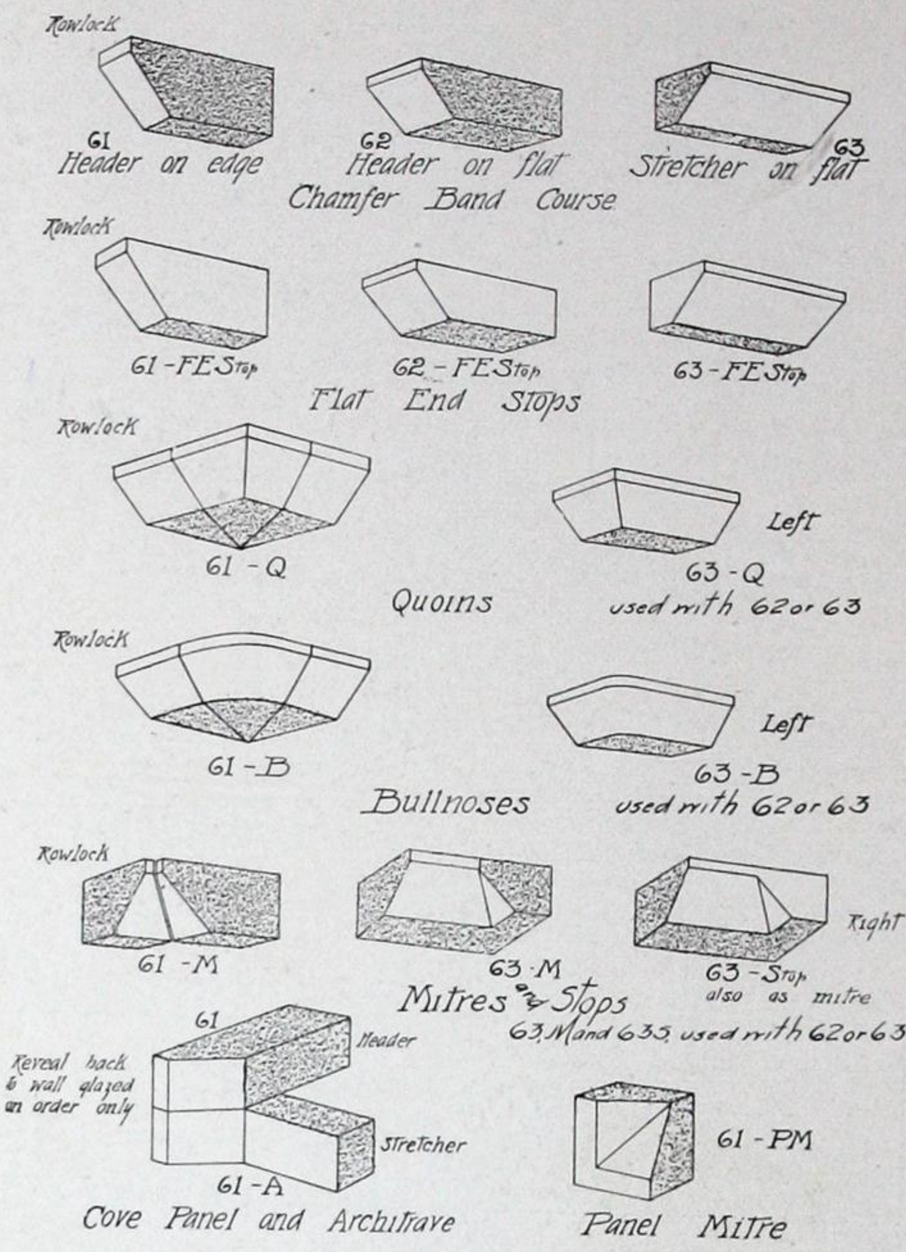
41 - PM
Panel Mitre

OGEE MOULD.

CONTINUED ON NEXT PAGE



OGEE MOULD.



CHAMFER MOULD.

BEAD MOULD.

STUDY OF A WINDOW OPENING.

STUDY OF A BASE AND CAP COURSE.

NATIONAL BUILDERS' SUPPLY AND ENAMEL CONCRETE BRICK CO. LIMITED

HEAD OFFICE: 30 ST. FRANCOIS XAVIER STREET,
MONTREAL, QUE.

PRODUCTS. We manufacture ENAMEL CONCRETE BRICK, and produce them in Pure White, Light Gray, Dark Gray, Cream, Light Buff, Dark Buff, Light Brown, Dark Brown, Light Red, Dark Red, Light Green, Dark Green, Light Blue, Dark Blue, and Black.

ENAMEL CONCRETE BRICK may be made in any colour or shade and "Faced" to give an Enamel, Pressed or Moss finish.

ENAMEL CONCRETE BRICK have been tested and examined by the leading architects and engineers throughout the United States and Canada. They stand a greater test for strength and fireproofing qualities than clay brick, and grow stronger and more impervious to weather conditions with age.



NORTH-WEST TRUST BUILDING, VANCOUVER, B.C.
J. P. Matthewson & Son, Architects; Dominion Construction and Supply Co., Contractors.



WALKER BANK BUILDING, SALT LAKE CITY.
Earnest & Young, Architects, St. Louis; Jas. Stewart & Co., Contractors, St. Louis.



CAROLINA COURT BUILDING, VANCOUVER, B.C.
J. P. Matthewson & Son, Architects; Dominion Construction and Supply Co., Contractors.

ENAMEL FACING. The Glossy finish of ENAMEL CONCRETE BRICK is produced by a process which we control exclusively under license through the original patents.

The facing, which is amalgamated with the backing under enormous pressure, is impervious to moisture, and will "rain wash," thus requiring no cleansing, even in the lighter tints, after the bricks are in the wall.

OUR PLANT. We have installed at Mascouche, Que., a complete set of machinery and other appliances for making ENAMEL CONCRETE BRICK, which has a capacity of over 30,000 in ten hours. These machines work automatically, so that our brick are handled but twice until stored ready for market.

CURING. The curing of ENAMEL CONCRETE BRICK is accelerated by steam treatment, which produces perfect crystallization and in the shortest possible time. No burning is necessary; therefore, no broken or distorted bricks are produced, and a great saving of time is effected.

CO-OPERATION. We invite architects and engineers to visit our Office and inspect our products, as we believe we have a Brick which will fill a need long-felt by those who wish to produce artistic effects as well as durable construction.

HYDRAULIC-PRESS BRICK COMPANY

Hy-tex Brick

LARGEST MANUFACTURERS OF FACE BRICK IN THE WORLD,

ST. LOUIS, MISSOURI.

PRINCIPAL CANADIAN AGENCIES:

W. A. FREEMAN CO., LTD., Cor. Hunter & Ferguson Aves.	Hamilton, Ont.
MESSRS. HAYMAN & MILLS	London, Ont.
ALEX. BREMNER, LTD., 100 Bleury Street	Montreal, Que.
STANDARD SUPPLIES, LTD., 96 Bank Street	Ottawa, Ont.
PRUNEAU & CIE., 140 rue St. Pierre	Quebec, Que.
BLACK BUILDING SUPPLY CO., LTD., 201 Mail Building	Toronto, Ont.
N. J. DINNEN & CO., LTD.	Winnipeg, Calgary, Vancouver and Victoria.
NORTHERN SUPPLY COMPANY	Edmonton, Alta.
TWIN CITY SAND COMPANY	Fort William, Ont.
J. B. TURNEY & CO.	Lethbridge, Alta.
J. B. TURNEY & CO.	Medicine Hat, Alta.
GENERAL BUILDERS SUPPLY CO.	Moose Jaw, Sask.
MCKENZIE & THAYER	North Battleford, Sask.
TWIN CITY SAND CO.	Port Arthur, Ont.
BOWMAN SUPPLY COMPANY	Prince Albert, Sask.
ROBSON SUPPLY COMPANY	Regina, Sask.
MCKENZIE & THAYER	Saskatoon, Sask.

AMERICAN BRANCH OFFICES:

BALTIMORE, MD.: Title Building.
CHICAGO, ILL.: Chamber of Commerce Building.
CLEVELAND, OHIO: Schofield Building.
DAVENPORT, IOWA: Putnam Building.
DUBOIS, PA.: Hy-tex Building.
INDIANAPOLIS, IND.: Board of Trade Building.
KANSAS CITY, MO.: Rialto Building.
MINNEAPOLIS, MINN.: 211 S. Fourth St.
NEW YORK, N.Y.: 481 Fourth Ave.
OMAHA, NEB.: Woodmen of the World Bldg.
PHILADELPHIA, PA.: Real Estate Trust Bldg.
TOLEDO, OHIO: Ohio Building.
WASHINGTON, D.C.: Colorado Building.

PRODUCTS. HY-TEX BRICK: FACE BRICK, FRONT BRICK, MATT BRICK, PRESSED BRICK, IMPERVIOUS BRICK, ORNAMENTAL BRICK, FLASHED BRICK, SPOTTED BRICK, SPECKLED BRICK, MOTTLED BRICK, IRONSPOT BRICK, MOULDED BRICK, including BLACKSTONES, BOKARAHS, HYDRAULIC, MENOMINEE SAND MOULDS, VELOURS, WASHINGTON GRAYS, WINSLOW IRONSPOTS, etc.

ENAMELLED BRICK: HY-NAMEL BRICK, HY-NAMEL COURTS, and PORCELAIN BRICK.

SALT GLAZED BRICK.

TRADE-MARK. "Hy-tex" is the only name which stands for universal quality in brick, and for that only. All other brick trade-marks mean some one colour or some one texture. The Hy-tex trade-mark means simply best brick. And there's a Hy-tex Brick in in every colour and every texture.

COLOURS AND TEXTURES. As stated above, Hy-tex Brick is made in every colour and every texture known to brick-burning. Colour cards and samples sent on request.

SIZES. Standard, Roman, Norman, English and Special Sizes.

CO-OPERATIVE SERVICE. It is our aim to deliver a service in keeping with the quality of our products. Our agencies and managers are always glad to co-operate with architects on special brick problems. Exhibit rooms are maintained at all our offices to show effects that can be produced with Hy-tex Brick laid in various bonds and mortars.

CONTINUED ON NEXT PAGE

HYDRAULIC-PRESS BRICK COMPANY

Hy-namel Brick

REG. U.S. PAT. OFF.

LARGEST MANUFACTURERS OF FACE BRICK IN THE WORLD,
ST. LOUIS, MISSOURI.

For List of Agencies see Preceding Page.

PRODUCTS. Hy-namel Brick, Hy-namel Courts, Porcelain Brick.

QUALITY. Hy-namel Brick has set a standard of quality and durability unapproached by any enamelled brick of foreign or domestic manufacture.

COLOURS. White, Cream, Blue, Green, Brown, Speckled and Transparent Glazes.

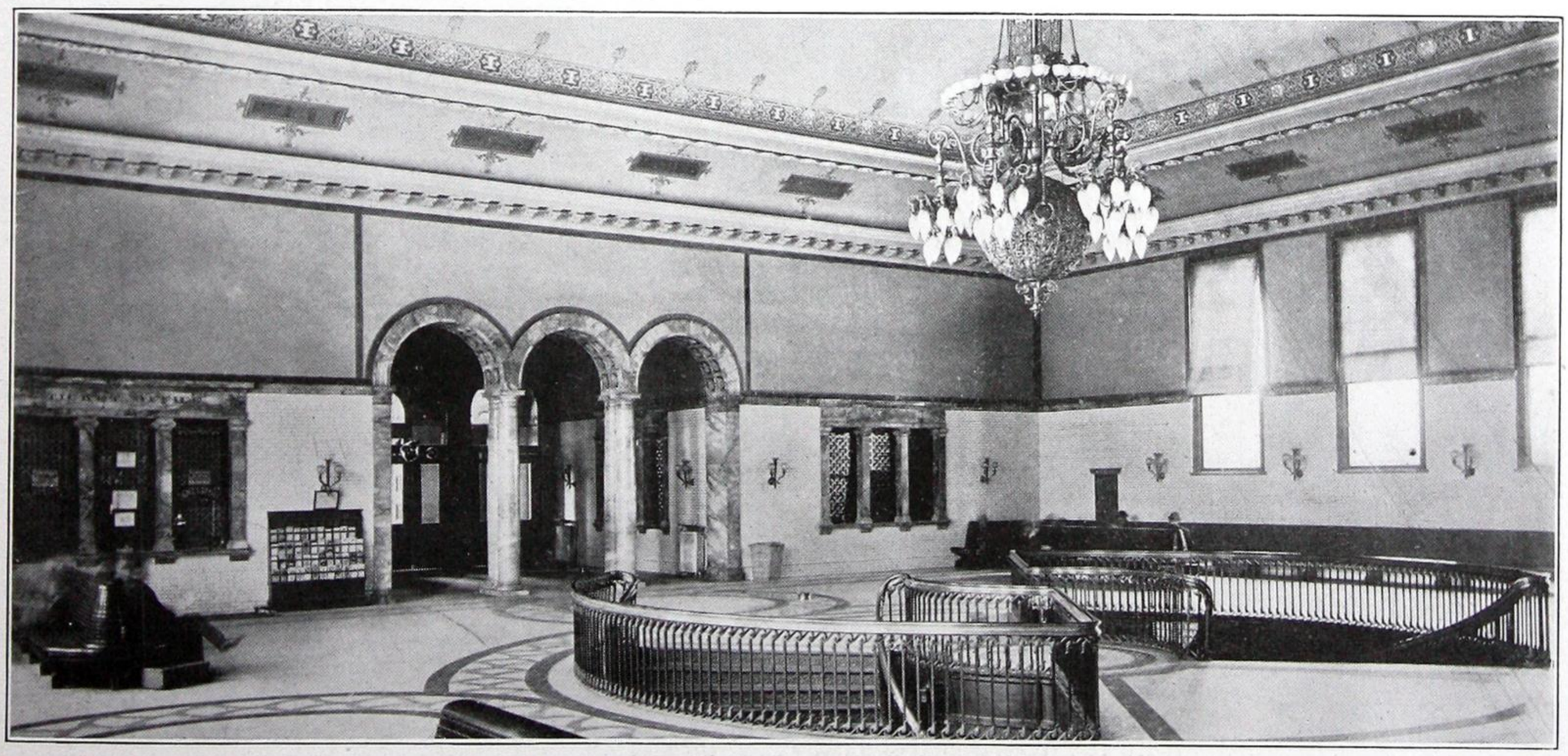
SIZES. Standard, Roman, Norman, English and Special Sizes.

MOULDED SHAPES. We make such a wide variety of moulded brick that we feel it necessary to refer you to our moulded brick catalogue, which will be sent on request.

HY-NAMEL COURTS. Hy-namel Courts are in every way equal in wearing quality to Hy-namel Brick. They are not, however, so carefully graded as to small imperfections, but they are in every way suitable for courts, light shafts, etc.

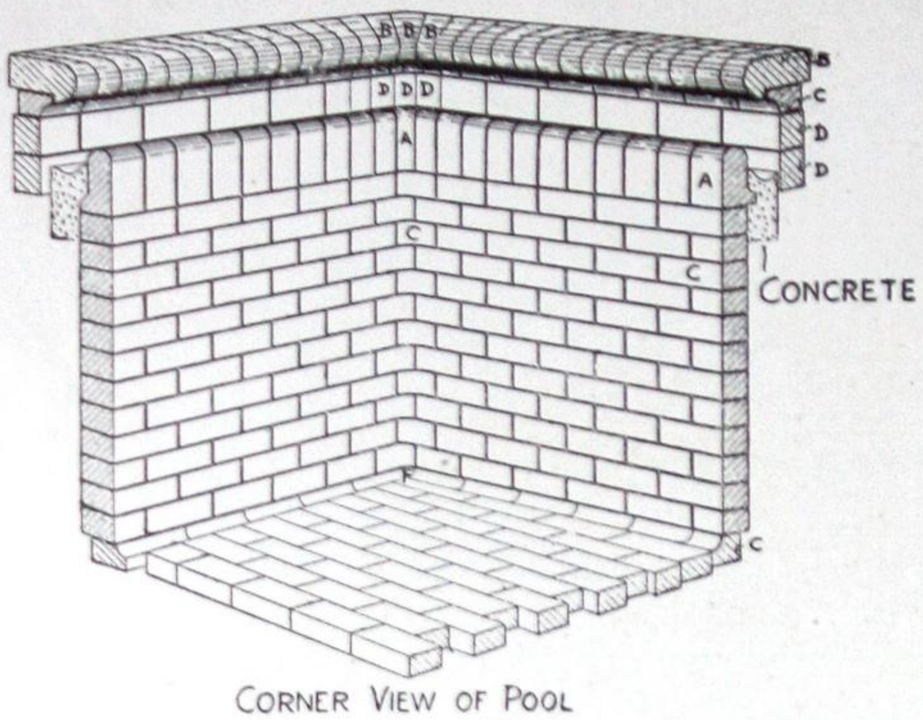
GUARANTEE. We guarantee that Hy-namel Brick will not craze, scale off or discolour, under any climatic conditions.

REFERENCES. It is not any one particular building faced with Hy-namel Brick that we submit as evidence of Hy-namel quality, but all of the hundreds of buildings in which it has been used. These buildings, some of which have been exposed to all sorts of weather for years, retain their original appearance.

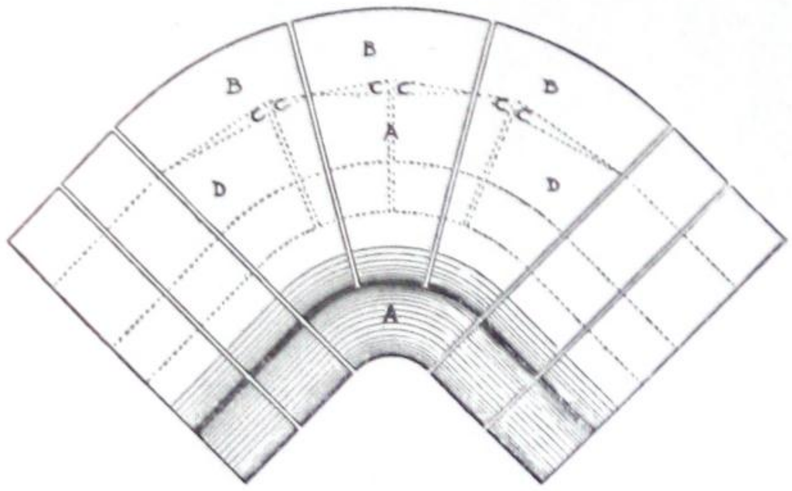


Chicago, Burlington and Quincy Railroad Station, Omaha, Nebraska.
Showing Hy-namel Brick which has been in use more than sixteen years, and has no trace of cracking, scaling or discolouring.

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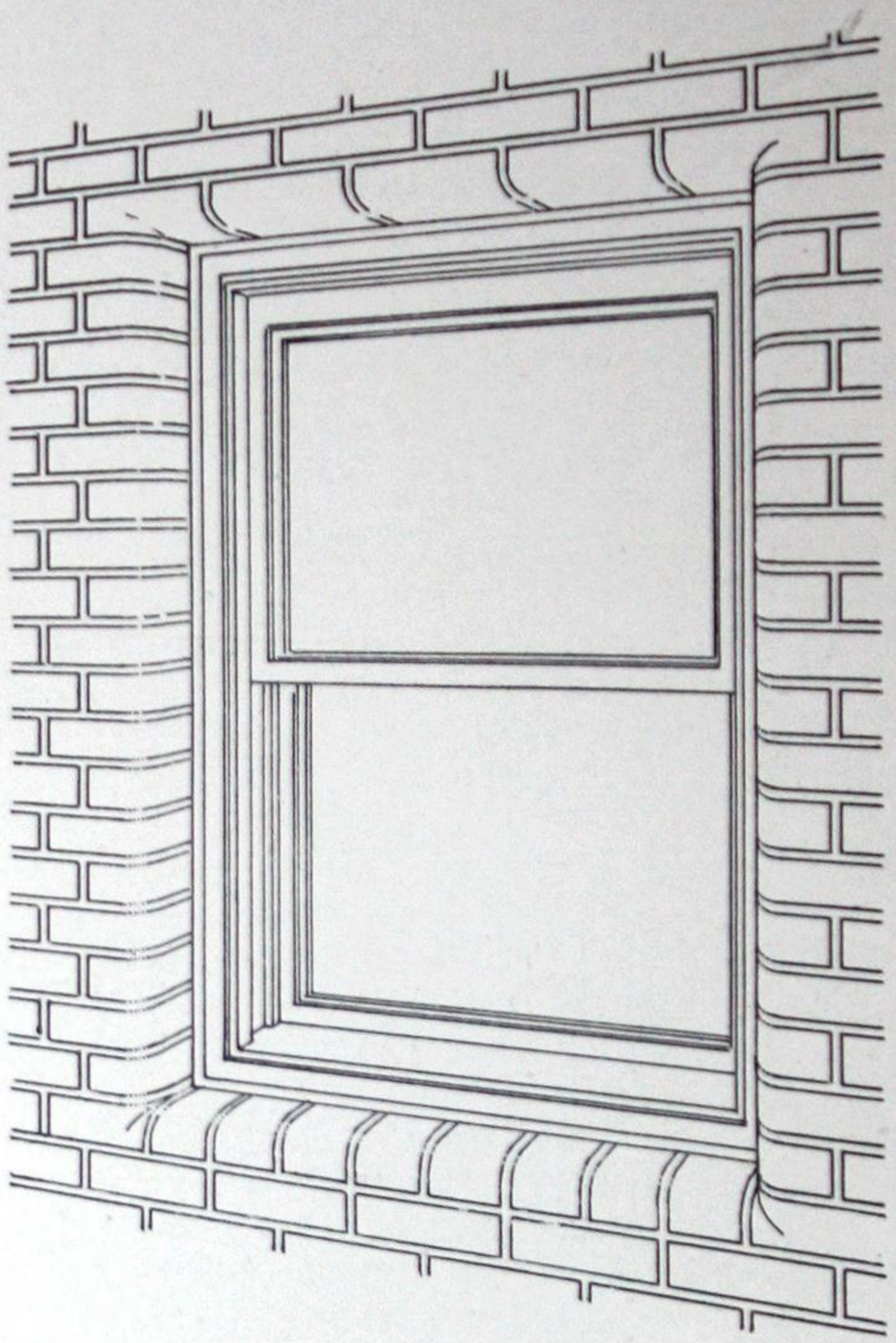


CORNER VIEW OF POOL



PLAN VIEW AT CORNER OF HAND RAIL

CORNER CONSTRUCTION IN SWIMMING-POOL OF HY-NAMEL BRICK.



HY-NAMEL MOULDED BRICK IN INTERIOR OF WINDOW.

DETAILS OF HY-NAMEL BRICK CONSTRUCTION.

HY-TEX SALT GLAZED BRICK.

SALT GLAZED BRICK. The development of Hy-tex Salt Glazed Brick now offers the architect an impervious and sanitary facing material for exterior and interior work where a sanitary brick is desired, but where the appropriation does not warrant the use of an enameled brick.

DESCRIPTION. Hy-tex Salt Glaze is an impenetrable and indestructible Salt Glaze on an impervious, vitrified body, impervious to moisture, germ and dust-proof, non-staining and everlasting. The Glaze will not craze, crack, scale or peel under the most severe climatic conditions.

COLOURS. Hy-tex Salt Glazed Brick are assorted into eight shades, ranging from Light Straw through Golden Browns to Mahogany shades.

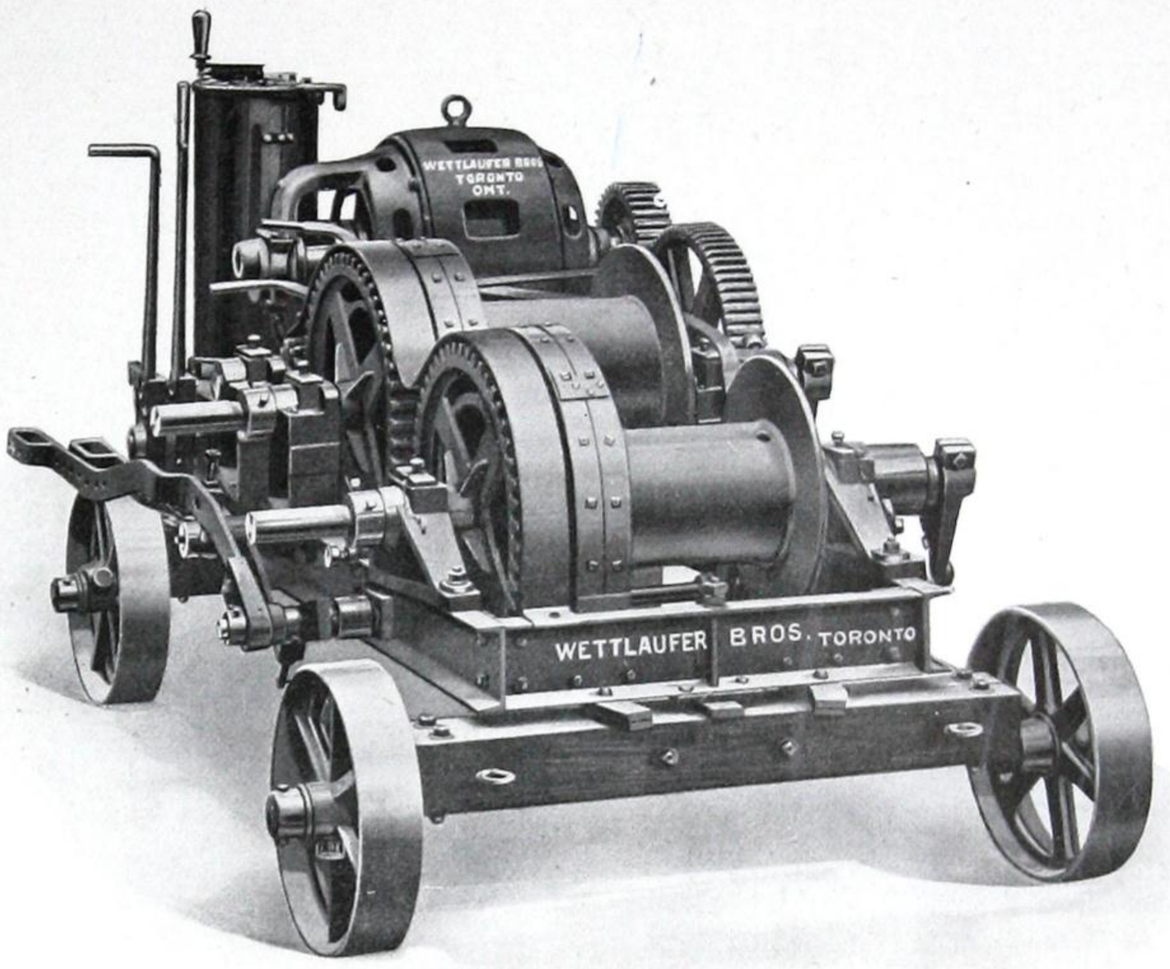
WETTLAUFER BROS.

178 SPADINA AVENUE,
TORONTO, ONT.

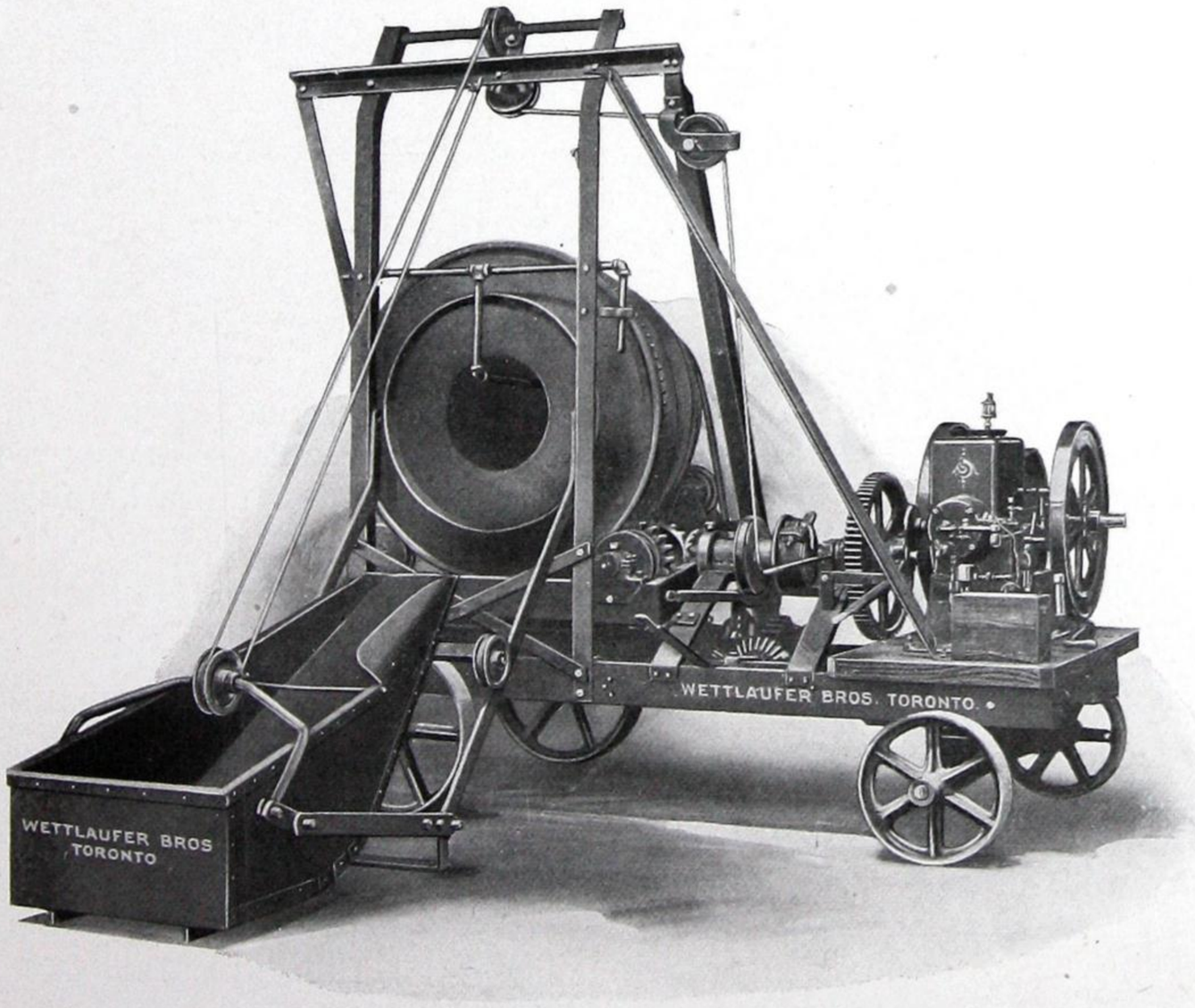
BRANCHES:
WETTLAUFER BROS., 316 Lagauchetiere St., Montreal, Que.; Halifax, N.S.
A. R. WILLIAMS MACHINERY CO., St. John, N.B.
J. L. LACHANCE, 363 St. Paul St., Quebec, Que.
CANADIAN BRITISH ENGINEERING CO., 324 Smith St., Winnipeg, Man.
A. E. HODGERT, Regina, Sask.

BRANCHES:
R. F. MANCILL, 117 10th Ave. E., Calgary, Alta.
A. E. HAHNAN, 117 10th Ave. E., Edmonton, Alta.
THE HALLMAN MACHINERY CO., 374 Alexander St., Vancouver, B.C.
MAYSMITH & LOWE, 1057 Wears St., Victoria, B.C.

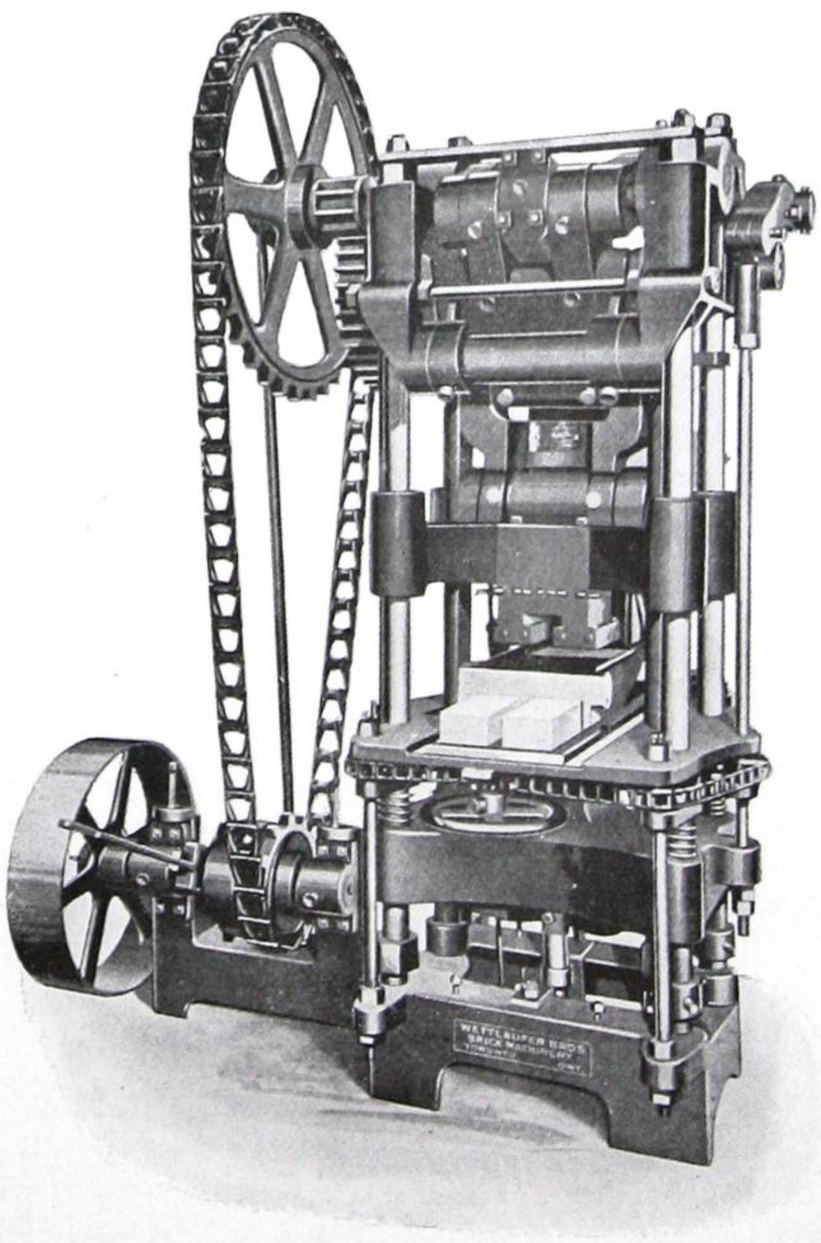
PRODUCTS. We are manufacturers of CONCRETE MIXERS, PAVING MIXERS, STANDARD MIXERS, CONTINUOUS MIXERS, HAND MIXERS, TILTING DRUM MIXERS, STATIONARY DRUM MIXERS, ROAD TRACTION MIXERS, GASOLINE, ELECTRIC and STEAM HOISTS, POWER PRESS BRICK MACHINES, HAND BRICK MACHINES, STATIONARY and MOUNTED CRUSHERS, ELEVATORS, BELT CONVEYORS, REVOLVING SCREENS, TILE MACHINES, BLOCK MACHINES, GASOLINE ENGINES, MOTORS, STEAM ENGINES, BOILERS, SIDEWALK TOOLS, TILE CARS, BRICK CARS, DIAPHRAGM, CENTRIFUGAL and STEAM PUMPS, STEAM SHOVELS with Travelling Motion and Clam Shell Bucket, AUTOMATIC TRENCH MACHINES, STEAM DIGGERS (capacity 150 yards to 5,000 yards per day), STEEL DUMP CARS, CONTRACTORS' and BUILDERS' SUPPLIES, ETC.



HEAVY CONSTRUCTION DOUBLE DRUM ELECTRIC HOIST, WITH REVERSIBLE VARIABLE SPEED CONTROLLER AND MOTOR FOR HYDRO, NIAGARA AND DIRECT CURRENT.



NO. 4 TILTING DRUM HEART-SHAPED MIXER.
Capacity, 12 cubic feet.



POWER BRICK PRESS.
Capacity, 12,000 to 15,000 for Cement, Clay Lime and Sand.

INFORMATION. Prices and full information upon request.

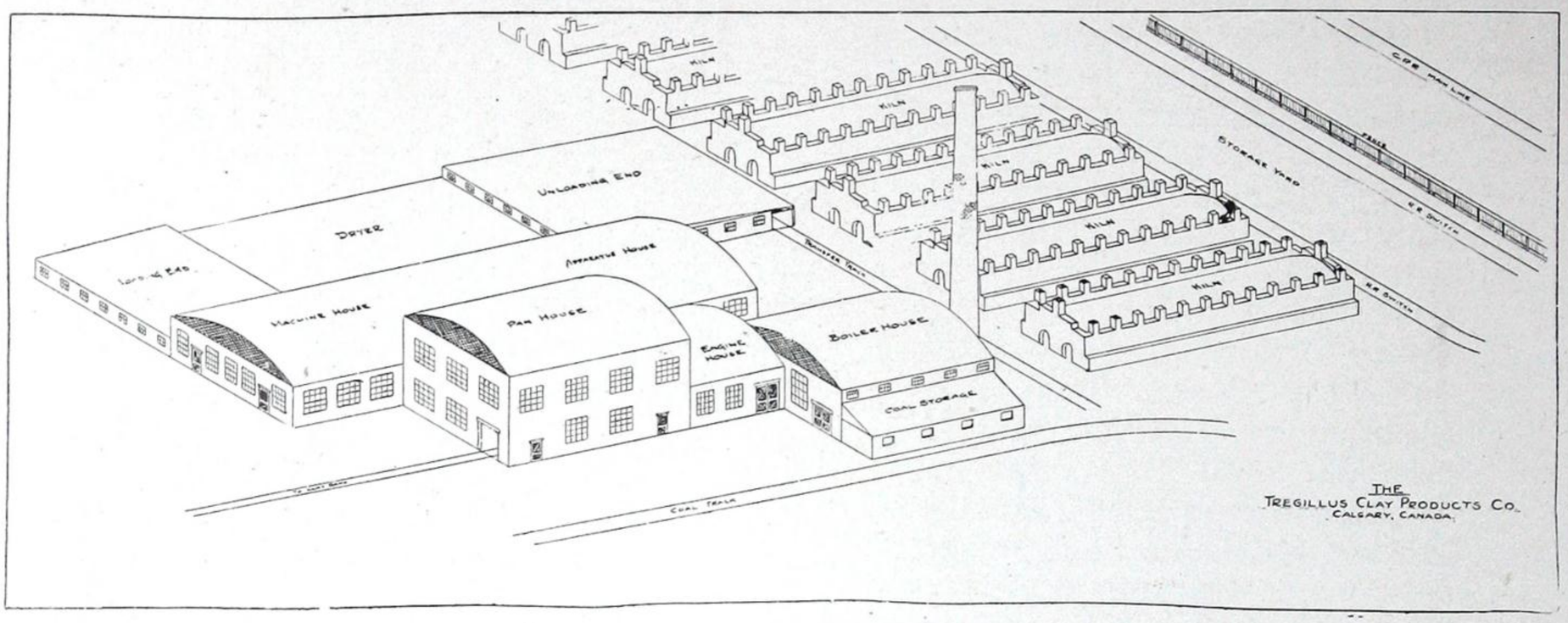
TREGILLUS CLAY PRODUCTS LIMITED

HEAD OFFICE: 438 LOUGHEED BUILDING,
CALGARY, ALTA.

OFFICES:
304 ALEXANDRA BLDG.,
EDMONTON, ALTA.

OFFICES:
3 BANNER BUILDING,
REGINA, SASK.

PRODUCTS. Manufacturers of FACE BRICK, PAVING BRICK, FIREPLACE TILES, WALL and FLOOR TILES.



TREGIL ROUGHS. TREGIL ROUGHS are the highest quality face brick made in Western Canada. These are stiff mud, hard-burned bricks, with a rough texture face. The stiff mud process of face brick making is the only one that produces hard, impervious, beautifully-coloured, lasting front bricks.

COLOURS. TREGIL ROUGHS represent the most modern, artistic type of brick for facing purposes. There is a range of colours embracing

Light Reds.
Dark Red.
Chocolate.
Purple.
Buff.
Red Hearts.
Golden Brown.
Dark Brown.
Gun Metal.
Green.

The variety of colours enables the builder to obtain the individual note in the exterior. TREGIL ROUGHS Full Range is a careful blending of harmonious shades to produce the rich Turkish rug effect that is justly popular among the more artistic architects. We are ready to blend according to the tone effect demanded by surroundings. This is the only factory between the Great Lakes and the Mountains capable of supplying rich colours in more than two distinct shades.

TEXTURE. A brick is a colour and surface unit. The good architect demands life and variation in a brick surface. A rough-textured surface softens the glare, wards off monotony, and brings out the colour and design of brickwork. Our TREGIL ROUGHS are medium rough, will not catch dust, and are not fantastic. Such rough texture will appeal to the owner more and more every year.

PAVING BLOCKS. We manufacture paving brick and paving block. These will fulfil any moderate requirement in pavement work. They are being used by the CITY OF CALGARY. We supply the best quality at moderate prices.

THE OHIO QUARRIES COMPANY

CITIZENS BUILDING,

CLEVELAND, OHIO.

PRODUCT. We produce "BUCKEYE GRAY" SANDSTONE, a stone that is particularly noted for its uniformity of texture and colour. In colour it does not have the dull or lifeless appearance of many stones or imitations of stone.

Our stone is about 95% silica, and it is, therefore, a splendid fireproof material, much superior to Granite, Limestone or Marble in this respect.

Crushing strength: 9,000 pounds per square inch.



LIEUTENANT-GOVERNOR'S RESIDENCE, TORONTO.

PRICE. The price is uniform and well known to contractors generally, so that architects need have no hesitation in specifying "BUCKEYE GRAY" SANDSTONE from the Ohio Quarries Company, Cleveland, Ohio; the price will not be increased by reason of such specification.

Many discriminating architects give us this exclusive specification.

SAMPLES. We shall be pleased to furnish architects, contractors, etc., with samples and other information upon request.



POST OFFICE, MANSFIELD, OHIO.

REFERENCES. The following are a few of the buildings in which "BUCKEYE GRAY" SANDSTONE was used:

Carnegie School, Toronto; School of Higher Education, Montreal; Oakwood High School, Toronto; Lieutenant-Governor's Residence, Toronto (cut stone trimmings); General Electric Co. Bldg., Toronto; Memorial Hall, University of Toronto; Main City Library, Toronto; Osgoode Hall, Toronto; Lansdowne School, Toronto; Riegal School, Toronto; Homewood School, Toronto; Imperial Bank of Canada, Winnipeg; N.W. Travellers' Commercial Association Bldg., Calgary; First Church of Christ, Scientist, Ottawa; numerous Post Offices, Court Houses, Banks, Churches, and other prominent public and private buildings in the United States.

THE ROMAN STONE CO., LIMITED

FOR QUEBEC:
T. A. MORRISON & CO.,
204 St. James St., Montreal.

HEAD OFFICE:
1060 Yonge Street,
TORONTO.

PATTERN SHOP:
Foundry and Stone Yard,
WESTON, ONT.

PRODUCTS.

ROMAN STONE to architects' details. "ROMAN STONE" is a registered trade mark. The process is protected by the Stevens patent and has been brought to great perfection.

The stone is Cast in sand moulds, and is composed of crushed marble and selected cement, in the proportion of 3½ to 1, and stands a test of over one ton to the square inch.

It is dressed and tooled after maturing.



Graphic Arts Building, Toronto. F. S. Baker, Architect.

ADVANTAGES.

Over Natural Dressed Stone.

"Roman Stone" can be reinforced to carry any load.

It can be easily set, as hooks are cast in the top of each stone.

Ashlar can be firmly bonded by wall ties cast in the backs of the stones. It has no seams, stains, flint or other imperfections. We make no second grade of stone.

Over Other Artificial Stone, which is made by the "dry process," being rammed into wooden moulds.

"Roman Stone" can be cut or carved, as it is the same quality throughout.

"Roman Stone" is perfectly crystalized, on account of abundance of water in the mixture, which runs into the sand moulds keeping the stone saturated for days.

"Roman Stone" has greater density and toughness, owing to the method of casting in sand.

Machine Tooling is possible after the stone is matured and gives a better finish than tooling secured by wooden moulds.

COST.

The price of "ROMAN STONE" is practically always lower than that of cut natural stone, sometimes being as much as 50% less. The greatest difference is found in a design which calls for repetition of complicated or ornamental details.

Samples sent on request. Estimates given promptly. Send plans.

ATLANTIC TERRA COTTA COMPANY

1170 Broadway, NEW YORK, N.Y.

Largest Architectural Terra Cotta Company in the World.

Cable Address—"Cottaterra," New York, via Western Union or Commercial Cable.

Plant 1. Tottenville, S.I., N.Y.
Plant 2. Perth Amboy, N.J.
Plant 3. Rocky Hill, N.J.
Plant 4. Perth Amboy, N.J.
(*Plant* 4. *Faience only.*)

Successor to—
The Atlantic Terra Cotta Co.
Excelsior Terra Cotta Co.
Perth Amboy Terra Cotta Co.
Standard Terra Cotta Works.

Canadian Agencies:
Calgary, Alberta. Montreal, Quebec.
Toronto, Ontario. Winnipeg, Manitoba.
And Buffalo, N.Y., U.S.A.

PRODUCTS. Architectural Terra Cotta; Faience; Garden Pottery of exceptionally high grade.

Architectural Terra Cotta.—Lustrous glazed, matt glazed, and ordinary surface in any one of many colours.

Faience.—Polychromatic combinations in great variety of soft and bright colours.

Garden Pottery.—Garden vases, jars, sundial pedestals, etc., in many distinctive colours.

APPLICATION. Atlantic Terra Cotta is used for exterior and interior construction and decoration. It possesses every essential quality of a practical structural material, and possibilities for modelling and colour treatment that are unique. It may be used exclusively or in connection with any other building material, matching or contrasting in surface, texture and colour.

QUALITIES. Practical.—Atlantic Terra Cotta is absolutely unimpaired by fire or weather; it stands any necessary compression when properly constructed, and is permanently durable.

Decorative.—It is easily modelled in architectural design or figure work, and the possibilities for colour treatment are practically unlimited.

Mechanical.—Accurate alignment and close-fitting joints, obtained by machine grinding, are prominent characteristics of Atlantic Terra Cotta.

MODELLING. The Atlantic Modelling Departments are experienced in the various styles of architectural ornament and fully able to execute figure work. Atlantic modelling has character and strength, is free from constraint and thoroughly consistent with the desired precedent. The models in a finished state are subject to the architect's revision.

COLOURS. Standard.—Comprises the grays, reds, browns, buffs and granite colours, with ordinary finish (similar to smooth limestone).

Glaze.—Lustrous or matt surface, comprises white and the various shades of cream. The lustrous finish is similar to polished marble, and the matt to smooth but unpolished marble.

Faience or Polychrome.—Comprises all the brighter colours—greens, yellows, blues, etc. Faience colours are made in several textures, may be used in any desired combination, and are interchangeable with the other two classes. Atlantic bright gold is a unique Terra Cotta colour, and makes a permanent gold commercially possible.

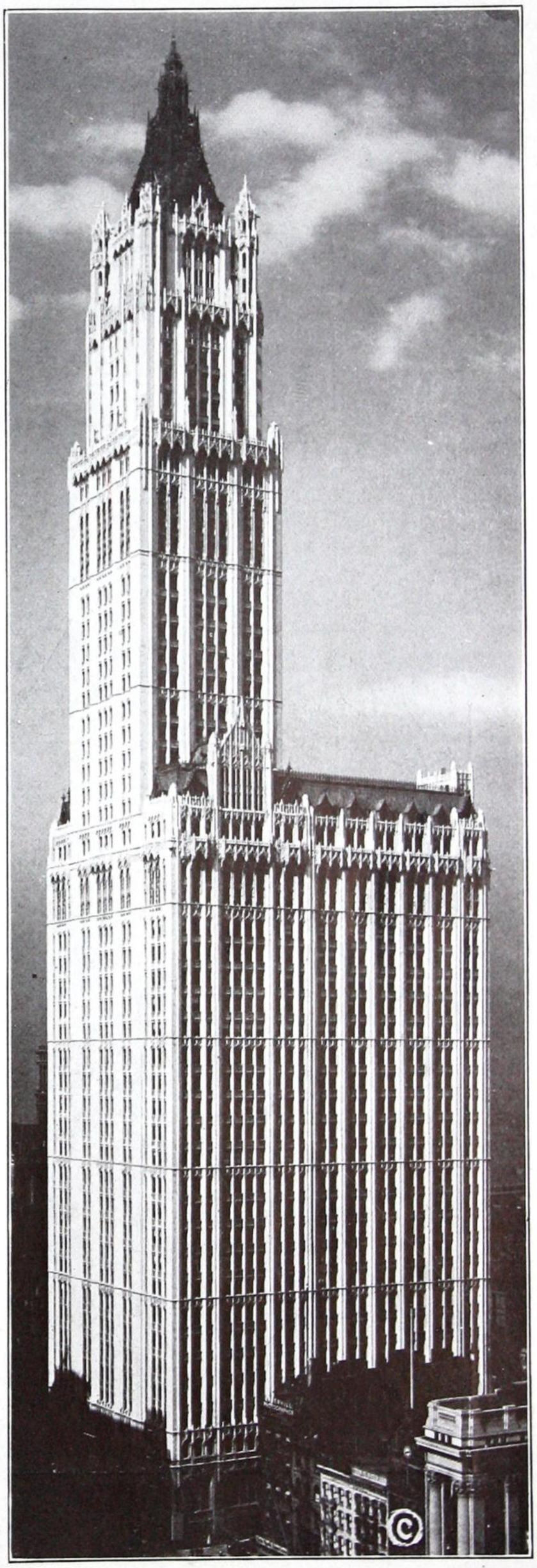
Softness of tone and texture gives Atlantic Faience colours the distinction of the unusual without suggestion of the bizarre. There are few fixed standards; generally new shades are made according to the architect's ideas for every contract of importance.

DELIVERY. Shipments are made *on time* according to prearranged schedule dates. The efficiency of Atlantic service greatly discounts the possibility of delayed deliveries.

FACILITIES. The varying size of the four Atlantic factories in the North insures the same high quality and excellent service on large and small contracts.

INFORMATION. A card to the Atlantic Terra Cotta Company, New York, will bring illustrated booklets and other information.

COST. Every piece of Atlantic Terra Cotta is made for the building in which it is to be used, and is designed to occupy a certain place in the building. Prices are based entirely upon estimates made from the architect's plans and specifications. Plans forwarded for estimate to main or any branch office receive immediate attention. In general, the price of Atlantic Terra Cotta will range from twenty to fifty per cent. lower than other high-class structural materials, and in the case of a design that calls for extensive or intricate modelling the saving will be particularly great.



Copyright, B. G. Mitchell, N.Y.
Woolworth Building, New York.
Entirely of Atlantic Architectural Terra Cotta on all elevations for fifty-two complete storeys.

THE NORTHWESTERN TERRA COTTA COMPANY

MAIN OFFICE AND WORKS: 2525 CLYBOURN AVE.

CHICAGO, ILL., U.S.A.



Canadian Pacific Railway Building, Toronto, Ontario.



ALL FOUR ELEVATIONS
OF THIS MAGNIFICENT
BUILDING ABOVE SECOND
STOREY—CREAM COLOURED
SATIN FINISH
"NORWETA" ENAMEL
TERRA COTTA

THE HIGHEST OFFICE BUILDING IN THE BRITISH EMPIRE

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THE NORTHWESTERN TERRA COTTA COMPANY
CHICAGO, ILL.

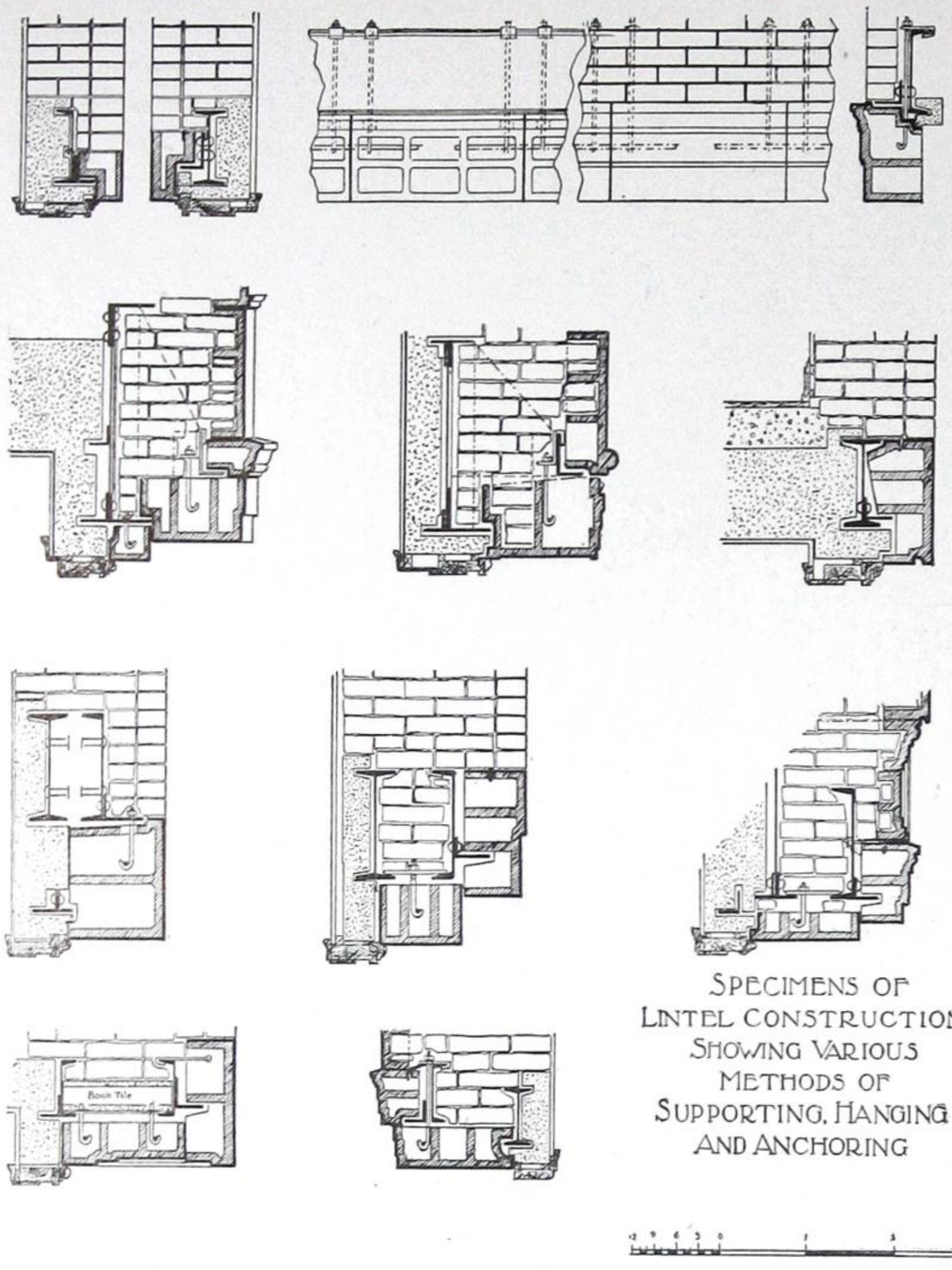


WINNIPEG ELECTRIC BUILDING, WINNIPEG, CANADA.

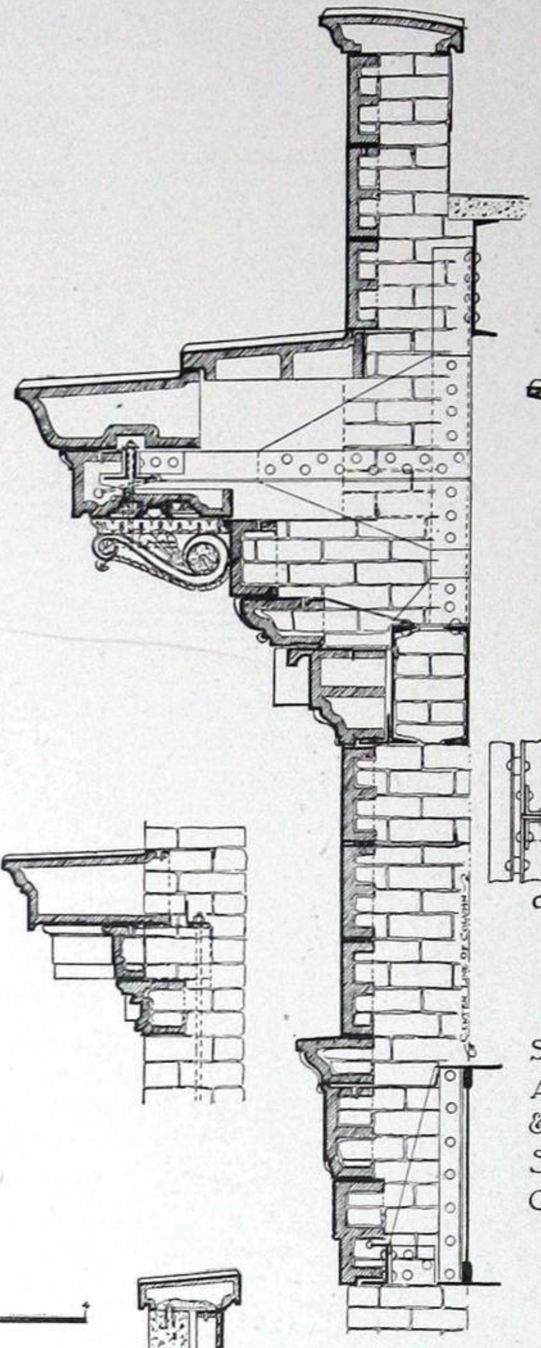
C. S. FROST AND PRATT & ROSS, Architects.

Entire fronts faced with "Norweta" Terra Cotta from above second story cornice to skyline.
Color—a Red Standard Granite; courses alternating light and dark.

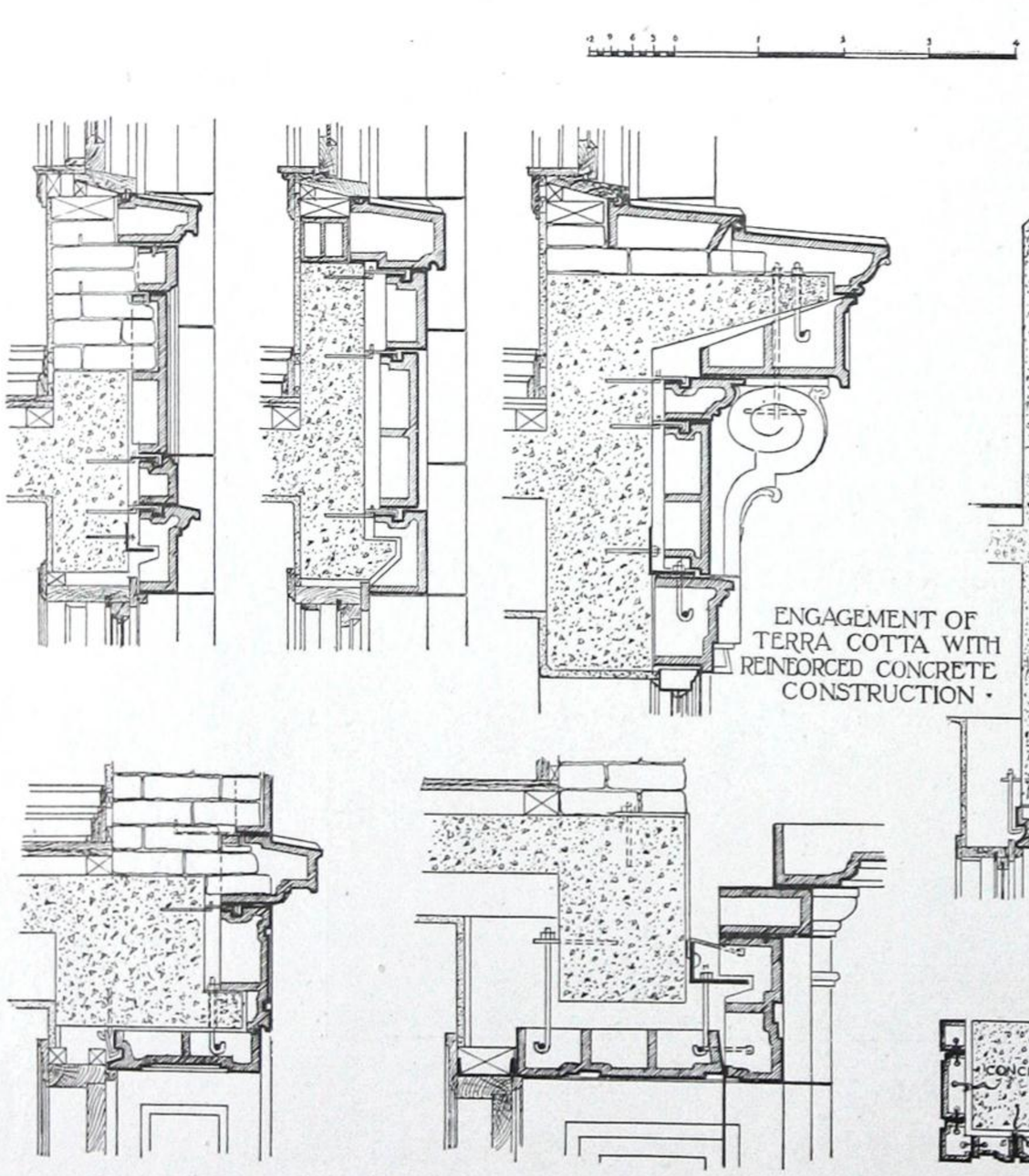
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SPECIMENS OF LINTEL CONSTRUCTION SHOWING VARIOUS METHODS OF SUPPORTING, HANGING AND ANCHORING



SPECIMENS ARCHITRAVES & CORNICES FOR SKELETON CONSTRUCTION.



ENGAGEMENT OF TERRA COTTA WITH REINFORCED CONCRETE CONSTRUCTION.

CONTINUED ON NEXT PAGE

THE NORTHWESTERN TERRA COTTA CO.

Presents the following brief and safe Specification for Architectural Terra Cotta:

GENERAL CONDITIONS. Specifications for the Terra Cotta for.....
located at.....

All Terra Cotta work for this building is shown as coloured {GREEN / RED} on the General Drawings, and this Contractor shall furnish and deliver {F.O.B. Cars or Boat / At Building / At Building and Erect} All Terra Cotta thus shown.

All material and workmanship must be strictly first-class and in accordance with General Drawings, Details and Specifications, and the absolute durability of the material must be guaranteed; it must be burned as hard as the Standard Sample of the Northwestern Terra Cotta Company, and must have webs or partitions in sufficient number to give it a compressive strength equal to that of the brickwork.

Contractor for Terra Cotta to submit promptly to Architect for his approval or correction, diagrams showing all points involving special construction which may not be clearly shown on Architect's drawings, as, for instance, jointing, bonds, bed anchoring, engagements with structural iron or concrete, construction of cornices, railings and transoms, arrangement of gutters, downspouts, etc.

All work must be straight and true; all material must be laid out and fitted to exact sizes at the factory, with allowance made for joints of such thickness as directed by Architect or agreed upon; joints for enamel work to be ground on rubbing bed to a thickness not to exceed one-eighth of an inch. Full setting diagrams, showing corresponding marks on the Terra Cotta pieces, must be provided.

No discoloured, painted, cracked or spawled pieces will be accepted.

The colour to be uniform and according to sample selected. Contractor for Terra Cotta will, on request of Architect furnish such copies of shop drawings as may be desired by other Contractors whose work engages with Terra Cotta.

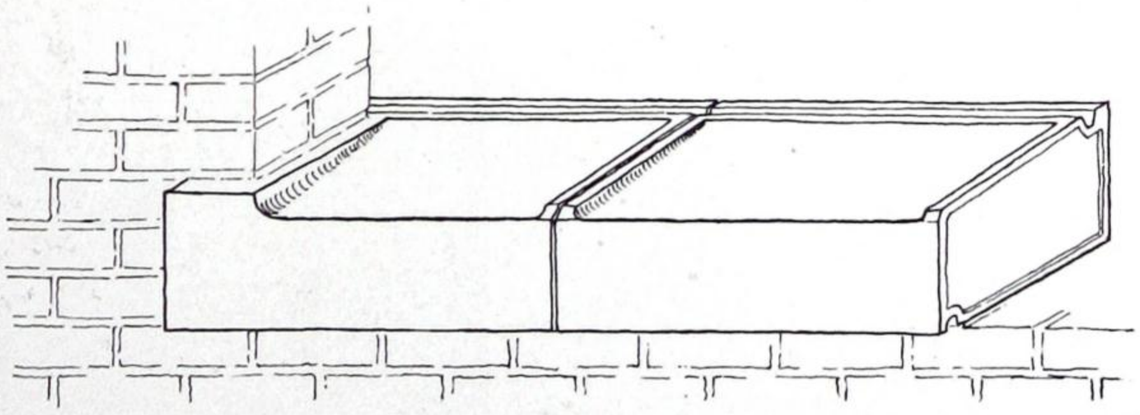
SURFACE. (Use the following terms to properly designate material desired).

BRIGHT OR GLOSSY ENAMEL.....Applying to a full bright, shiny surface.
DULL MATTE ENAMEL.....Applying to a dull surface.
STANDARD.....Applied to colours produced by natural body colour or surface sprayed with a clay coating.
POLYCHROME.....Where two or more colours are applied on enamel or standard surface; specifying 2, 3, 4 or more colours on same piece.
STANDARD GRANITE.....A mottled surface on Standard Terra Cotta (a granite effect).
GLAZED GRANITE.....A mottled glazed surface (a polished granite effect).

MODELLING. All ornaments to be modelled by experienced artists. Contractor for Terra Cotta shall promptly submit to Architect photographs of ornament for his approval or correction, or Architect will inspect ornamental work at factory.

SURFACE FINISH. On Bright Glossy or Dull Matte Enamel {Plain Surfaces—Usually smooth finish. / Mouldings and Washes—Usually smooth finish. / Background of Ornament—Smooth or Hatched.}
On Standard Terra Cotta—An irregular drove of eight lines to an inch.

JOINTING. Raised joints are the most suitable both for enamels and Standard material.



ANCHOR HOLES. Provide anchor holes necessary to secure the Terra Cotta firmly to structural steel, brickwork, concrete, etc.
All wall and strap anchors to be cut and bent on scaffold and material for these to be supplied by Mason.

SETTING. Mason will provide and erect scaffolding, and deliver on scaffold all mortar required to set the Terra Cotta, and will furnish hoisting apparatus and power to raise Terra Cotta to required heights.

The Mason will fill and back up all the Terra Cotta when set in place on the wall, and will clean down all Terra Cotta, together with brickwork, when completed.

The Carpenter will do all centering required and protect with board covers the Terra Cotta set in place, where considered necessary in the judgment of the Superintendent.

NEW YORK ARCHITECTURAL TERRA COTTA COMPANY

ONE FACTORY—ONE MANAGEMENT—FOR 28 YEARS.

HIGH-GRADE ARCHITECTURAL TERRA-COTTA.

MAIN OFFICE AND WORKS:

401 VERNON AVENUE,

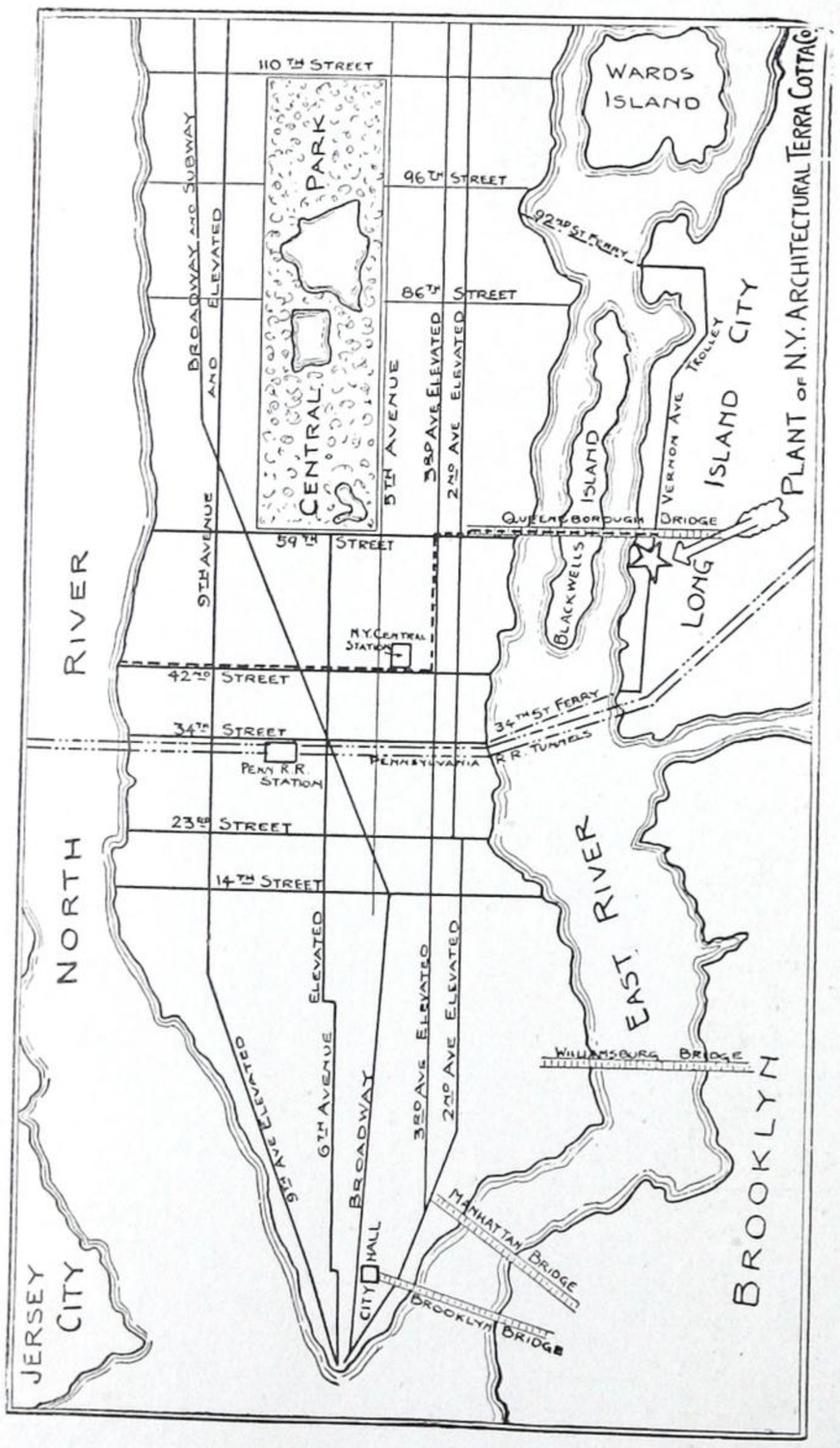
BOROUGH OF QUEENS, NEW YORK CITY, N.Y.

TELEPHONE: ASTORIA 700. CABLE ADDRESS: "TERRA-COTTA."

PRODUCTS. HIGH-GRADE ARCHITECTURAL TERRA COTTA, PLAIN, ORNAMENTAL and FAIENCE, for interior and exterior decoration and construction, in full variety of colors and finishes, including polychrome, full glaze, satin finish, matt glaze, semi-glaze and limestone. Pure white full glaze, cream matt and granite a specialty. All work absolutely non-absorbent and impervious under all atmospheric and climatic conditions.

QUALITY. We have but one grade, the best, and prefer to do work for particular people who want and demand that kind of service. All work is carefully inspected, properly fitted and joints machine-ground before leaving our factory.

LOCATION. One factory only—in the City of New York, on the Long Island side of the East River, and practically under the Queens Borough Bridge. Seven minutes from Third Avenue and Fifty-Ninth Street, Manhattan; fifteen minutes from Fifth Avenue and Forty-Second Street.





BIRKS BUILDING, VANCOUVER, BRITISH COLUMBIA.
SOMERVILLE & PUTNAM, ARCHITECTS.

DELIVERY. For distant operations we load rail shipments on freight cars at our own yard or water shipments from our private dock at factory site. All work is carefully packed in salt hay by expert packers, obviating likelihood of breakage.

FACILITIES. MEN.—The practical work and technical experience and research of twenty-eight years have produced for us a corps of experts upon every point in Terra-Cotta construction and finish.

MACHINERY.—Factory is equipped with the most modern and up-to-date equipment. Our kilns are oil-fired, so that even temperature in the burning is assured.

ESTIMATING. Our estimating department is not only prepared to figure with you, but stands ready to supply any special information that you may desire, to the end that, with our equipment and experience, plus your ideas, we may see if we cannot produce the effect that you wish to attain.

FEDERAL TERRA COTTA COMPANY

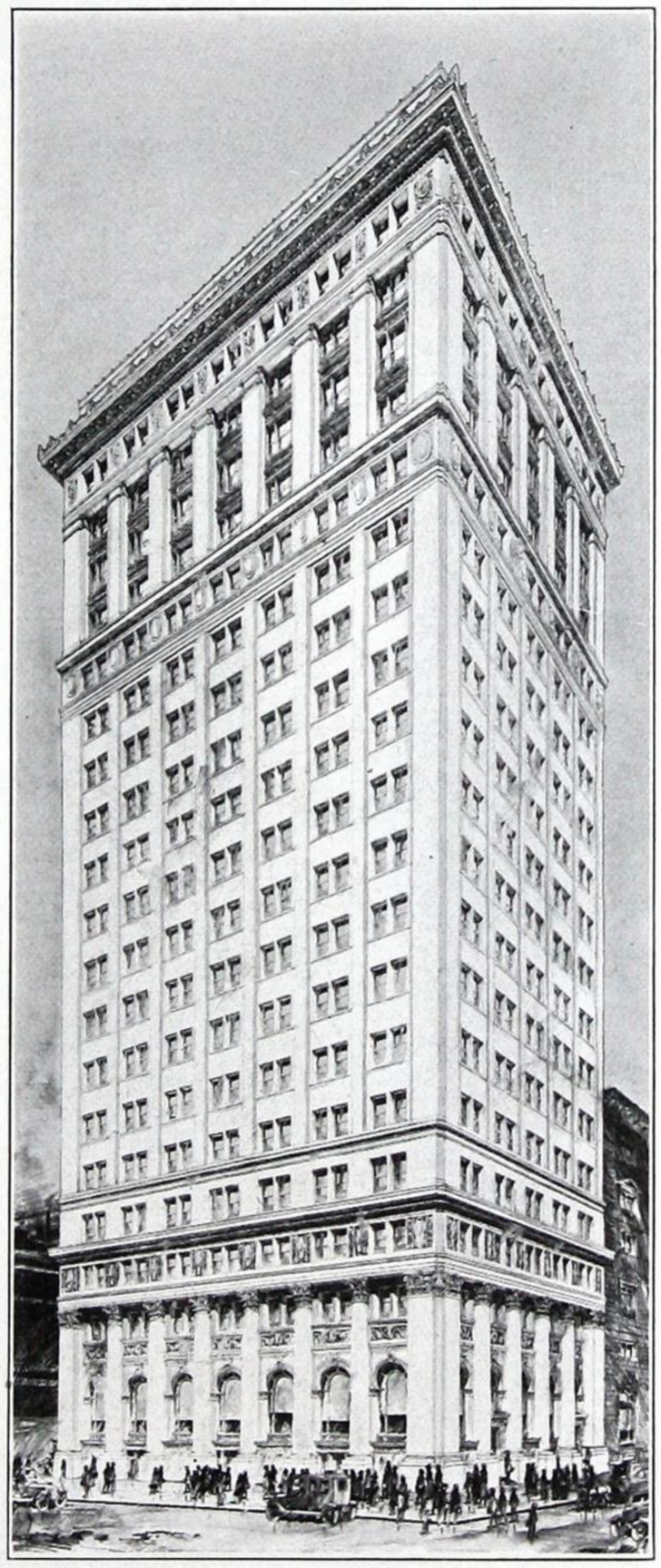
TRINITY BLDG., 111 BROADWAY, NEW YORK. MONADNOCK BLDG., CHICAGO, ILL.

OFFICERS:
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MANUFACTURERS OF A SUPERIOR GRADE
ARCHITECTURAL TERRA COTTA.
FACTORY: WOODBRIDGE, N.J. (PENNA. R.R.).

CANADIAN REPRESENTATIVES:
JOHN LINDSAY, 25 Toronto Street, Toronto.
HYDE & SONS, 12 Bleury Street, Montreal.
JOHN SUTHERLAND, 528 Pender St., Vancouver.
ALSIP BRICK, TILE & LUMBER CO., Builders Exchange, Winnipeg.

PRODUCTS. ARCHITECTURAL TERRA COTTA for EXTERIOR and INTERIOR USE, manufactured in the fullest lines of gray, buff and red shades, in STANDARD VITREOUS finish; MATT and FULL GLAZED finish in white, cream and polychrome; specialties in an unexcelled line of GRANITE COLOURS with GLAZE and DULL finishes.



ROYAL BANK, TORONTO.

Ross & MacDonald, Architects. George A. Fuller Co., Builders.
Limestone Coloured Vitreous Gray Terra Cotta from Second Storey Caps to Cornice.

OTHER REPRESENTATIVE CONTRACTS.

BUILDING.	LOCATION.	ARCHITECT.
Ritz Carlton Hotel	Montreal	Warren & Wetmore.
Metropolitan Bank	Toronto	Darling & Pearson.
Central Technical School	Toronto	Ross & MacDonald.
Bishop Street Apartment	Montreal	Charles A. Mitchell.
Union Bank	Toronto	Bond & Smith.
Terminal Station	Detroit	Warren & Wetmore.
Otis Building	Chicago	Holabird & Roche.
North-Western Mutual Life	Milwaukee	Marshall & Fox.
Equitable	New York	Ernest R. Graham.
Biltmore Hotel	New York	Warren & Wetmore.

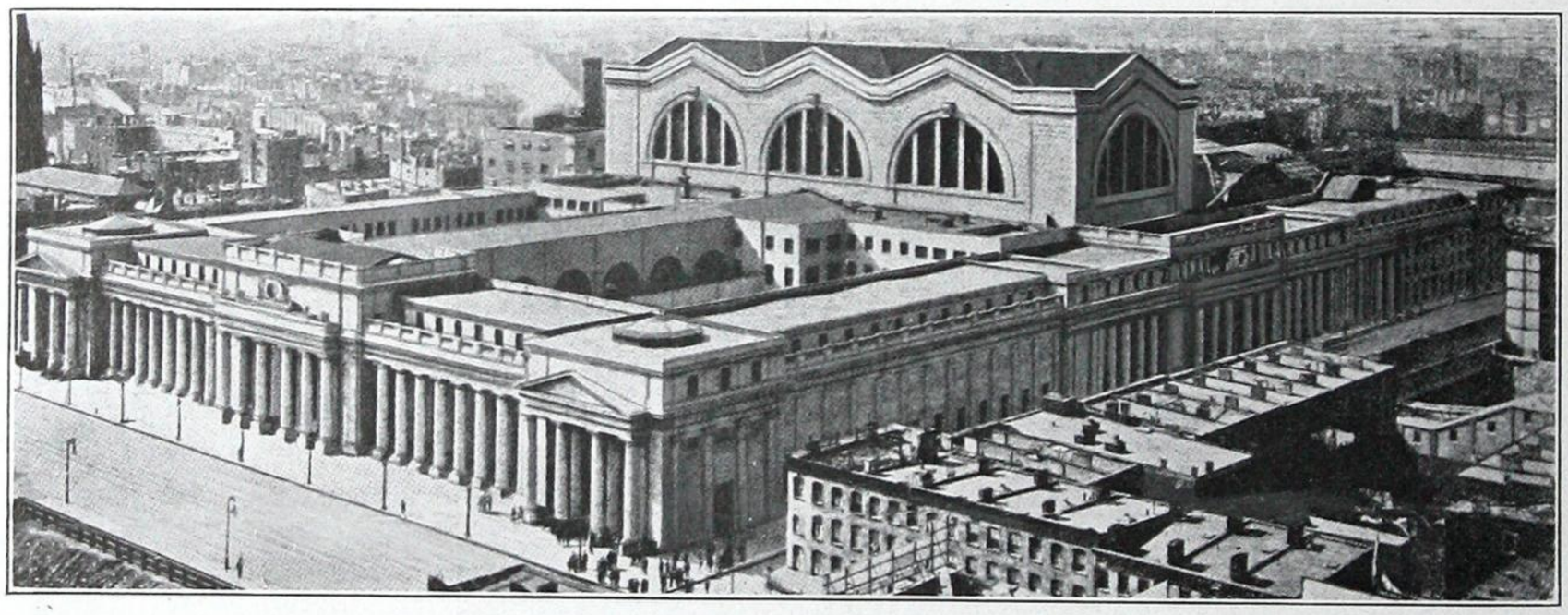
CHURCH, ROSS & COMPANY

40 Hospital Street,
MONTREAL.

SOLE CANADIAN AGENTS FOR
THE DENIVELLE HYDRAULIC COMPOSITE STONE COMPANY.
Office and Works:
609-619 West 55th Street,
NEW YORK.

PRODUCTS. We produce a genuine SUBSTITUTE, not an Imitation Stone, having 10 Standard Grades to select from, beside others as specialties.

Over 200,000 feet of Composite Travertine Stone, an imperishable material, was used in the Pennsylvania Railroad Terminal, New York City—a fact which speaks for itself.



Pennsylvania Railroad Terminal, New York.
McKim, Mead & White, Architects.

SERVICES. We are prepared to give figures on the most extensive building where our composite stone can be used advantageously, both for exterior or interior finishes.

CORRESPONDENCE. We solicit correspondence with architects, and are always ready to furnish estimates and reliable information.

CHURCH, ROSS & COMPANY

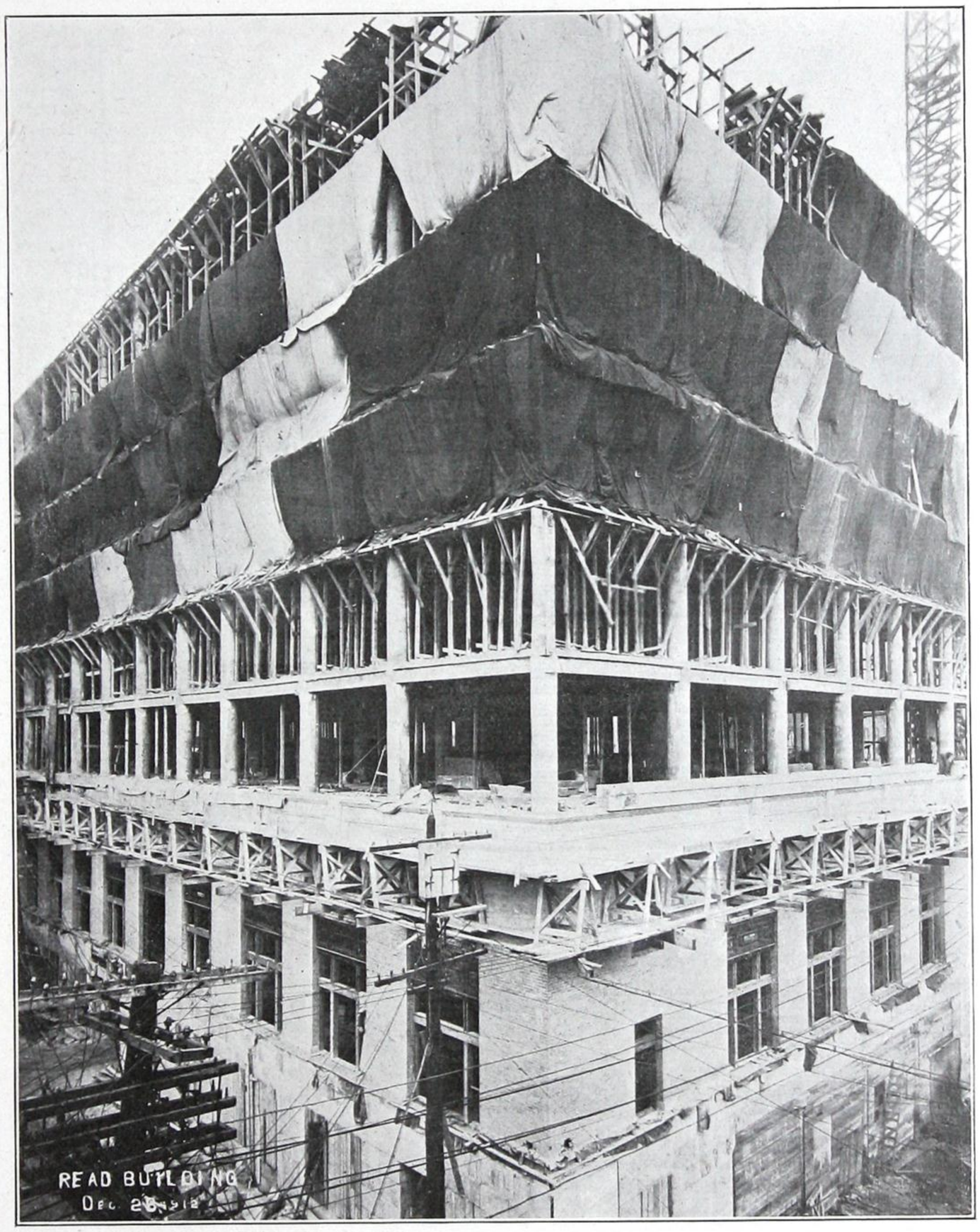
40 Hospital Street,

MONTREAL, QUEBEC.

SERVICES. We are prepared to design and erect in Reinforced Concrete, buildings of any kind requiring fireproof construction, including fireproof partitions.

We also give special attention to Concrete Sidewalks.

ILLUSTRATION. The Read Building, which occupies the block bounded by St. Alexander, Laugauchetiere, Hermine and Jurors Streets, Montreal, was built by us on the cantilever flat slab system of reinforced concrete construction, at the rate of about a floor each week. Each floor contains 22,000 square feet of space and is sustained by 94 columns running from 30 inches at bottom storeys to 16 inches at top and is capable of sustaining loads equal to beam construction.



The above cut shows the Read Building as on December 28th, 1912, with some 35,000 square feet of tarpaulin enclosing the three floors, which are maturing under hot air application. This is a feature of our construction, and enables us to continue effective operations even in zero weather, and at the rate of about one floor containing 22,000 square feet of surface, with 94 columns, each week.

REFERENCES. A few representative concrete buildings done by us.

St. Lawrence Sugar Refining Co. Building.
The Ames Holden Company (Factory), Montreal.
The Munderloh Company (Warehouse), Montreal.
Bell Telephone Co. (St. Louis Exc.), Montreal.
Sherwin-Williams Co. (Storage Bldg.), Montreal.
Singer Mfg. Co. (Kilns and Storage), St. John's, Que.
The Geo. W. Reed Co., Limited (Factory), Montreal.
Sherbrooke Apartments, Montreal.
Dominion Oilcloth Co., Montreal.
Canadian Bank of Commerce, Montreal.
Royal Victoria Hospital, Montreal.

TRUSSED CONCRETE STEEL CO. OF CANADA, LIMITED

HEAD OFFICE AND WORKS: WALKERVILLE, ONTARIO.

BRANCHES:

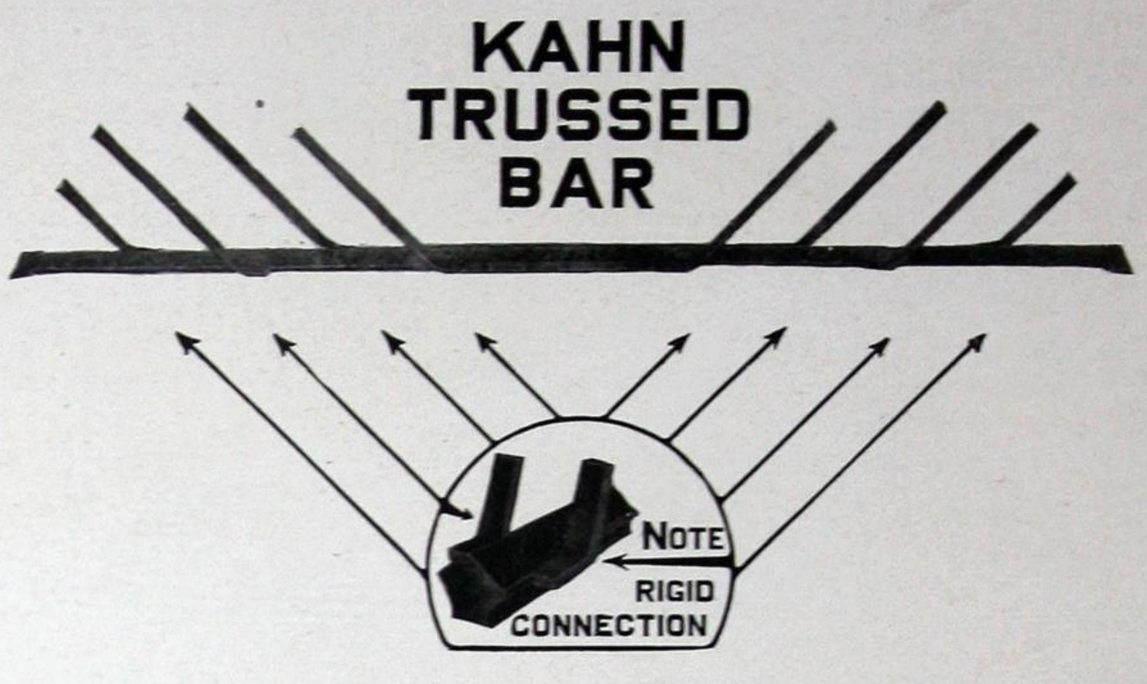
T. H. STEVENS, 23 JORDAN ST., TORONTO.
G. B. REYNOLDS, 128 CORISTINE BLDG., MONTREAL.
O. E. HARMON AND A. ST. CLAIR RILEY, UNION BANK BLDG., WINNIPEG.
R. E. W. HAGARTY, 52 HUTCHISON BLDG., VANCOUVER, B.C.

KAHN TRUSSED BAR.

The Kahn Trussed Bar for reinforcing concrete consists of a main horizontal bar and rigidly connected diagonal shear members. The cross section of the bar has two horizontal flanges projecting at opposite sides. These flanges are sheared up at intervals to form the rigidly connected diagonals making a unit of main bar and shear members.

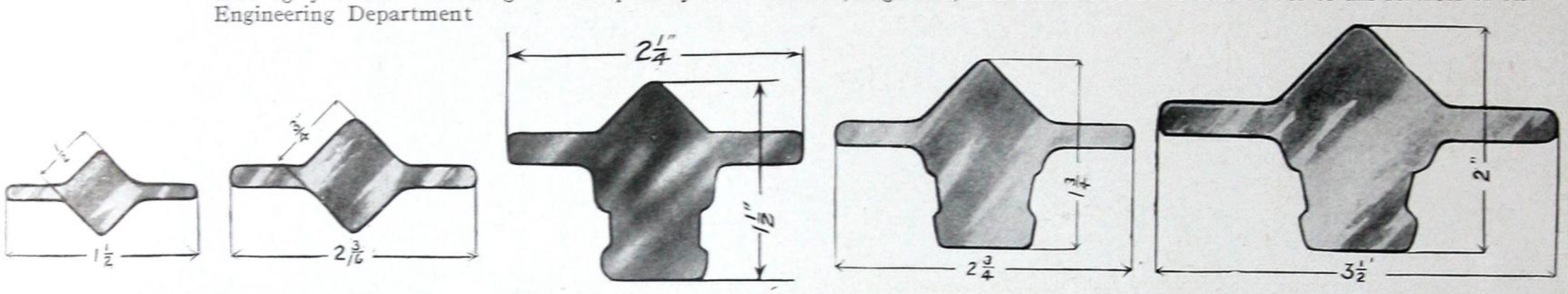
Rigid connection of shear members is the one essential requirement of properly constructed reinforced concrete beams. It is necessary for strength, safety, economy, durability and fireproofness of the finished structure.

The Kahn Trussed Bar, the main product of the well-known Kahn System of Reinforced Concrete, has a record of successful use in over 10,000 structures in this country and abroad, and has received the endorsement of the United States Government, architects, engineers and builders.



The Engineering Department of the Trussed Concrete Steel Company prepares, without charge, detail drawings of reinforced concrete work in any structure in which Kahn Trussed Bars are used. The drawings show clearly the exact location of each reinforcing bar and the detailed size of all the concrete work.

Each bar is designed for its distinct place in the structure, and is plainly marked so that the builder can tell from the drawings just where it belongs. We especially ask architects, engineers, and builders to avail themselves of the services of our Engineering Department



½ in. x 1½ in. Kahn Trussed Bar. Weight, 1.4 pounds per foot; Area, 0.41 square inches Standard length of diagonals, 6 inches.

¾ in. x 2 3-16 in. Kahn Trussed Bar. Weight, 2.7 pounds per foot; Area, 0.79 square inches; Standard length of diagonals, 12 inches; Special lengths, 8 inches, 18 inches and 24 inches.

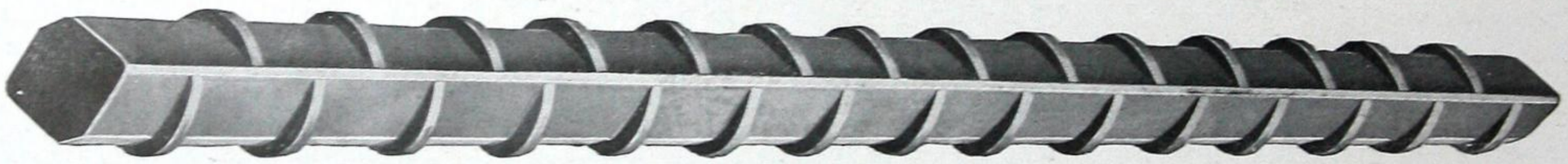
1½ in. x 2¼ in. Kahn Trussed Bar. Weight, 4.8 pounds per foot; Area, 1.41 square inches; Standard length of diagonals, 24 inches; Special lengths, 18 inches and 30 inches.

1¾ in. x 2¾ in. Kahn Trussed Bar. Weight, 6.8 pounds per foot; Area, 2.00 square inches; Standard length of diagonals, 24 inches; Special lengths, 18 inches and 30 inches.

2 in. x 3½ in. Kahn Trussed Bar. Weight, 10.2 pounds per foot; Area, 3.00 square inches; Standard length of diagonals, 30 inches; Special length, 24 inches.

SECTIONS OF KAHN BAR.

RIB BARS.



The Rib Bar for reinforcing concrete is a special rolled section with a series of cross ribs so designed as to secure maximum grip on the concrete.

The Rib Bar is manufactured from the highest grade of open hearth steel with an elastic limit of 50,000 lbs. per square inch. The quality of steel is such as to give a bar of greater strength without sacrificing ductility.

The Rib Bar has the greatest bonding qualities and ultimate strength of any bar of its type.

Supplied in all sizes varying by eighths of an inch from ⅜ inch diameter up to 1¼ inch, and in any length up to sixty feet.

Any special grade of steel can be provided in Rib Bars if the order is of sufficient size, and time is given to secure special rolling.

RIB METAL.

A REINFORCING MATERIAL FOR CONCRETE SLABS, WALLS AND CONDUITS—Consist of a series of nine straight bars or ribs, rigidly connected by cross members formed from the same sheet of steel. These cross members accurately space and thoroughly anchor the main bars in the concrete, providing a perfect cross reinforcement against temperature and shrinkage strains.

Being a series of nine bars handled in one piece, Rib Metal saves labour and assures accuracy in placing.

RIB METAL is stiff and rigid—not pliable and wiry. When placed in the concrete it stays where it is placed.

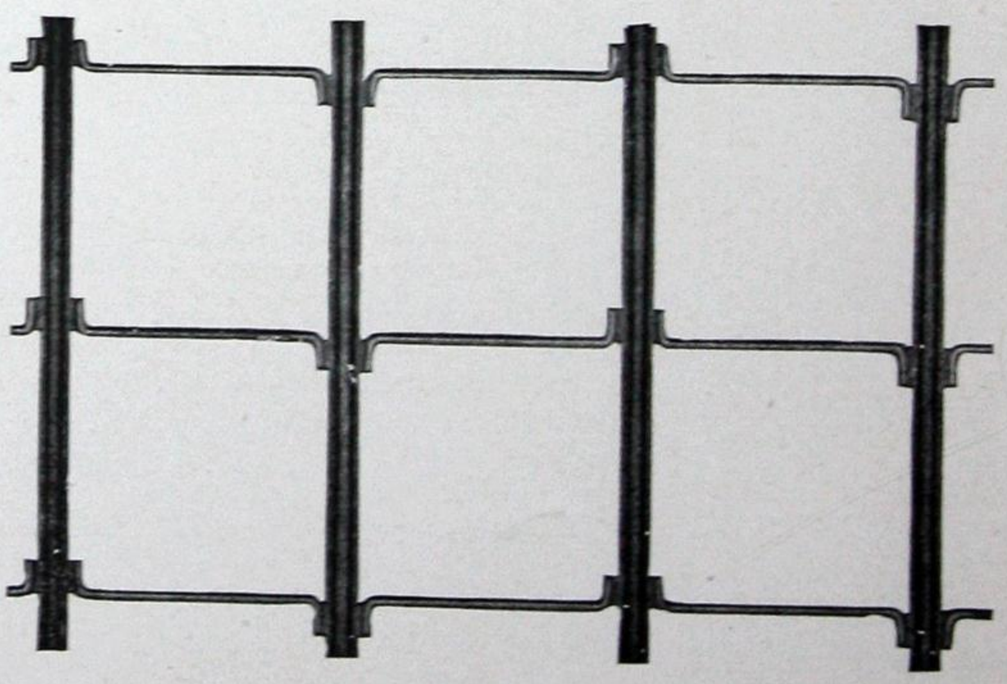
RIB METAL has the following advantages as a reinforcement for floor and roof slabs:

1. It is in the form of a mesh.
2. The main members span in the shortest straight line between the supports.
3. The main bars are accurately located and anchored in the concrete by the cross members.
4. The reinforcement stays located just where it is placed.

RIB METAL is also supplied in curved sheets, the bending being done in our shops to any curve desired. This makes Rib Metal especially useful as a reinforcement for sewers and conduits.

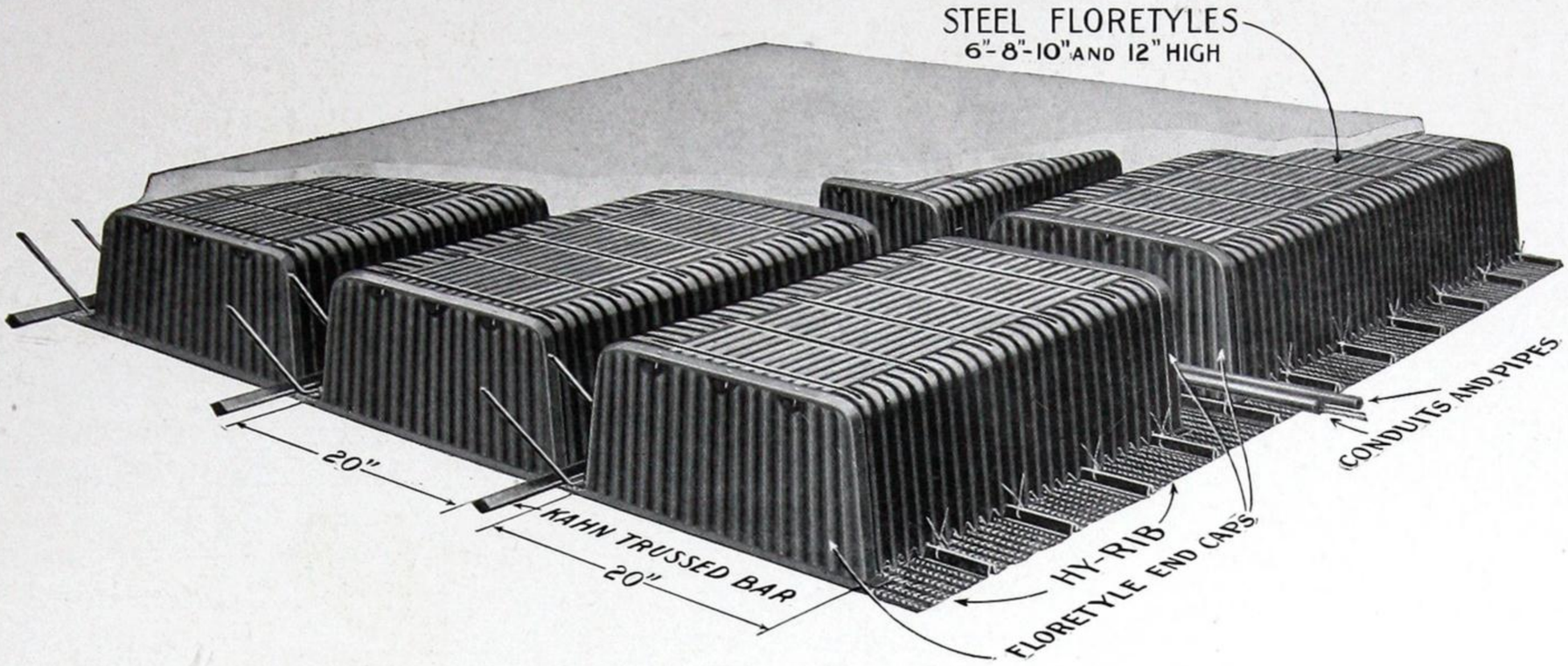
RIB METAL is manufactured from medium open-hearth steel—the best quality of steel for reinforcement.

RIB METAL is furnished in seven sizes of mesh—2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 7-inch and 8-inch—and in lengths up to 18 feet.



CONTINUED ON NEXT PAGE

KAHN SYSTEM OF REINFORCEMENT.



STEEL FLORETYLES.

Steel Floretyles are deeply corrugated steel tiles open on the underside. The bends at the corners and the deep ribs on the top provide exceptional stiffness against deformation and great rigidity in supporting loads. The narrow reinforced concrete joists between the Floretyles carry the loads to the supports. Ends of Floretyles lap with a tight joint. Floretyle construction effects a great saving in concrete, steel, centering and weight.

For flat ceilings, Hy-Rib is used on the underside. The bottom edges of the Floretyles are serrated to straddle the ribs of the Hy-Rib and engage in the mesh. Floretyles are used with one-way reinforcement and Floredomes with two-way reinforcement. Both possess the same marked advantages over terra cotta tile.

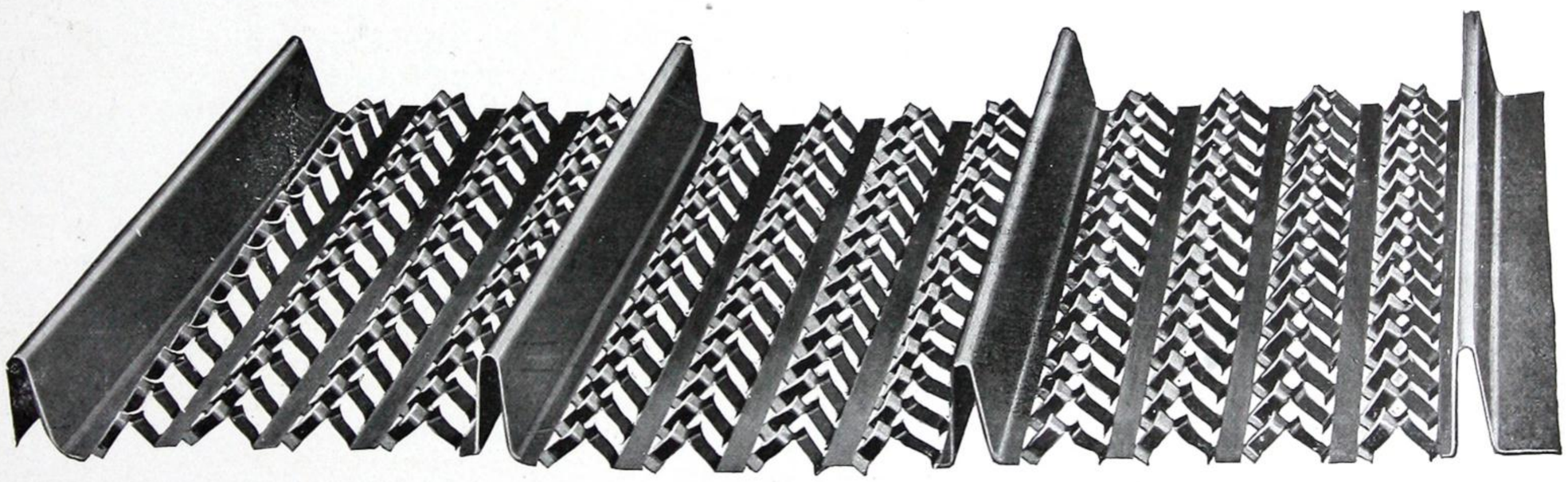
Rows of Floretyles are closed by means of End Tyles, 2 ft. long, or End Caps, fitting over the Floretyles.

PROPERTIES OF STEEL FLORETYLES.

Depths: 6 in., 8 in., 10 in., and 12 in. Width at Base: 20 inches.

Standard Lengths (nominal), 4 feet and 3 feet. Actual lengths are one inch greater, to allow for end lap of one corrugation.

Furnished either with serrated edges or straight edges.



HY-RIB.

HY-RIB.

Hy-Rib consists of a perfect steel lath surface stiffened by rigid high ribs. The ribs and the lath are manufactured from a single sheet of steel, making it a complete unit of lath and studs.

No centering is required where Hy-Rib is used in concrete floors and roofs, as the ribs give sufficient strength and rigidity. In walls and partitions Hy-Rib does away with the use of studs. The lath surface is straight and true, and the expansion is such as to provide a perfect clinch with a minimum amount of plaster.

Uses for Hy-Rib are found in every field of building operation—in construction work of all kinds, Floors, Roofs, Walls, Partitions, Ceilings, and Furring. Curved Hy-Rib bent in our shops is used for Arched Floors, Culverts, Conduits, Sewers, Silos, Tanks, Reservoirs and Tunnels.

Hy-Rib is supplied in sheets 10½ inches wide, measured from centre to centre of the outside ribs. One lineal foot of each sheet covers ⅞ of a square foot of roof, floor, or wall surface. No allowance need be made in ordering for side laps, as these are provided in the Hy-Rib. End laps of 2 inches should be allowed where splice is made over the supports, otherwise 8 inches. Ribs of Hy-Rib are $\frac{13}{16}$ inches high and 3½ inches apart.

Standard lengths of sheets are 6 feet, 8 feet, 10 feet, and 12 feet. Intermediate and shorter lengths are cut from standard lengths. Waste in cutting is charged to purchaser. In ordering, always state length of sheet required.

Hy-Rib is furnished in three thicknesses of metal represented by United States Standard Gauges—No. 28, No. 26, and No. 24. Other gauges, as desired, can be supplied in reasonable time.

Hy-Rib is manufactured from the highest grade open-hearth rolled steel plates.

Cross sectional areas of Hy-Rib per foot of width including side laps: 28 Gauge, .165 square inches; 26 Gauge, .198 square inches; 24 Gauge, .264 square inches.

CONCRETE PAINTS AND WATER-PROOFINGS.

TRUSSED CONCRETE CHEMICAL PRODUCTS FOR WATERPROOFING AND FINISHING CONCRETE.

KAHN SYSTEM STEEL SASH.

See also advertisement on page 329.

THE PEDLAR PEOPLE LIMITED

HOME OFFICE:

OSHAWA, ONTARIO.

BRANCHES: MONTREAL, OTTAWA, TORONTO, LONDON, CHATHAM, WINNIPEG.

PRODUCT. Sole Sales Agents in Canada for CLINTON ELECTRICALLY WELDED WIRE, manufactured by THE CLINTON WIRE CLOTH COMPANY, Clinton, Mass, U.S.A.

CLINTON REINFORCEMENT.

THE MATERIAL.—Clinton Electrically Welded Wire is a wire mesh reinforcement fabricated from a special grade of steel wire having an ultimate tensile strength of from 60,000 to 85,000 lbs. per square inch.

USES.—The material is especially adapted for reinforcement in concrete floors, roofs, walls, sewers, reservoirs, levees and all kinds of slab construction. It is also used to special advantage as a wrapping for steel in all kinds of work involving the covering or protection of steel with concrete.

THE ELECTRIC WELD.—Transverse and longitudinal wires are connected by an absolute and perfect cross-weld actually fused together.

THE RECTANGULAR MESH.—There are no zigzag or diagonal members. When used in floor or roof slabs, the longitudinal wires resist the main tensile stresses, while the transverse wires, which act as spacers for the longitudinals, serve to distribute concentrated loads and to prevent cracking due to changes in temperature.

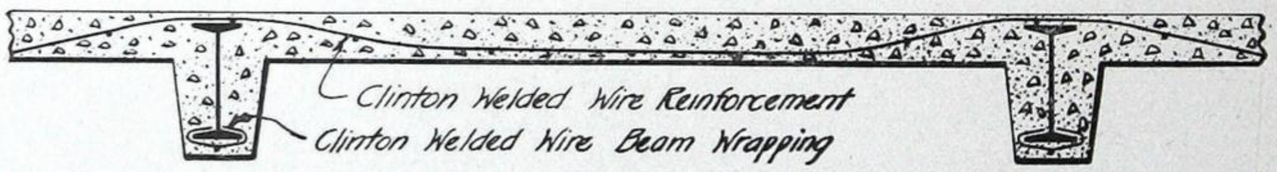
THE PERFECT BOND.—The transverse wires, which are securely and absolutely connected to the longitudinals, provide at each welded point an absolute barrier against movement in the concrete.

UNBROKEN CONTINUITY.—In floor and roof slabs perfect continuity is obtained—no laps, no splices, no misplaced steel, but always the full value of the reinforcement, representing exactly what the plans call for.

EASE AND ACCURACY OF INSTALLATION.—It eliminates expense and uncertainty involved in the placing and wiring of loose rods. Great quantities can be laid in a very short time by the most unskilled labourer with absolute assurance that every reinforcing unit is in its proper position.

GALVANIZING.—All Clinton Welded Wire is thoroughly galvanized, which offers a perfect protection against rust and corrosion.

CLINTON FLOORS. The various floor slabs of the type as shown by sketch and as herewith tabulated in the table have actually been tested in New York City and officially approved by the Bureau of Buildings for the live loads as given.



APPROVED CLINTON FLOOR SLABS.

Span C/C Beams.	Approved Live Load Lbs. per Sq. Ft.	Thickness of Slab.	Concrete.	Clinton Welded Wire Reinforcement.				
				Longitudinals.		Transverses.		How Specified.
				Gauge.	Spacing.	Gauge.	Spacing.	
6′ 0″	150	4″	1 : 2 : 5 Cinder	No. 8	3″	No. 10	12″	3 x 12 8/10
6′ 6″	300	4″	1 : 2 : 5 Cinder	No. 5	4″	No. 9	12″	4 x 12 5/9
6′ 6″	400	4″	1 : 2 : 5 Cinder	No. 4	3″	No. 9	12″	3 x 12 4/9
7′ 6″	200	4″	1 : 2 : 5 Cinder	No. 7	4″	No. 10	12″	4 x 12 7/10
8′ 0″	250	4″	1 : 2 : 5 Cinder	No. 5	3″	No. 9	12″	3 x 12 5/9
15′ 0″	150	6″	1 : 2½ : 5 Stone	No. 3	2″	No. 8	8″	2 x 8 3/8

STOCK. We carry in stock a large assortment of Clinton Fabrics, and can make immediate shipment at prices which will prove interesting.

INFORMATION. For information, printed matter and prices, address home office of The Pedlar People Limited, or any of their various branches.

CLARENCE W. NOBLE

ASSOC. M. AM. SOC. C.E.

417 New Birks Building,
MONTREAL.

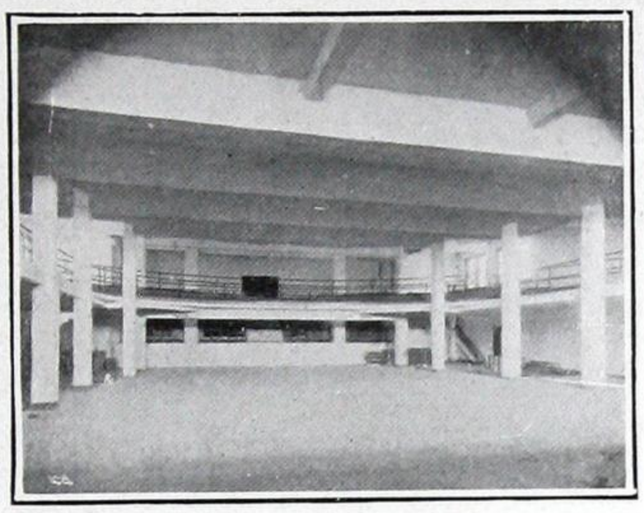
117 Home Life Building,
TORONTO.

ASSOC. M. CAN. SOC. C.E.

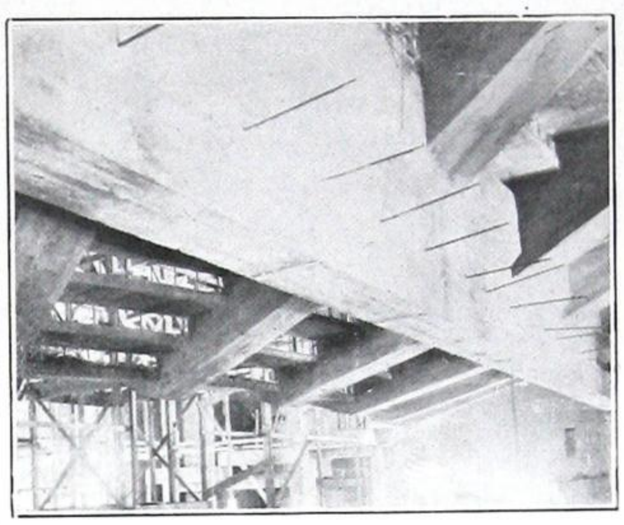
905 Electric Railway Chambers,
WINNIPEG.

Represented by Herringbone Lath Agents Everywhere.

CONCRETE REINFORCEMENT.



Gymnasium, Oklahoma City High School.



Theatre Balcony, Burns Theatre.

MY METHODS. I supplement architects' plans by laying out reinforced concrete details, either to the architects' or my own calculations. These calculations are made for unpatented reinforcement, either plain or twisted bars. I furnish you the bars for these details, cut to length, either straight or bent and ready to place as you may prefer. All this is for a lump sum price for the job.

YOUR ALTERNATIVES. Don't lose sight of the reason you buy reinforcing steel. You need not insist that the reinforcement in a certain beam should *cost* a stated amount and *weigh* a certain amount. You do demand, though, that it should have a certain amount of strength. Obviously, what you want is a given amount of strength for the least amount of money.

A Patented, and, therefore, monopolized, bar is certainly not the best—that is, unless you feel inclined to give your money away. The Patent raises the price, but not the strength. The reason that you use a patented bar is that their salesmen give you a "free" design. So do I. Only I frankly charge for my design and add the price to the cost of the most efficient reinforcement. As a result, I can duplicate the strength furnished in any patent bar design, furnishing the same or better service and reducing the cost of the reinforcement by a third.

A FABLE. Two automobilists ran out of gasoline. Each had but fifty cents. One bought his supply at a drug store. It cost him fifty cents a pint and came in a glass bottle with a parchment top. The other bought his in a tin can at a garage, at twenty-five cents per gallon. The drug store did the most advertising. Guess which man got his car home.



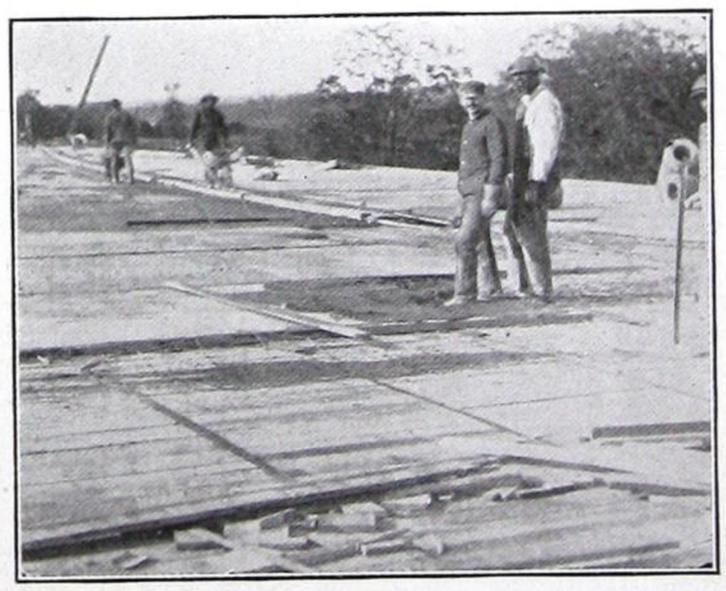
Moral. The concrete reinforcement that costs the least per unit of strength is the kind a sensible man will use.

PERFECTION WIRE MESH. A rectangular wire reinforcement made with No. 9 gauge, carrying wires spaced 3 inches or 4 inches apart and No. 9 gauge cross wires, 8¼ inches, 13 inches, 16½ inches or 22 inches apart. The crossing wires are bound together by a third wire, bent to give a positive attachment without kinking any of the main wires. All material is high carbon, cold drawn galvanized steel wire, of exceptional strength. Standard sheets, 4 feet wide by 250 feet long, shipped rolled.

STRENGTH. The four-inch spacing of carrying wires gives a mesh equivalent in strength to 10 gauge 60 lb. standard expanded metal.

ADVANTAGES. Continuous bond from one wall of building to the other. No danger whatever from faulty lapping, because there is no lap. Low cost of mesh and economy in laying, both in material and labour. Certainty of perfect quality throughout. A wire cannot be drawn if it has a flaw in it.

Kindly mention Specification Data when inquiring.



Placing of Perfection Mesh.

C. A. P. TURNER

M. Can. Soc. C.E.
M. Am. Soc. C.E.

Consulting and Contracting Engineer.

"MUSHROOM SYSTEM" OF REINFORCED CONCRETE CONSTRUCTION.

Steel and Reinforced Concrete Bridges and Buildings.

Main Office: Sixth Floor, Walker Burton Building,
MINNEAPOLIS, MINN.

Canadian Offices:

Winnipeg:
Fosness and Siverson,
1005 Lindsay Bldg.

Calgary:
C. A. Lord,
Leeson & Lineham Bldg.

Vancouver:
A. P. Hueckel,
Vancouver Block.

PRODUCTS. AND SERVICES.

Inventor and Patentee of the "Mushroom System" of Reinforced Concrete Construction, the practical Flat Slab supported directly on columns without the intervention of beams.

Consulting Engineering Work: Bridges and Buildings.

"MUSHROOM" FLAT SLAB SYSTEM.

Advantages.

(1) The floor slabs are built so as to transport the load directly to the columns without the use of beams and girders and take full advantage of the extraordinary strength developed by slabs reinforced in several directions. "Mushroom System" floors are more economical for heavy loadings than any other construction

(2) The centering is simplified, thus reducing the cost of the temporary parts of the construction.

(3) The beams and girders, which interfere with light, cost money to plaster and finish, and reduce the clear storey height, are eliminated. The arrangement of the reinforcement is designed to secure a maximum efficiency of the material and place the maximum amount of steel around and over the tops of columns where shear and negative moments are the greatest.

(4) The flat ceiling so obtained gives free and unobstructed illumination from the windows, and permits the placing of partitions anywhere without regard to the floor, which is unusually rigid and solid, due to the fact that a part of the material, which in the beam type is placed in the rib, is consolidated in the slab, making the slab of unusual thickness, with an actual decrease in the total amount of material where the loads are at all heavy.

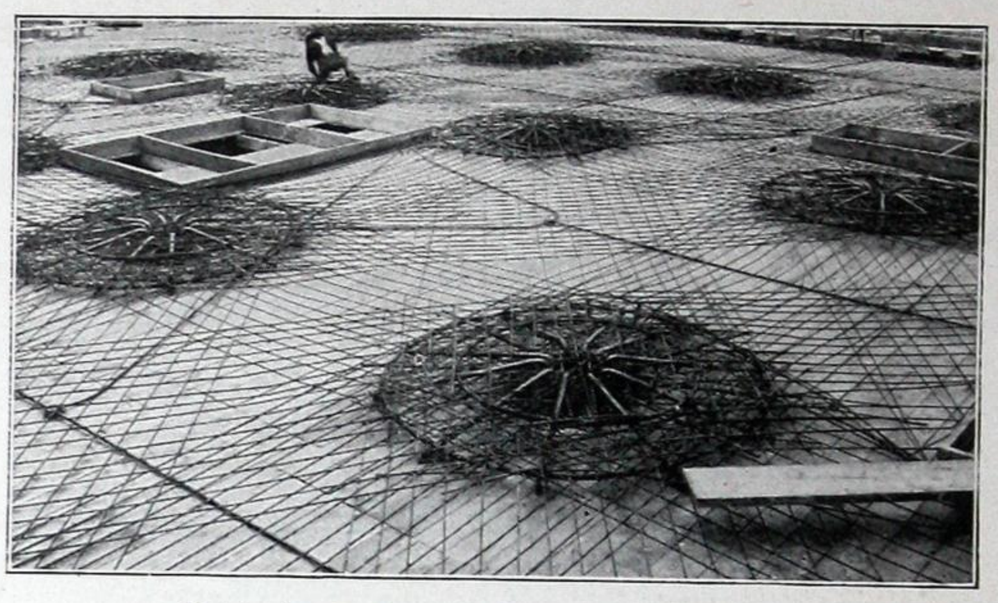
ADAPTATION AND CONTRACTS EXECUTED.

The "Mushroom System" has been used in every type of fireproof construction. The list embraces court houses, schools and State capitols, office buildings, warehouses, factories and manufacturing plants.

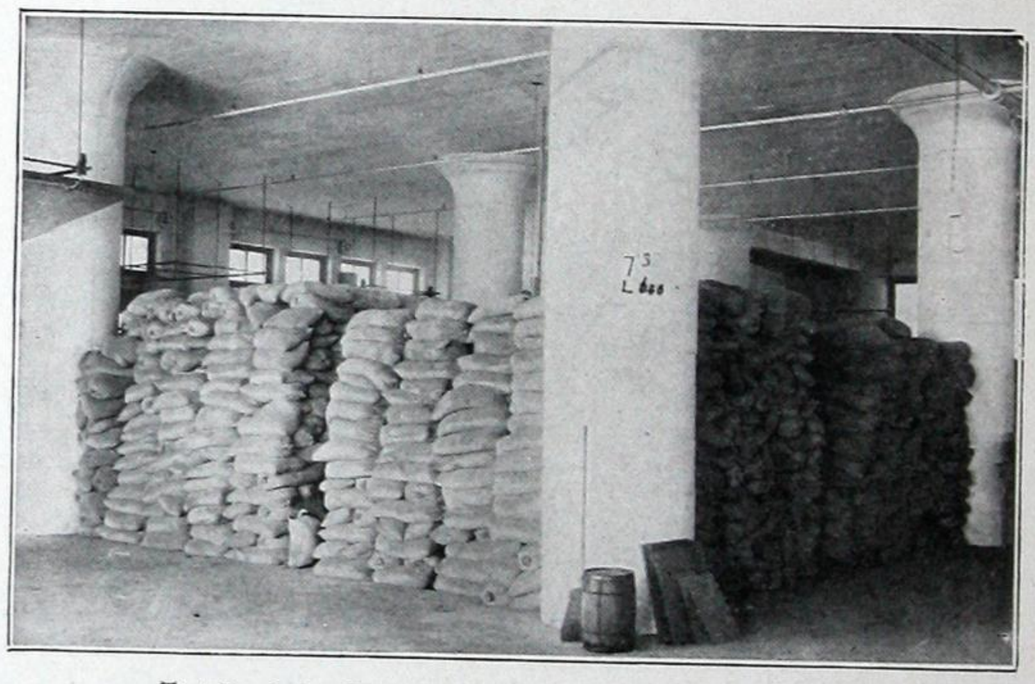
More than 1,500 important structures have been completed or contracted for during the first eight years that it has been on the market.

PATENTS.

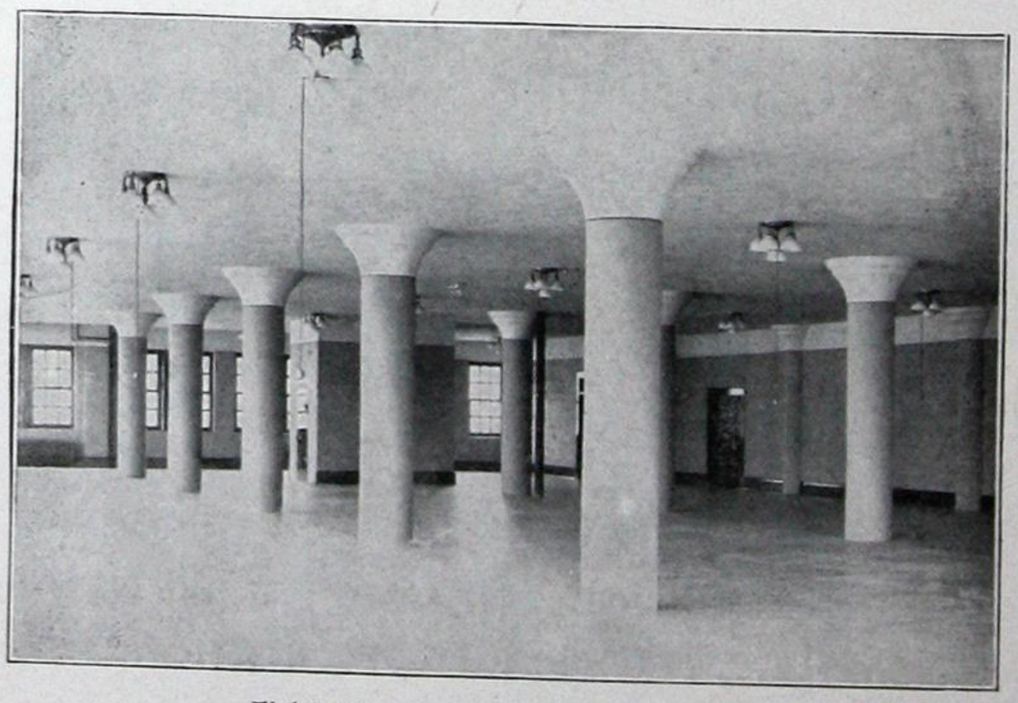
C. A. P. Turner, as the original inventor, has been granted patents covering the basic elements of *circumferential cantilever flat slab construction*. Fully protected by Canadian Patent No. 131567.



Reinforcing Steel in Place—"Mushroom System."



Test Load, 600 Lbs. per Square Foot. Deflection, $\frac{7}{16}$ Inch.



Finished Interior—"Mushroom System."

PINCHIN, JOHNSON & CO. (CANADA), LIMITED

TORONTO, CANADA.

HALIFAX—E. F. Stevens. MONTREAL—David McGill. WINNIPEG—The Waite-Fullerton Co., Ltd.
ST. JOHN—W. H. Thorne & Co., Ltd. QUEBEC—J. L. LaChance Ltd.

CALGARY—, EDMONTON—, LETHBRIDGE— } The Western Supply & Equipment Co., Ltd.

SASKATOON—, PRINCE ALBERT— } The Saskatchewan Supply Co., Ltd.

VANCOUVER—, VICTORIA— } Wm. N. O'Neil Co., Ltd.

WATERPROOFING DEPARTMENT.

GENERAL.

A special department, aside from their paint and varnish business—devoted to the manufacture and sale of waterproofing materials under formulae of the A. C. Horn Company of New York.

An engineering branch has been added as a special feature to meet the needs of architects and contractors by providing specifications, which will be free for the asking. By consulting this department it will be possible to effect a saving in waterproofing construction. LET US PLAN THIS END OF YOUR WORK FOR YOU.

DEHYDRATINE No. 1. See Figs. 1, 2, page 40. — A bituminous compound in liquid state for application on the inside of exterior building walls, thus preventing the penetration of moisture or dampness; can be plastered directly upon or used in conjunction with furring and lathing. Damp-proofs superstructures. Forms an impenetrable film, rubber-like in consistency, from ground level to roof.

DEHYDRATINE No. 2. — A colourless liquid for exterior masonry surfaces to prevent efflorescence and other discolorations; damp-proofs by exterior application. May be used on the interior of concrete containers to prevent leakage.

DEHYDRATINE No. 3. See Fig. 3, page 40. — A liquid for backing up limestone, marble, granite, etc., thus preventing discoloration on exterior surfaces of such stone.

DEHYDRATINE No. 4. See Fig. 5, page 41. — A liquid for exterior application on foundation walls, applied cold; easily applied and certain in results. Will not disintegrate and is unaffected by elements in the soil. *Cannot crack or peel.*

DEHYDRATINE MASTIXEMENT. See Fig. 5, page 41. — A rich bitumen requiring heating, then mopped on foundation surfaces after the manner of tar or pitch; used in conjunction with MINERVA IRISH FELT. Used generally when heavy heads of water are to be resisted.

DEHYDRATINE No. 5. — A protective field coating for structural steel to prevent destructive influence due to contact with masonry surfaces. May be used in conjunction with RUST-BAAR.

DEHYDRATINE No. 6. See Fig. 5, page 41. — A rich bituminous mastic for application on rough foundation surfaces; applied with a trowel. Safer and more permanent than ordinary felt and pitch or tar and less costly.

DEHYDRATINE SLATE AND TILE CEMENT. — An elastic waterproof compound made in colours. This is an extremely tough material of putty-like consistency, very durable and permanent.

DEHYDRATINE ROOFING COMPOUND. — One of the Dehydratine family made in colours and applicable for all modern roofs.

"The Dehydratines possess elasticity which insures their permanence in the structure."

MINERVA IRISH FELT. See Fig. 5, page 41. — Recognized by engineers as the best reinforcing agent in substructural work where pressure is encountered. Used in conjunction with DEHYDRATINE MASTIXEMENT. A wool composition strongly fabricated—will neither crack nor break.

RUST-BAAR. — A protective shop coating for structural steel; used in conjunction with DEHYDRATINE No. 5.

HYDRATITE No. 1. (POWDER). See Figs. 7 to 8a inclusive. — Embracing what we were first to designate "THE INTEGRAL METHOD"—a finely ground powder used in a 2% proportion to weight of cement for waterproofing concrete. Is a void filler and a void finder. Either incorporated in the concrete mass or applied when embodied in the cement as a plaster coating; two pounds to the bag.

HYDRATITE No. 2. (PASTE). See Figs. 7 to 8a page 41. — Used in the gauging mixture by adding one part of paste to every ten parts of water. Is an unstable, soluble agent decomposed by contact with the lime in cement, when it becomes a perfect medium, finding its way to all parts of the mass.

NOTE.—Hydratite, whether used in powdered or paste form, has the same ultimate effect, but is made in the two consistencies to meet individual preferences of the user.

KONCREX. — A priming coat for cement floors—used to equalize the porosity of concrete before applying SYMENTREX.

SYMENTREX. — A liquid concrete, applied as a paint to alleviate the dusting and abrading of concrete floors. Made either as a gloss enamel or flat finish. Adaptable for all exterior masonry surfaces to provide a water-shedding surface with colour effect.

SYMENTRIN. — A near relative to SYMENTREX; for decorating plastered walls, thus providing a washable flat surface, artistic as well as permanent.

A. W. P. — A paint in paste form—only requiring mixing with water. The resultant is waterproof and can be applied on damp surfaces with excellent results. The only effective paint on the market that can be successfully applied to damp surfaces.

ACORN WATERTITE MORTAR STAINS. — Produced in all shades, either in dry or pulp. Colours are absolutely permanent. Renders joints waterproof.

BONDSIT. — A powerful acidulated powder. When diluted with water forms an agent effective in bonding new to old concrete by simply washing the surfaces of the old concrete body to which the new is to be joined. This also applies in all cases where a cement mixture is to be plastered on a masonry surface (brick or concrete).

"THE FERRO-LITHIC METHOD." FERRO-FAX. FOR SURFACE HARDENING CONCRETE FLOORS. See Fig. 4, page 40. — To prevent the absolute dusting of concrete floors and to provide a surface capable of resisting traffic of all kinds. The introduction of FERRO-FAX into the upper surfaces of concrete floors will be found effective. The user must bear in mind that directions are to be carefully followed to attain perfect results.

CONTINUED ON NEXT PAGE

COVERING CAPACITIES.

Dehydratine No. 1, 80 to 130 sq. ft. per gal., 1 coat.
Dehydratine No. 1, 100 to 160 sq. ft. per gal., 2 coat.
Dehydratine No. 2, 120 to 180 sq. ft. per gal., 1 coat.
Dehydratine No. 2, 150 to 210 sq. ft. per gal., 2 coat.
Dehydratine No. 3, 95 to 130 sq. ft. per gal., 1 coat.
Dehydratine No. 3, 115 to 160 sq. ft. per gal., 2 coat.
Dehydratine No. 4, 50 to 90 sq. ft. per gal., 1 coat.
Dehydratine No. 4, 65 to 110 sq. ft. per gal., 2 coat.
Dehydratine No. 5, 300 to 450 sq. ft. per gal., 1 coat.
Dehydratine No. 6, 30 sq. ft. per gal., 1/16 in. thickness.
Dehydratine No. 6, 45 sq. ft. per gal., 1/24 in. thickness.
Dehydratine No. 6, 60 sq. ft. per gal., 1/32 in. thickness.
Rust Baar, 300 to 450 sq. ft. per gal., 1 coat.
Symentrex, 150 to 250 sq. ft. per gal., 1 coat.
Symentrex, 200 to 350 sq. ft. per gal., 2 coat.
Symentrin, 500 to 700 sq. ft. per gal., 1 coat.
Koncrex Floor Filler, 150 to 250 sq. ft. per gal., 1 coat.
A. W. P., 200 to 300 sq. ft. per gal., 1 coat.

REFERENCES.

Bank of Montreal, Winnipeg	McKim, Mead & White, Architects, New York.
Winnipeg General Hospital	J. D. Atchison, Architect, Winnipeg.
Dominion Bank, Calgary	V. W. Horwood, Architect, Winnipeg.
Provincial Jail, Winnipeg	V. W. Horwood, Architect, Winnipeg.
Canadian Locomotive Works Tunnel, Kingston	H. Goldmark, Engineer.
Strathy Residence, Toronto	Eustace G. Bird, Architect, Toronto.
Tiffany Building, New York	McKim, Mead & White, Architects, New York.
St. Thomas Church, New York	Cram, Goodhue & Ferguson, New York.
Hotel Belmont, New York	Warren & Wetmore, Architects.
Hotel Plaza, New York	H. J. Hardenbergh, Architect.
U.S. Senate Office Building, Washington, D.C	Carrere & Hastings, Architects.
Dominion Bank Building, Toronto	Darling & Pearson, Architects.
Ryrie Building, Toronto	Burke, Horwood & White, Architects.

SUPER-STRUCTURE SECTIONS.

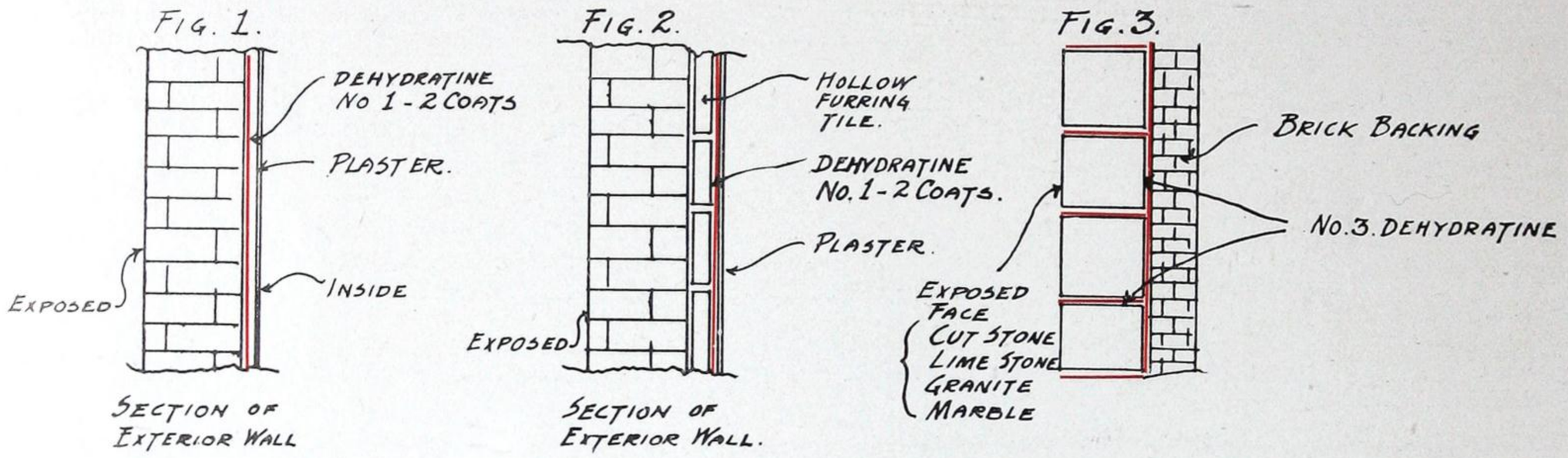


Fig. No. 1 represents section with furring omitted, plastering being done directly upon the damp-proofing, while in Fig. No. 2, where Hollow Tile is employed, the use of No. 1 DEHYDRATINE between it and the plaster prevents staining of the latter.

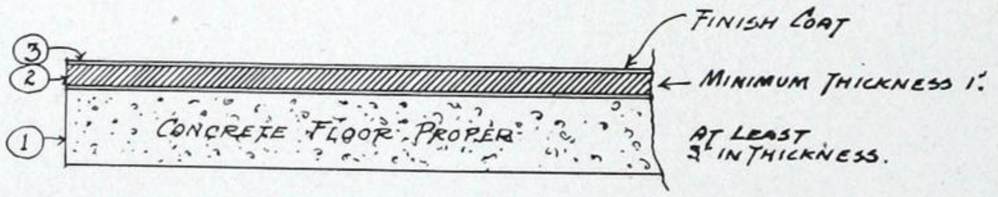
The exudation of lime salts (efflorescence) can be prevented by painting five sides of the stone with 2 coats No. 3 DEHYDRATINE to within ¼ inch of the exposed face.

NOTE.—Where efflorescence already exists, the only remedy lies in washing down surface with weak solution of muriatic acid, followed by clean water, then thoroughly treating such surface with No. 2 DEHYDRATINE (colourless).

"THE FERROLITHIC METHOD"

FIG. 4.

TREATMENT OF CONCRETE FLOORS TO PREVENT DUSTING.





MacLaren Hotel, Winnipeg.
Hydratite used on Foundation.

To provide concrete floors with an absolute non-dusting, non-abrasive surface to resist traffic.

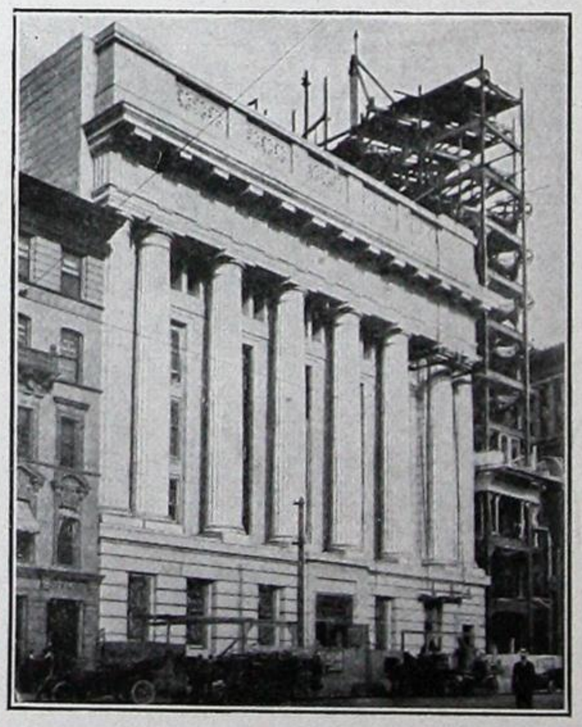
(1) Concrete under bed made up in a mixture 1-3-5 (stone, limestone or granite, ¼-inch mesh) to be well rammed with upper surface left rough to receive.

(2) Top body consisting of 1 cement, 1 sand, 1 grit, with 12% FERRO-FAX by weight of cement.

(3) Equal parts of FERRO-FAX and cement mixed, dusted on top body while latter is still wet and then trowelled to hard smooth finish with a steel trowel.

NOTE.—All sand to be clean, sharp and well screened.

GRIT.—Crushed granite or stone 1/16 inch mesh. Surface to be kept wet for period of 3 days after treatment. Floor will not attain maximum hardness under 30 days.

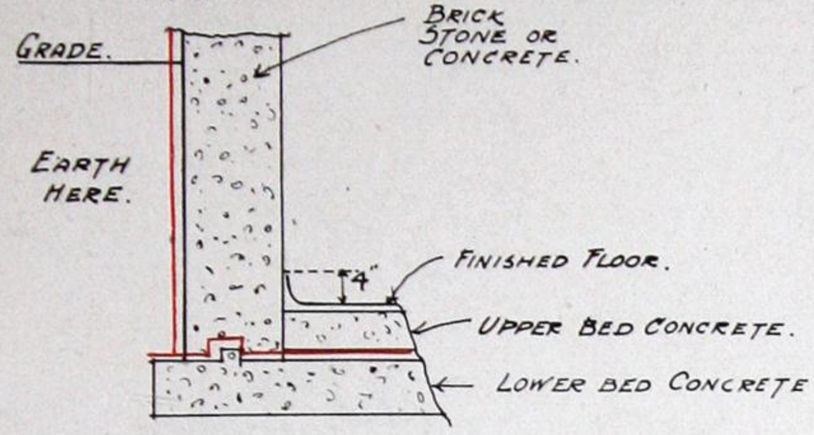


Canadian Bank of Commerce, Winnipeg.
Dehydratine Nos. 1, 3 and 4 used.

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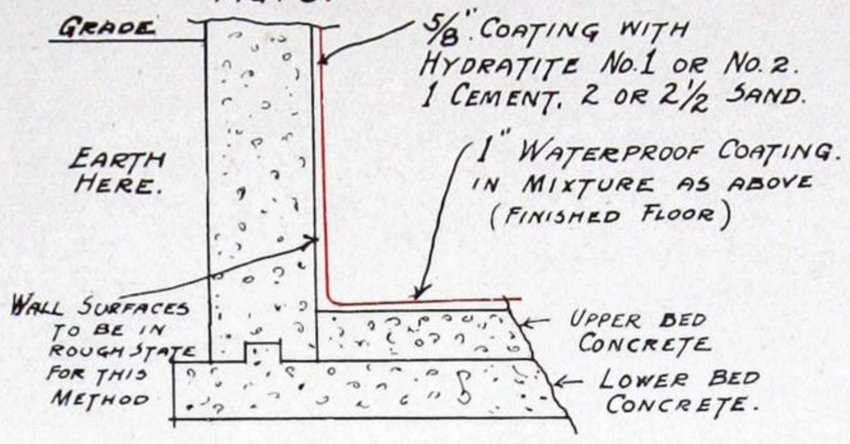
Sub Structural Sections.

FIG. 5.



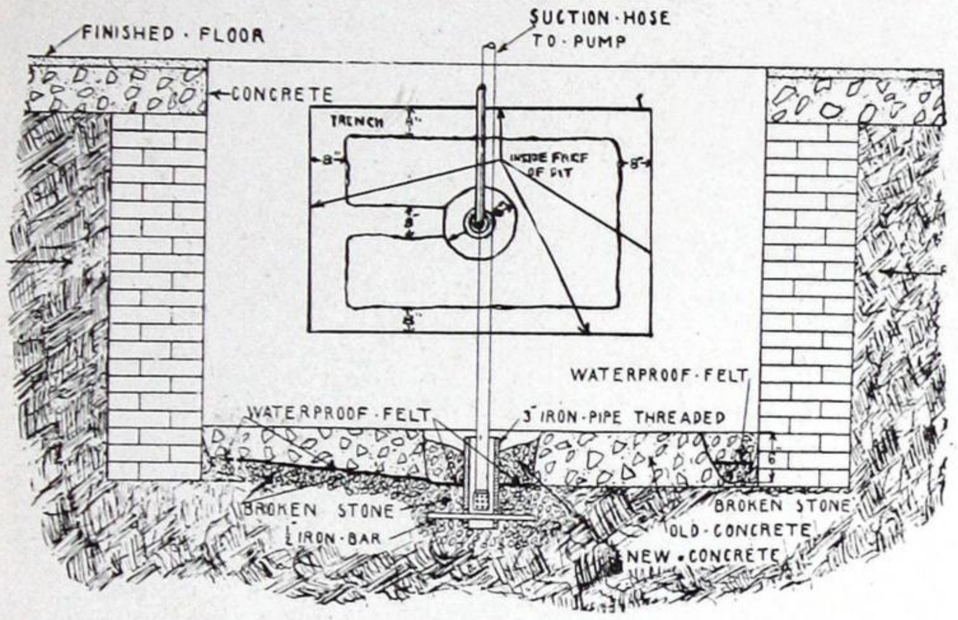
Membraneous (seal) method. Either No. 4 Dehydratine, No. 6 Dehydratine, Dehydratine Mastixement and Minerva Felt, depending upon hydrostatic conditions.

FIG. 6.



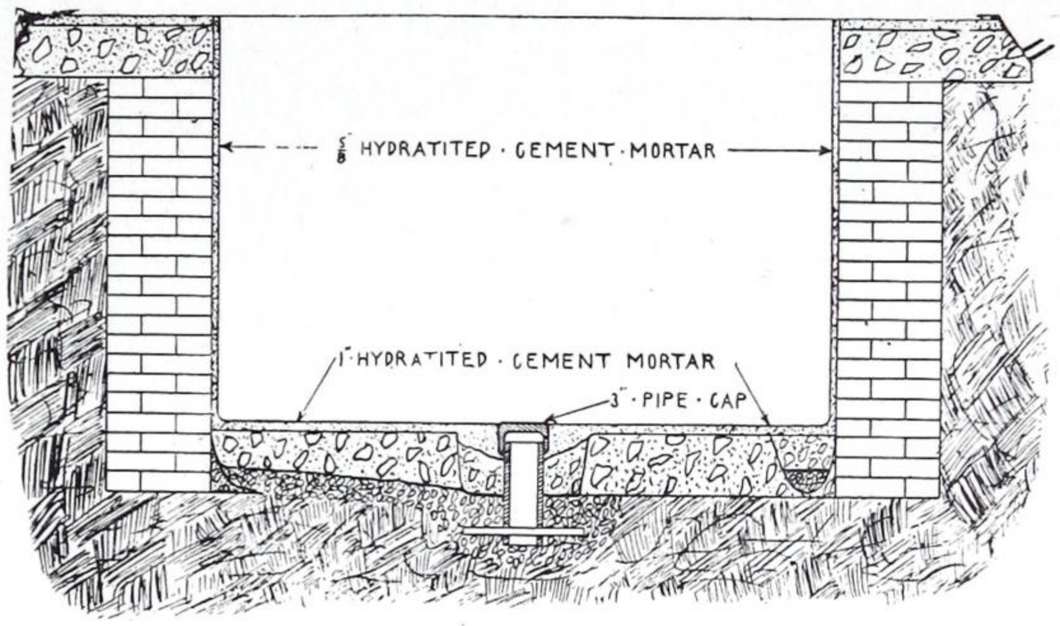
Integral method applied as a plaster-coating as above (Fig. 5) or mixed throughout the concrete.

FIG 7.



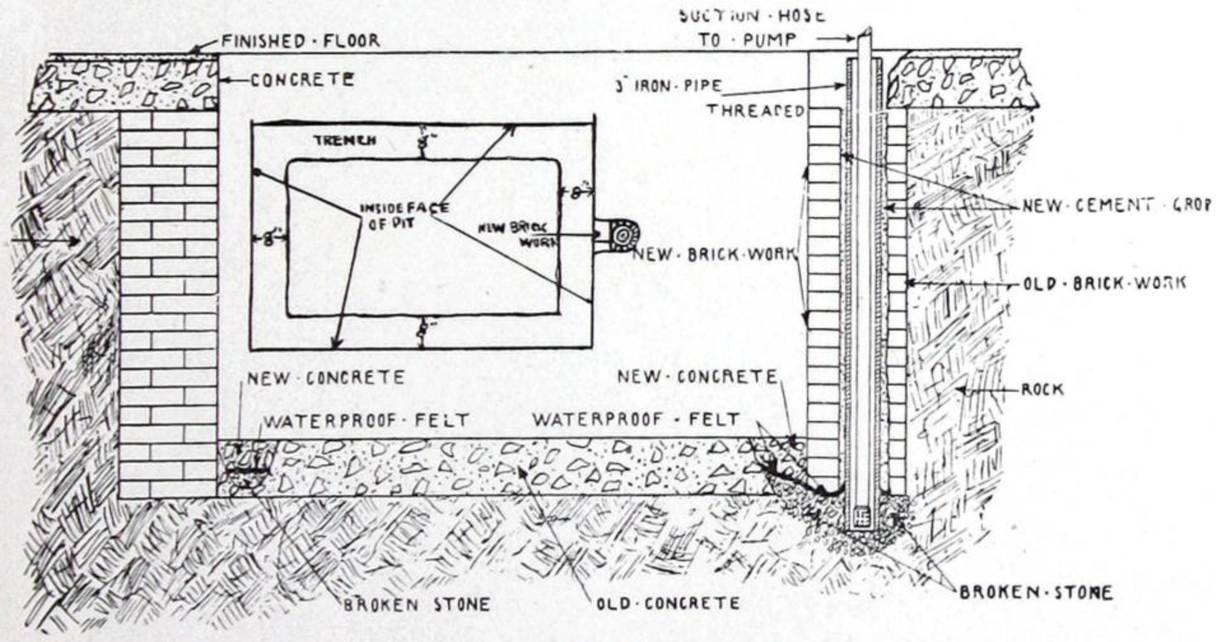
Showing method of caring for water during water-proofing.

FIG. 7A.



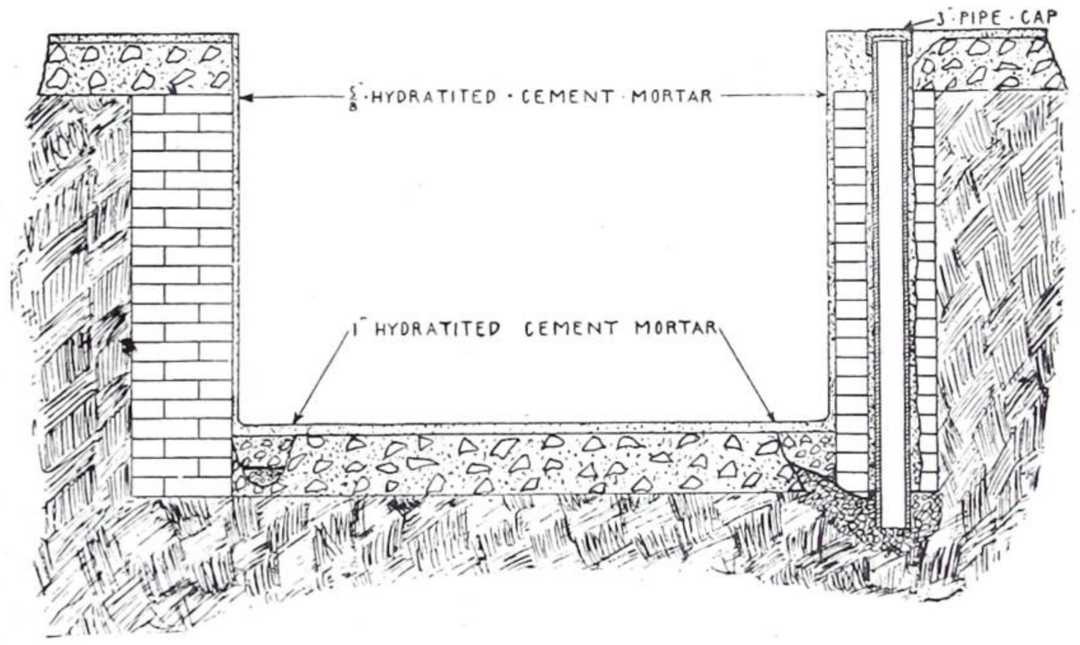
Showing completed section water-proofed with Hydratited Cement.

FIG. 8.



Showing preliminary step in water-proofing—Pump installation at side.

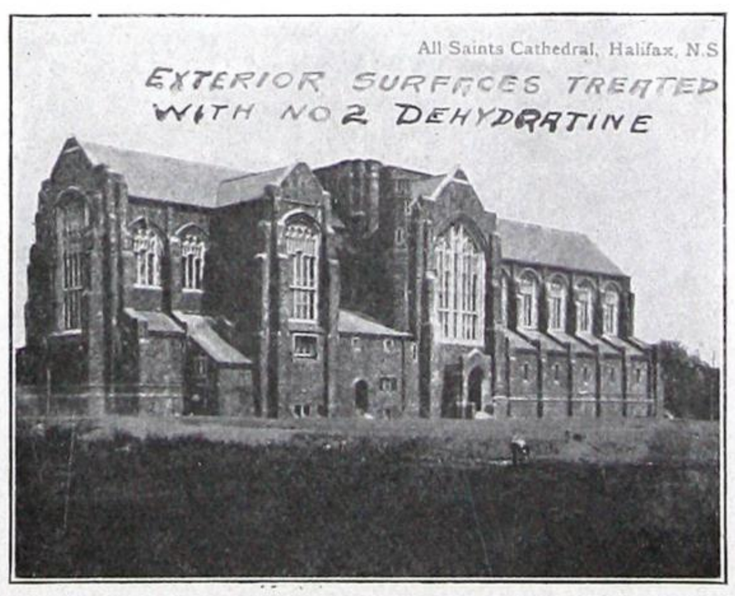
FIG. 8A.



Showing completed section water-proofed with Hydrated Cement.



Union Station, Winnipeg.
Dehydratine No. 4 and Hydratite. Symentrex on Dome.



All Saints Cathedral, Halifax.
Dehydratine No. 2 used.

CERESIT WATERPROOFING COMPANY

GENERAL OFFICES:

WESTMINSTER BUILDING,

CHICAGO, ILLINOIS.

CANADIAN BRANCHES:

DOUGLAS MILLIGAN, LTD., 304 University Street, Montreal
W. K. McDONALD CO., Crown Office Bldg., Toronto.
WALKERS LTD., 259 Stanley Street, Winnipeg.
E. G. CULLEN, 324 Drake St., Vancouver, B.C.
DE B. CARRITTE, St. John, N.B.
DE B. CARRITTE, Halifax, N.S.

Factories in Chicago, Unna, Westphalia, Germany, London, Paris, Vienna, Warsaw.

PRODUCTS.

"CERESIT."



WATERPROOFING COMPOUND.

USES. Ceresit is a perfect means of waterproofing cement in any form and under any circumstances.

ADVANTAGES. 1. *Moisture Proof.* Ceresit renders concrete, cement, mortar, or cement stucco absolutely and permanently moisture proof.

2. *Pressure Proof.* Tests made under pressure up to 500 pounds to the square inch—far greater than is ever met in actual use—did not show a drop of seepage through Ceresitized concrete.

3. *Frost, Alkaline and Sea Water Disintegration Proof.* Destructive powers of frost, sea water and alkaline water, are overcome by Ceresit. Frost loses its effect because no free water can enter the structure. Again, Ceresit guards against the action of alkaline water, because it completely repels the water which would have to carry the destructive elements into the structure.

4. *Extends Through Entire Structure.* Ceresit permeates every part of the mass uniformly. Chipping of the surface cannot affect its water-proofing quality.

5. *Does Not Impair Original Strength.* Many tests, made under every possible condition by scientific men, failed to show that Ceresit affects the strength of concrete in any way.

6. *Has No Odour.* Ceresit has no odour of its own. Naturally, it leaves none. In fact, it keeps foul elements out.

7. *Does Not Discolour.* Ceresit not only does not discolour but it has a slightly bleaching effect.

8. *Easily Mixed.* Ceresit requires neither expert labour nor extra labour to get the correct results.



MONROE BUILDING, CHICAGO, CORNER MONROE STREET AND MICHIGAN BOULEVARD.

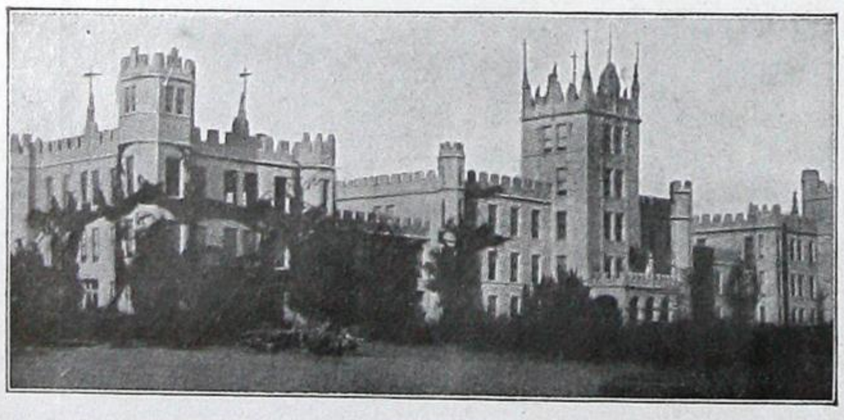
Foundations of this big Chicago sky-scraper, right on the lake front, that furnish perfect support for 5 stories, built of reinforced concrete and water-proofed with Ceresit.

The basements are about 20 feet below street level.



MICHAEL REESE HOSPITAL, CHICAGO

Tunnel connecting Annex, within one hundred feet of lake front, water-proofed with Ceresit.



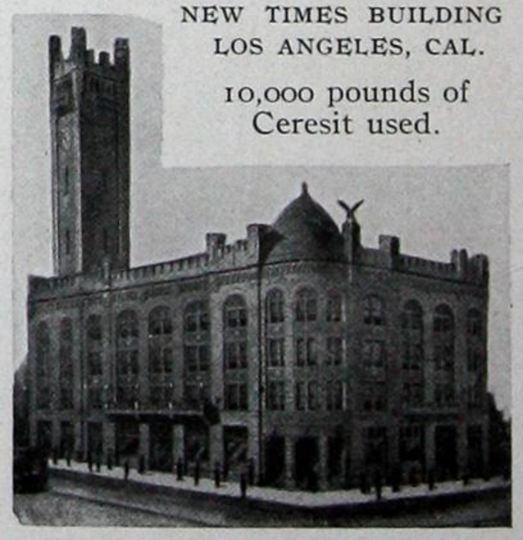
NORTHERN ILLINOIS STATE NORMAL SCHOOL, DE KALB.

Here was presented another problem of waterproofing that was solved by Ceresit.



GRAND HOTEL, GARDONE.

Problem one of continuous pressure.



NEW TIMES BUILDING
LOS ANGELES, CAL.

10,000 pounds of Ceresit used.

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CERESIT WATERPROOFING COMPANY

GENERAL OFFICES:

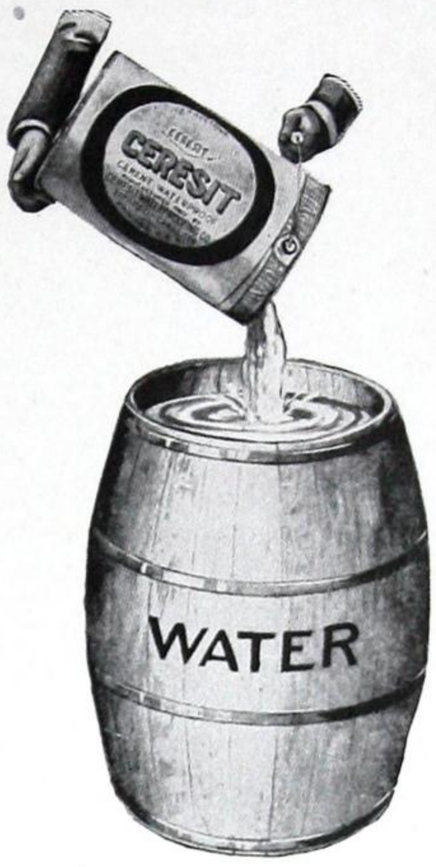
WESTMINSTER BUILDING,

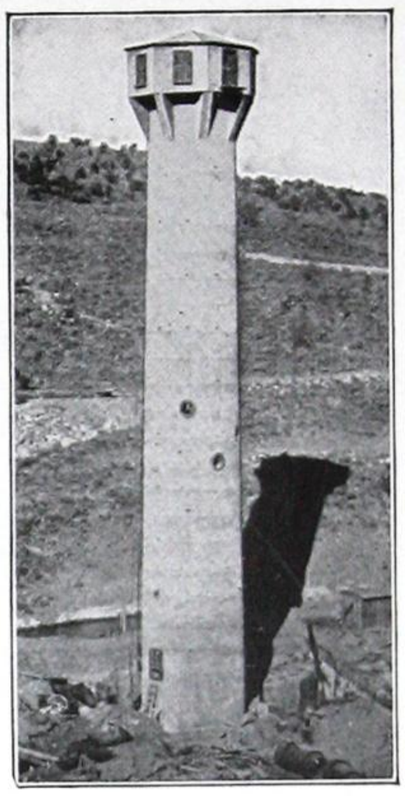
CHICAGO, ILLINOIS.

CANADIAN BRANCHES:

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W. K. McDONALD Co., Crown Office Bldg., Toronto.
WALKERS LTD., 259 Stanley Street, Winnipeg.
E. G. CULLEN, 324 Drake St., Vancouver, B.C.
DE B. CARRITTE, St. John, N.B.
DE B. CARRITTE, Halifax, N.S.

Factories in Chicago, Unna, Westphalia, Germany, London, Paris, Vienna, Warsaw.





WATER TOWER,
SAN ACACIO, COLORADO.

Builders sought to make this reinforced concrete tower —135 feet high —absolutely water-proof. This was a big problem. Perfect results were obtained by the use of Ceresit in the mass.

METHODS OF USE.

Mix one part of Ceresit with an equal part of water; stir until thoroughly dissolved, then add further 11 to 19 parts of water, making the total proportion one (1) part of Ceresit to from twelve (12) to twenty (20) parts of water, according to the water pressure.

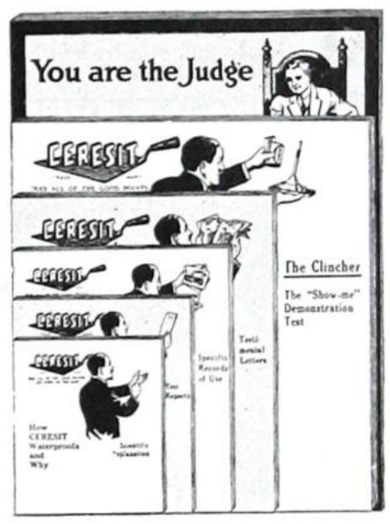
Ceresit weighs practically the same as water, and can be measured either by weight or volume.

PACKING AND SIZES.

Ceresit waterproofing is put up in five and ten gallon jacketed cans and in barrels, and may be obtained from us or from our authorized agents in principal cities.

LITERATURE AND PRICES

1914 Ceresit Catalogue — the "Book of Evidence," which will be off the press on April 1—is distinctive, novel, and original. One book is built over another. A Judge sits above all. Records of 5 "Witnesses" are told separately in the unique books. Tell us what kind of construction you are interested in, and we will estimate the necessary quantity. Send for our price lists.



TEST REPORTS.

Our catalogue contains authoritative and complete reports of technical tests made of Ceresit by American and European Engineers. Robert W. Hunt & Co., Engineers, and the Imperial Bureau of Testing Materials, Berlin, Grosserlichterfelde, present such reports, showing proof of the great merit of Ceresit.

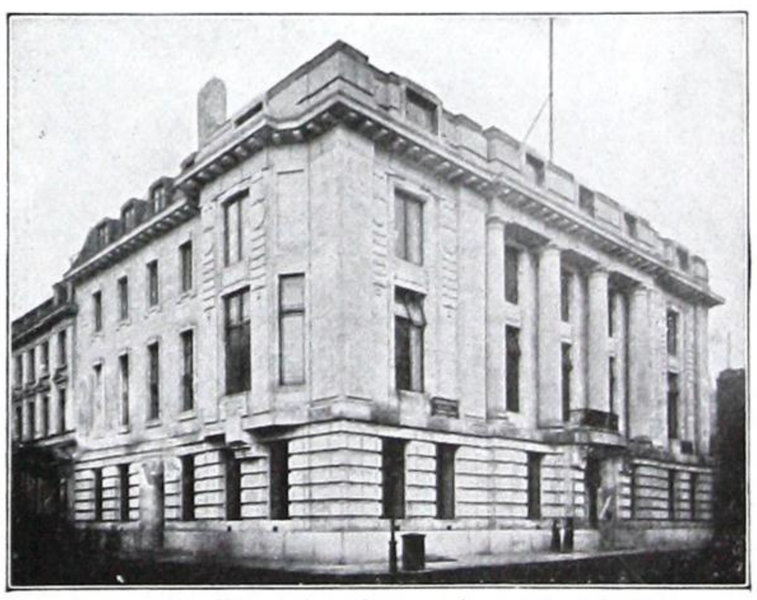
A TESTIMONIAL.

Nashville, Tenn., June 14, 1913.

Ceresit Waterproofing Company,
Chicago, Illinois.

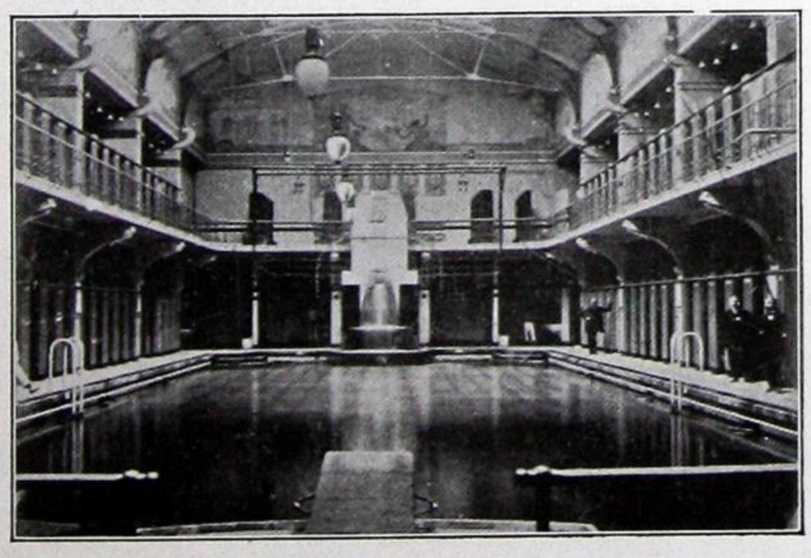
Gentlemen,—Replying to yours of October 10th, we beg to say that we have used CERESIT in concrete floors and cement plastering of walls of a deep basement of Messrs. Lever Bros. Soap Works, Toronto, and also in connection with a small piece of work for the Bank of Commerce at Kingston, Ont., and we found it quite satisfactory.

T. CANNON & SON, LTD.



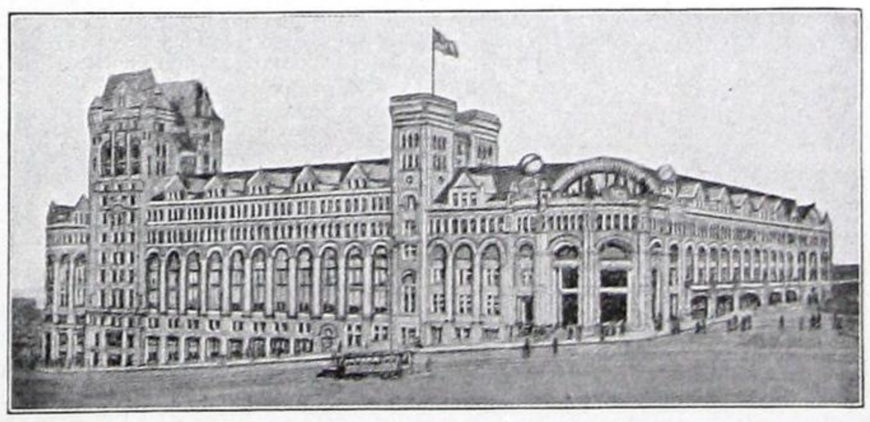
ROYAL SOCIETY OF MEDICINE, LONDON, W.

Basement of this structure was made absolutely nd permanently water and damp-proof by Ceresit.



SWIMMING POOL,
GRETRY, LIEGE.

To render this swimming pool water-tight, a Ceresitized cement mortar coating was applied on the inside walls.



WINDSOR STATION, MONTREAL, QUEBEC.

The problem was to waterproof a large reinforced concrete tunnel.

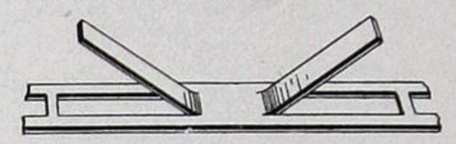
THE STEEL FLOOR SLEEPER ANCHOR CO.

TORONTO.

AGENCIES:
JOHN H. ALEXANDER,
604 BUILDERS' EXCHANGE, WINNIPEG, MAN.
WM. W. O'NEIL CO., LTD.,
VANCOUVER, B.C.

AGENCIES:
GORMAN, CLANCEY & GRINDLEY, LIMITED,
CALGARY, ALTA.
WALKER & BARNES,
EDMONTON, ALTA.

PRODUCT. GRIP-TIGHT FLOOR SLEEPER ANCHOR. A new method of anchoring Wood Sleepers to Concrete.



GRIP-TIGHT Floor Sleeper Anchor.
Patented United States, Canada and Great Britain.

GENERAL. It has been admitted by those who know that the method usually employed to fasten wood sleepers to concrete by the installation of cinder filling for various reasons has not been satisfactory.

The object in using the new anchor is to fasten the wood sleepers to the concrete independent of the filler if necessary. Where an air space is required, this method is exceptionally valuable.

The use of concrete filler to hold the sleepers in place is not only expensive, but is unnecessary with the new method.

The new method will prevent loose sleepers, caused by the shrinkage of wood and concrete, and consequently give you a solid wood floor without movement.

The usual practice followed in fastening wood sleepers for the reception of the floor is to lay the sleepers and fill in between just prior to the installation of the interior finish. This introduces into the building tons of moisture to be absorbed by the drier parts, and more especially by the kiln-dried interior finish and floors, usually with disastrous results.

Why not avoid this risk by using the anchor?

Again, the expense incurred by waiting for the building to dry out is an item to be considered, as it represents the interest on a large investment tied up. For this reason alone we believe the anchor should appeal to you.

FIVE REASONS WHY YOU SHOULD USE THE ANCHOR.

1st.—Secure anchorage without movement caused by shrinkage.
2nd.—Save the cost of cinder filler and lighten the floors.
3rd.—Save expense bevelling the sleepers.
4th.—Save time laying and levelling.
5th.—Secure a valuable air space where it is required.

If it is necessary to use a filler, why not a dry one?

The anchor strip is 2 inches wide and made of iron heavily coated with waterproof paint. It is punched 12, 16 and 24 inch centres and, as you will see by the illustration, is a self-spacer, providing you start by laying the ends of the strips to a straight line. This can be done by placing the ends against the wall, if it is straight, or by running a straight line across one side of the building against the wall.

The strips can be placed any distance apart for anchoring the sleepers, the prongs always appearing through the concrete in perfect alignment.

After a section of concrete has been laid, the strip is cut to the desired length and puddled in from one to one and one-half inches, as you so desire, which is the work of only a few minutes, the same being repeated as the fresh batches of concrete are laid. No special care is required in doing this, as it is immaterial as to whether the strip runs perfectly level in the concrete.

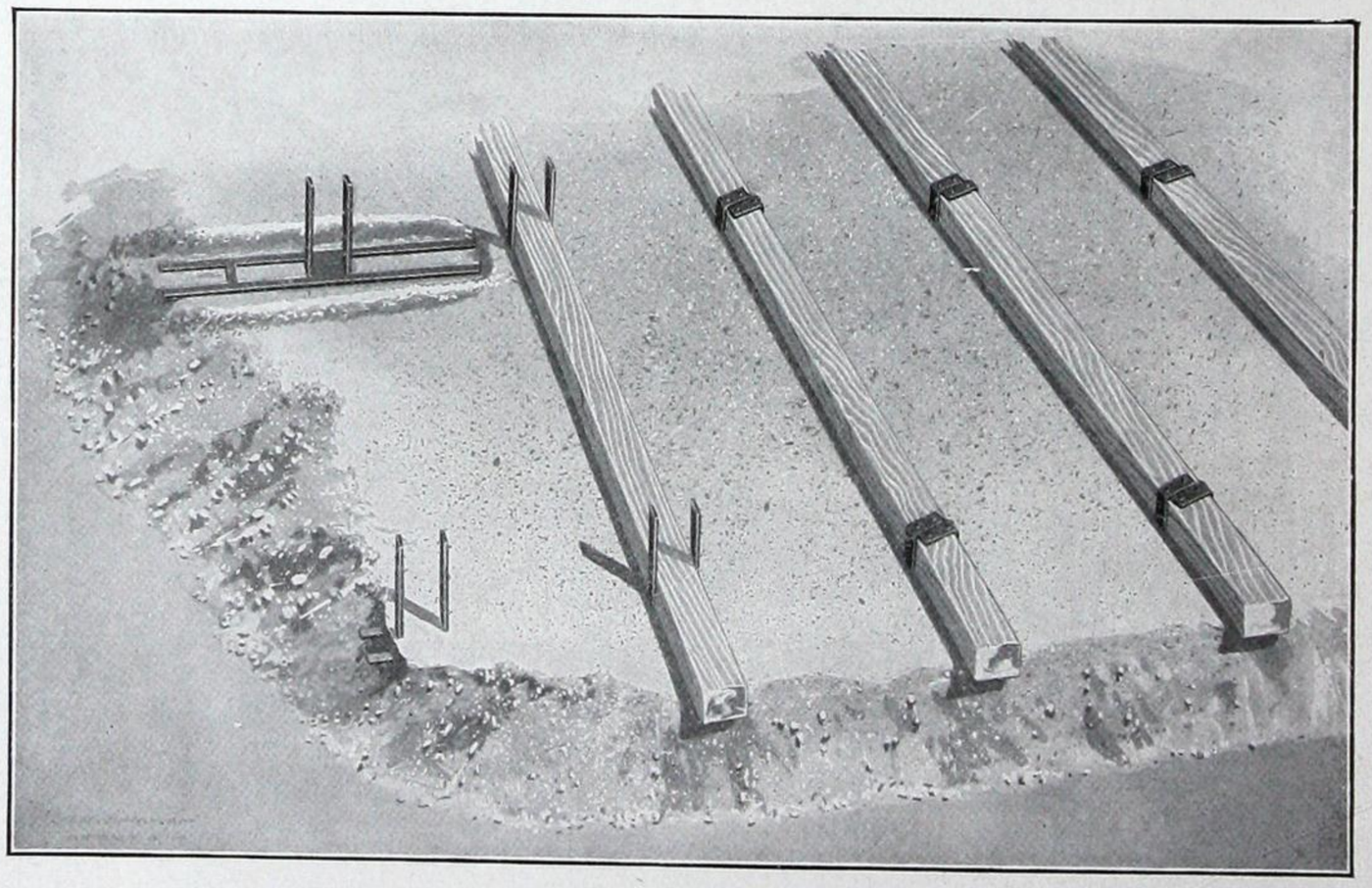
When the concrete is dry enough to walk on, the prongs which protrude can be bent over with the foot on the face of the concrete until such time as you are ready to lay the sleepers, when they can be turned up and fastened. When the prongs are nailed over the sleepers, a good knock with the hammer is sufficient to keep them from interfering with the laying of the floor. Below we give you a specification for laying the sleepers:

SPECIFICATION.

The contractor for the carpenter work will work in unison with the contractor for the concrete work and place in the concrete the metal strip for anchoring the wood sleepers. This will be done as the batches are being levelled up by placing the strip in the concrete and tapping it gently down one to one and one-half inches, care being taken to place the ends of the strips in a straight line to insure perfect alignment of the prongs.

When the concrete is sufficiently dry to walk on this contractor will bend over the prongs to keep them from interfering with traffic. When the wood sleepers are to be laid, this contractor will turn up the prongs and fasten them securely, any space between the sleeper and the concrete to be pointed with cement mortar. All sleepers must be laid true from end to end and collectively.

NOTE.—Please note that the sleepers can be laid more readily by this method, as the warping of the material can be taken out of each piece as it is laid, avoiding the necessity of tying them together with strips and using weights to hold them straight until the filler is poured and set.



This method of anchoring can be successfully used in connection with cement slab roofs for the reception of slate or copper.

In presenting this scheme, which has been patented in the United States, Canada and Great Britain, we feel that we have been able to improve conditions somewhat in this connection, and we would feel greatly encouraged to have you specify our production.

INFORMATION. For further particulars address Head Office, Toronto.

SUN BRICK CO., LIMITED

MANUFACTURERS OF "SUNTEX" PRODUCTS AND DENISON INTERLOCKING TILE,

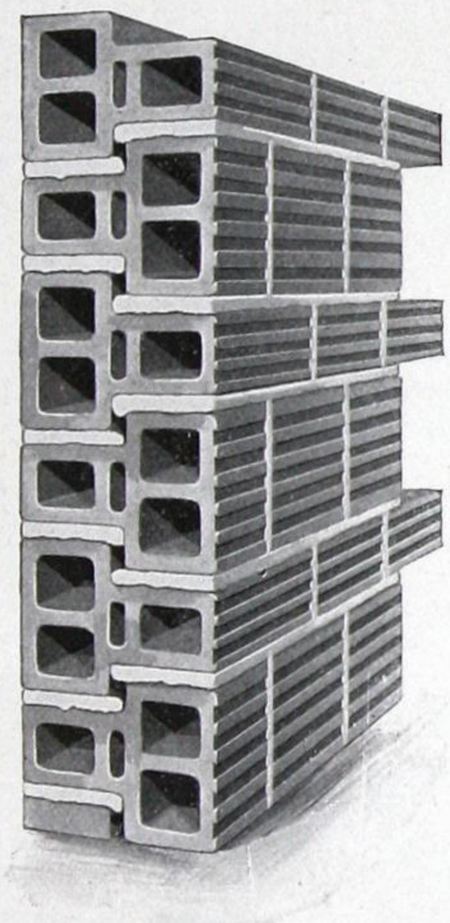
TRADERS BANK BUILDING,

TORONTO, ONT.

PRODUCT.

DENISON INTERLOCKING TILE is used for Bearing Walls instead of Common Brick. It is manufactured from Shale, burned to semi-vitrification. Deeply scored or grooved, a key is formed to hold plaster, it being splendidly adapted for stucco buildings or for backing facing materials. No furring is required. One shape and size builds all desirable thicknesses of walls. No matter what thickness of wall you build with Denison Tile, every vertical web stands directly over a vertical web below. The wonderful stability of the Denison Tile Wall is due to the four-inch mortar beds and its interlocking system. No mortar joints extend through the wall to carry moisture. This feature, together with the many dead-air spaces, renders the Denison Tile Wall impervious to moisture, heat, cold, sound, etc. The weight of the wall and laying-up cost is only about one-half that of solid brick walls.

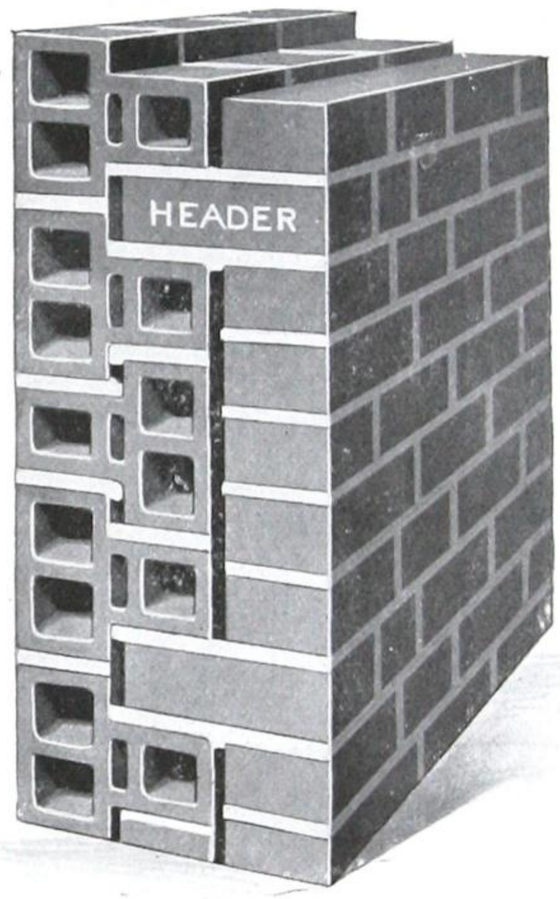
Careful comparison between the Denison and other tiles convinces that no other tile equals these important features.



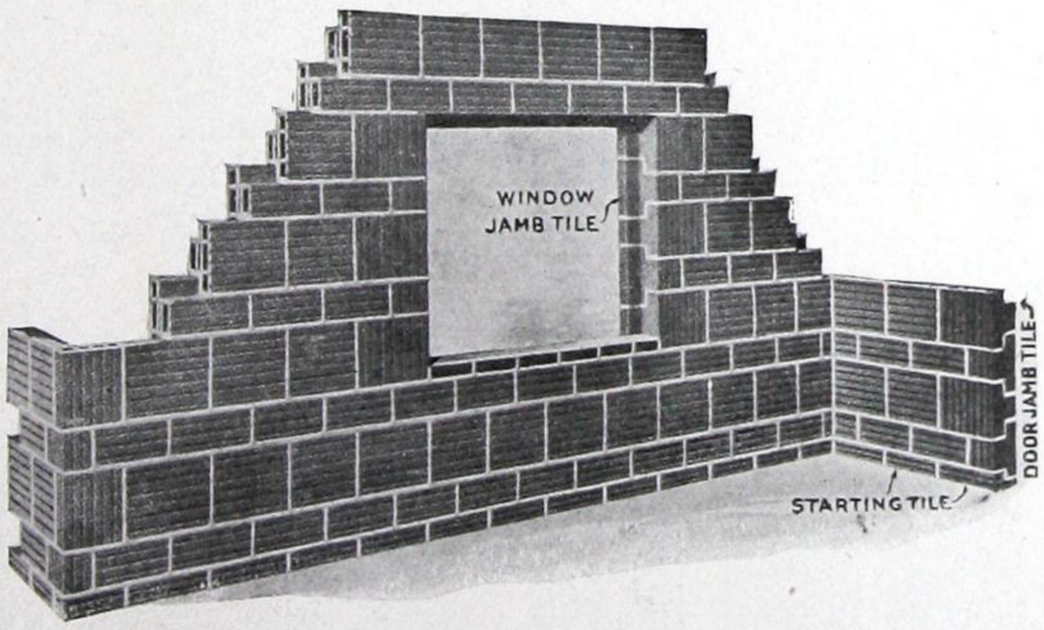
Eight-inch Wall.



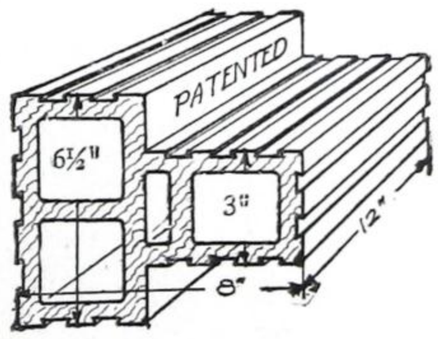
Twelve-inch Wall.

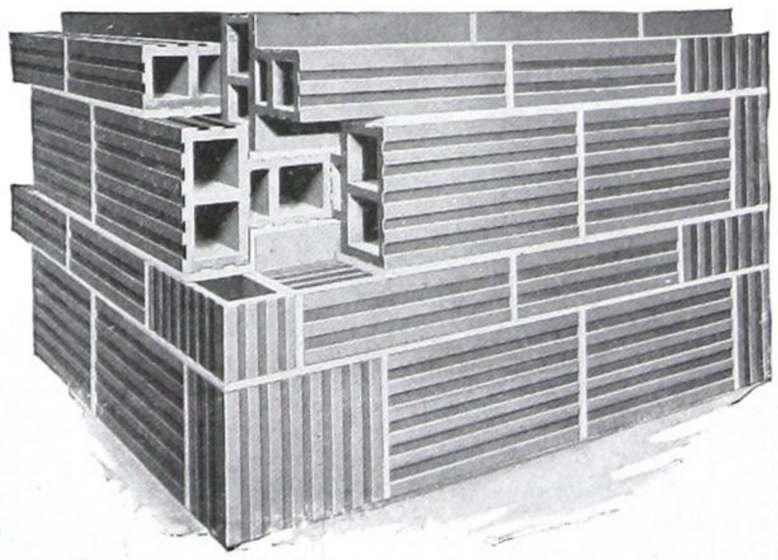


Wall of Denison Tile faced with Pressed or Common Brick.



Application of Jamb Tiles, Corners and Lintel.





Bonding of Wall at Corner. Corner Tile omitted in Upper Part to show manner of Bonding.

It is the Vertical Webs that must carry the Loads. To get their full strength they must stand over each other. (Notice the cuts.)

ORDERING.

In ordering jamb and corner tile, give total linear feet (vertical) of jambs and corners. Weight of wall, inclusive of mortar, 60 pounds per cubic foot. To figure number of tile required, 2 tiles, lay one square foot (face of wall measure) of 8-inch wall; 3 tiles, lay one square foot of 12-inch wall.

INFORMATION.

Architects and builders desiring further information concerning Denison Tile, prices, catalogues, etc., will confer a favour by forwarding their inquiries to us.

See our Brick display on page 11.

THE DON VALLEY BRICK WORKS

HEAD OFFICE, 36 TORONTO STREET,
TORONTO, ONT.

MONTREAL AGENT:
DAVID McGILL,
83 BLEURY STREET.

WORKS:
DON VALLEY, TORONTO.

PRODUCTS. We manufacture the "DON VALLEY" POROUS TERRA COTTA FIREPROOFING for Floors, Roofs, Ceilings, Partitions, Wall Furring, Column and Girder Coverings. Our extensive clay beds are suitable in quality and our facilities are unequalled for producing a high-grade Hollow Tile.

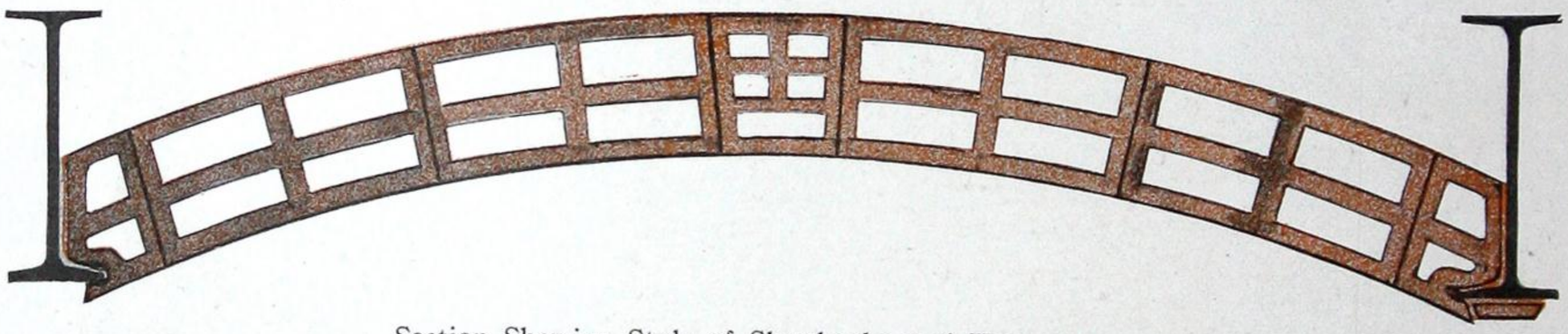
FLAT ARCHES.



Perspective of Typical Arch.

SIDE CONSTRUCTION. This, the oldest method, has the advantage of the blocks being set so as to break joints, and the flat sides of the blocks gives ample surface for making good mortar joints between them.

SEGMENTAL ARCHES.

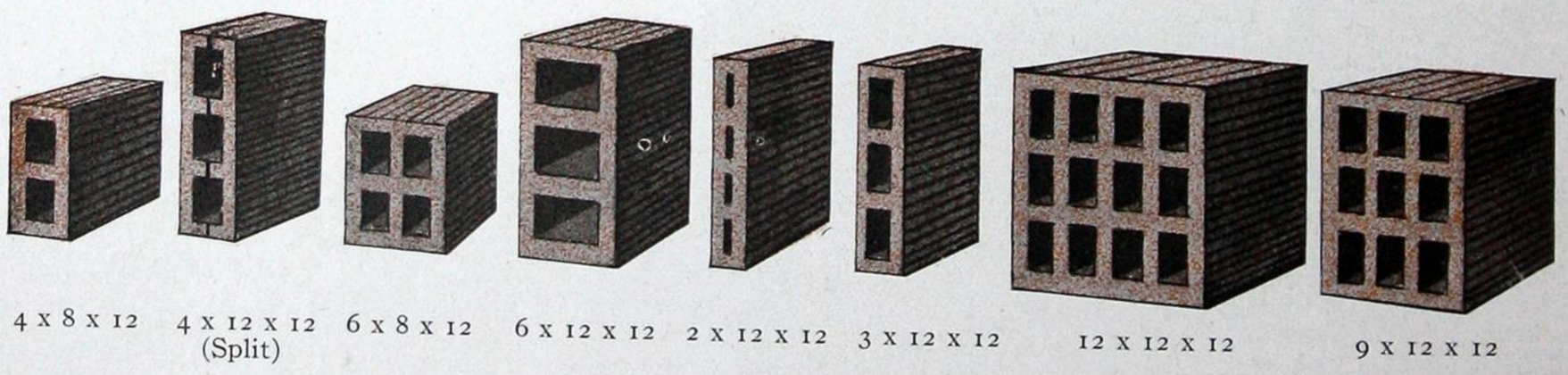


Section Showing Style of Skewbacks and Keys.

This form of arch combines great strength with lightness and cheapness. It is suitable for Warehouse Lofts, Factories, Sidewalks, or wherever a flat ceiling is not essential.

Weight of 6″ Hollow Tile Arch, 27 pounds per square foot.

TERRA COTTA FOR WALLS AND PARTITIONS.

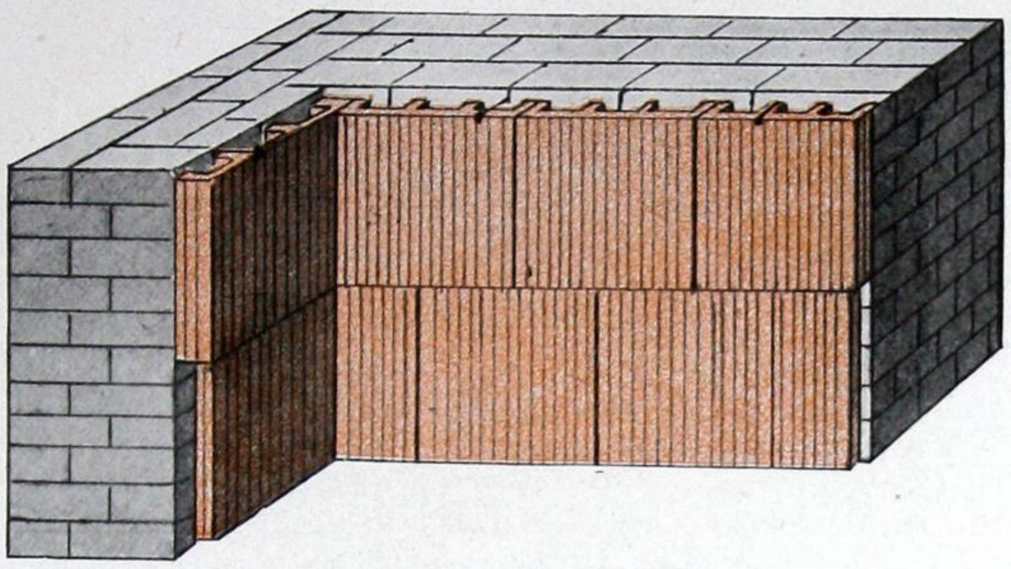


4 x 8 x 12 | 4 x 12 x 12 (Split) | 6 x 8 x 12 | 6 x 12 x 12 | 2 x 12 x 12 | 3 x 12 x 12 | 12 x 12 x 12 | 9 x 12 x 12

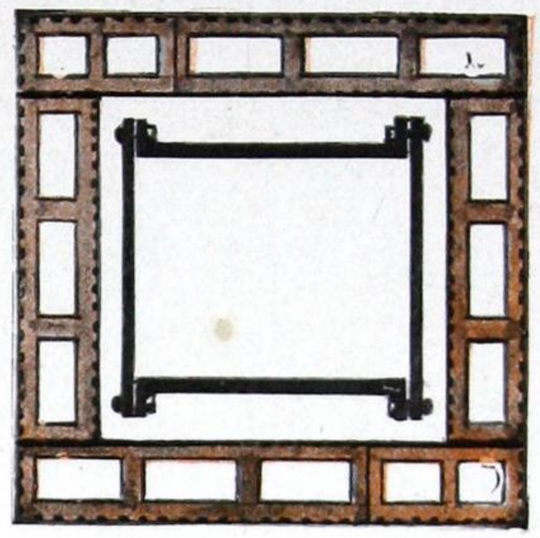
The above cuts represent shapes and sizes of our Porous Terra Cotta for Walls and Partitions.

CONTINUED ON NEXT PAGE

WALL FURRING.



1½ x 12 x 12, weight per square foot, 8 pounds.
2 x 12 x 12, weight per square foot, 9 pounds.

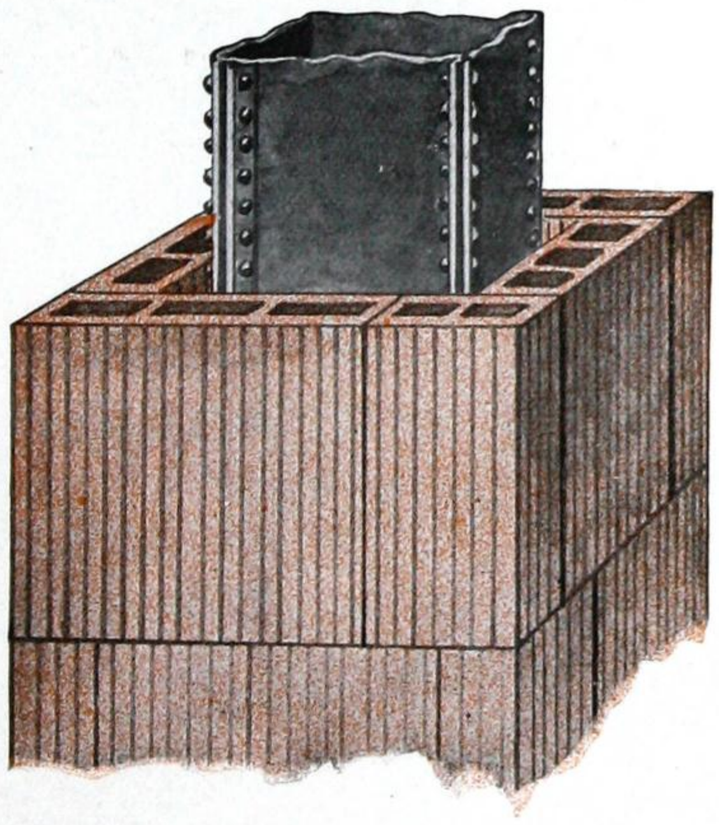


Type of Column Covering.

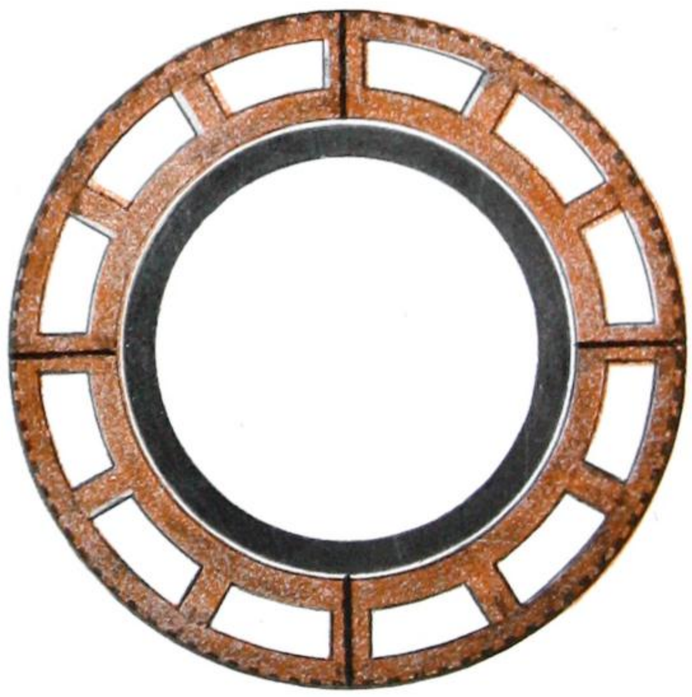
Walls are furred to prevent the admission of moisture either by lining the inside with Terra Cotta Furring Blocks, or by building the inside face of the wall with hollow bricks.

The former method is the more effective and takes less room. We carry large stocks of each.

COLUMN COVERINGS.



Perspective of Column Fireproofing.



Type of Column Covering.

Steel and cast-iron columns must be covered with at least two inches of Porous Terra Cotta. We manufacture and carry in stock a variety of column coverings.

TOUGHER AND WELL-BURNED. Our Terra Cotta is tougher than other makes, thoroughly burned, and is stronger and better for the fireproofing of columns and girders and has less waste than other makes.

PROMPT DELIVERY. We guarantee prompt delivery, furnishing at the same time goods of the very highest quality.

See also our advertisement on pages 6 and 7.

NATIONAL FIRE PROOFING COMPANY OF CANADA, LIMITED

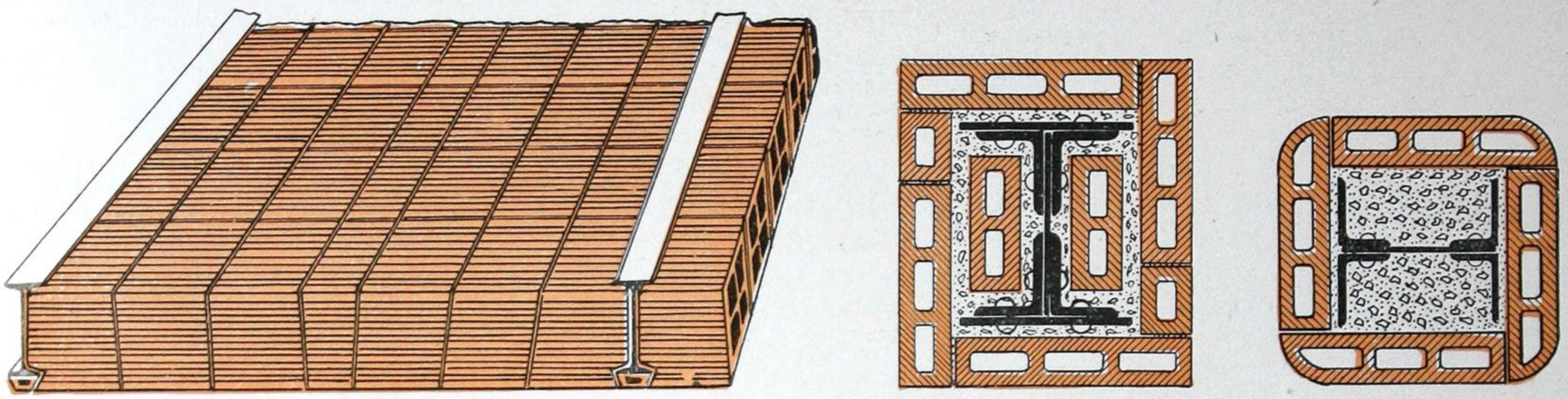
OFFICE: TRADERS BANK BUILDING,
TORONTO, ONTARIO.

MONTREAL: CANADIAN BANK OF COMMERCE BUILDING, COR. ST. CATHERINE AND CRESCENT STS.

PRODUCTS. Manufacturers of DENSE, SEMI-POROUS and POROUS HOLLOW TILE for FIREPROOF FLOORS, ROOFS, CEILINGS, PARTITIONS, WALL FURRING, COLUMN and GIRDER COVERINGS and EXTERIOR WALLS. Contractors for FIREPROOF CONSTRUCTION in both HOLLOW TILE and REINFORCED CONCRETE.

ADVANTAGES. The National Fire Proofing Company of Canada, Limited, applies the benefits of the entire experience of the National Fire Proofing Company of Pittsburgh, U.S.A., covering a period since 1889 up to the present time. This experience has involved practically every system of successful fireproofing that has resulted from engineering and architectural development.

FLAT ARCHES—END CONSTRUCTION. The Flat Arch is the accepted type of Standard Fireproof Floor Construction, meeting every requirement as to strength, fire protection, architectural appearance and minimum weight.



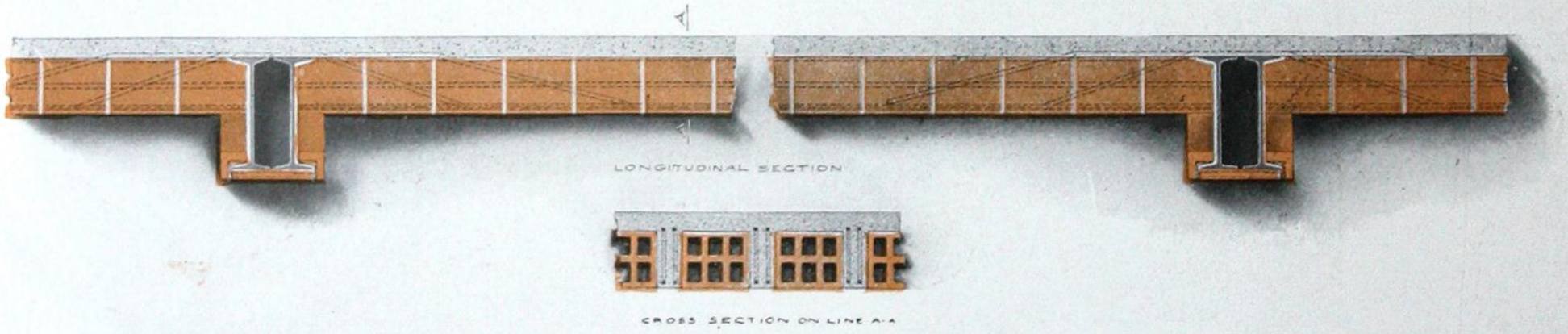
Perspective of Typical Arch.

COMBINATION HOLLOW TILE AND REINFORCED CONCRETE FLOOR CONSTRUCTION. This floor has been used successfully and to economical advantage in many large modern buildings. As shown by the detailed drawing, the centering for this floor is very simple, a solid centering not being necessary. This, of course, is a great factor in reducing the cost of construction.

It will be seen that the tile is first laid on the centering, and after the courses of tile are in place the reinforced concrete joists are cast between the tile courses.

The courses of tile act in compression together with the reinforced concrete rib and also act as a side centering to hold the concrete in place until it has set.

If an additional top coating of concrete is necessary to give the floor requisite strength to carry the load for which it is designed, this top coat is then spread over the entire floor surface to the depth required.



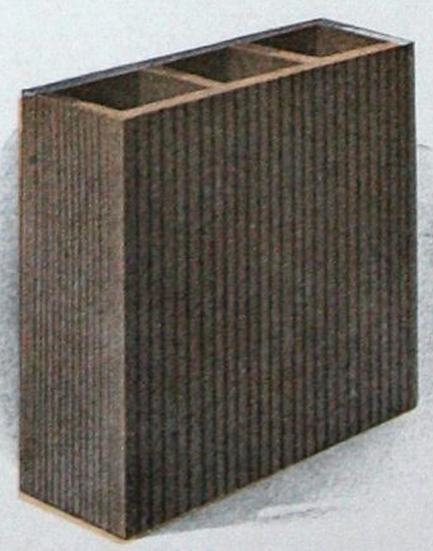
DETAIL OF TYPICAL LONG SPAN COMBINATION HOLLOW TILE AND REINFORCED CONCRETE FLOOR CARRIED ON STEEL BEAMS.

Combination Tile and Concrete Floor System can be used with either reinforced concrete, or steel columns and girders.

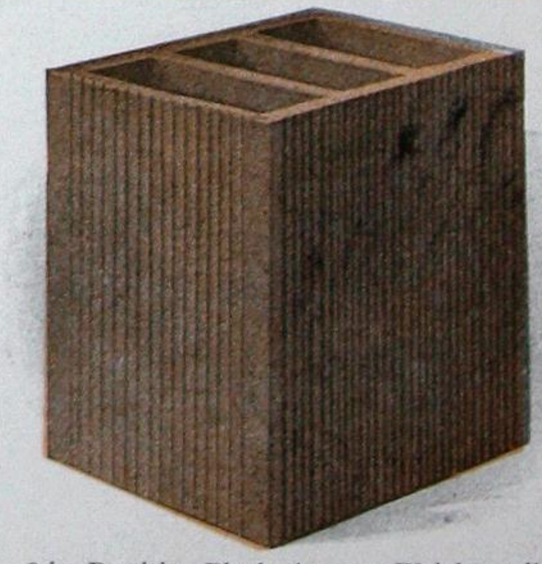
PARTITIONS. Terra cotta blocks form absolutely the best fireproof partitions now known, and can be erected at a very reasonable cost. They are commonly built of dense or semi-porous material. 3-inch blocks can be used safely to a height of 12 feet, 4-inch to 14 feet, and 6-inch to 20 feet.

STOCK SIZES.

2-inch.	3-inch.	4-inch.	6-inch.	8-inch.
2 x 12 x 6 2 x 12 x 12	3 x 12 x 6 3 x 12 x 12	4 x 12 x 6 4 x 12 x 12	6 x 6 x 12 6 x 12 x 12	8 x 12 x 6 8 x 12 x 12



4-in. Partition Block. Average Weight 17 lbs.



8-in. Partition Block. Average Weight 30 lbs.

CONTINUED ON NEXT PAGE

HOUSES OF NATCO HOLLOW TILE.

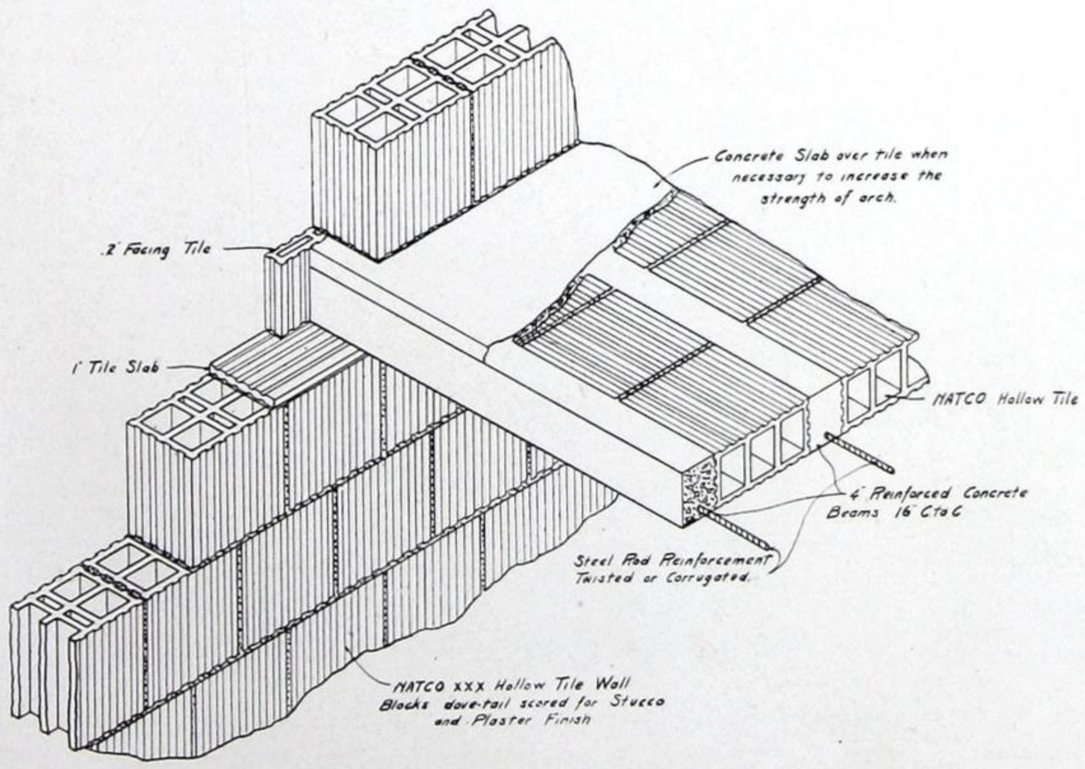
The value and economy of Natco Hollow Tile for structural as well as for fireproofing purposes is now fully recognized, and residence buildings are being built of this material in great numbers, with extremely satisfactory results to owners and architects.

The following illustrations give examples and methods of this construction, but for complete data every architect should have a copy of our book on "Natco Houses," which we shall be pleased to furnish free upon request.

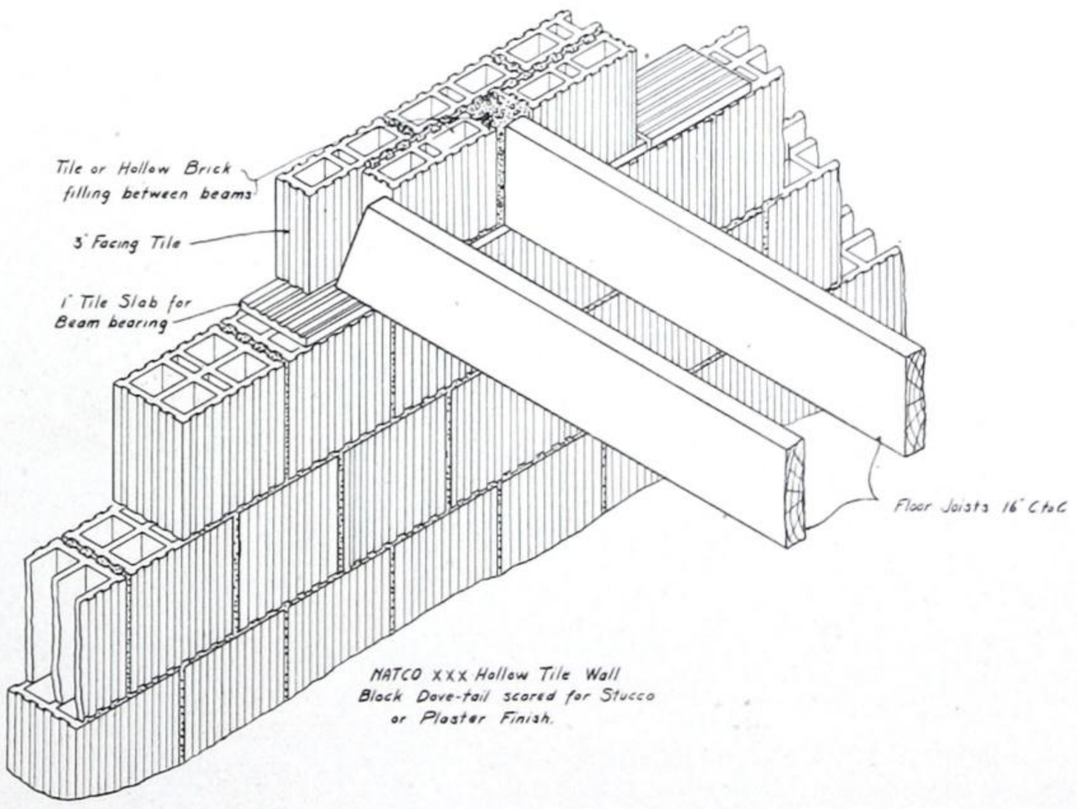
It should be borne in mind that there is a vast difference in clays, as to strength, density and non-staining qualities, and in order to be sure of obtaining material manufactured by us, architects should specify

NATCO HOLLOW TILE.





Detail of Wall Construction with Fireproof Floors.

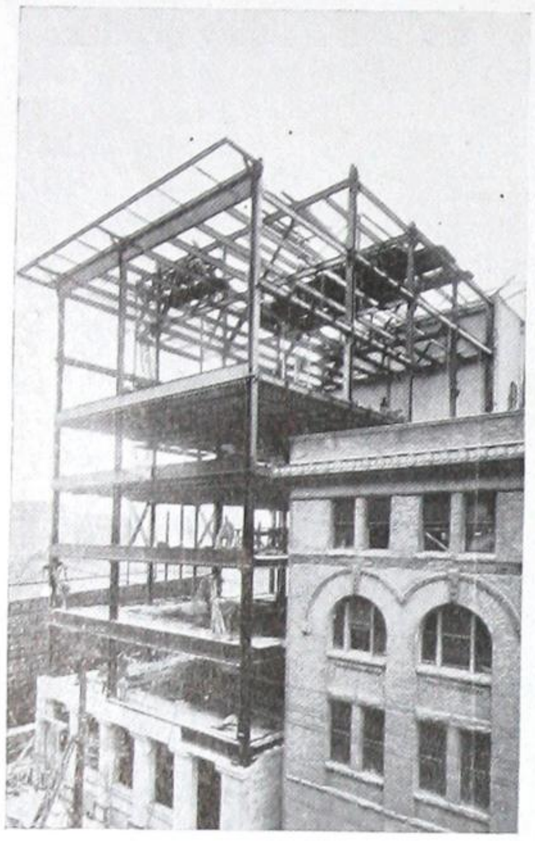


Detail of Wall Construction with Wood Floors.

DOMINION FIRE PROOFING CO., LIMITED

503 Confederation Life Building
WINNIPEG, MAN.

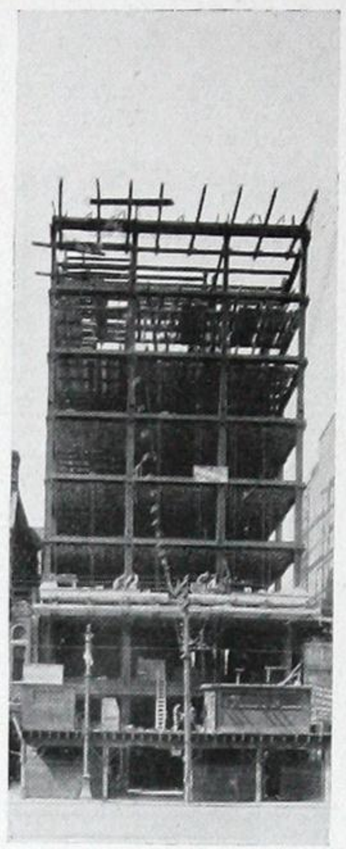
PRODUCTS. Specialists in TERRA-COTTA HOLLOW TILE FIREPROOF CONSTRUCTION.



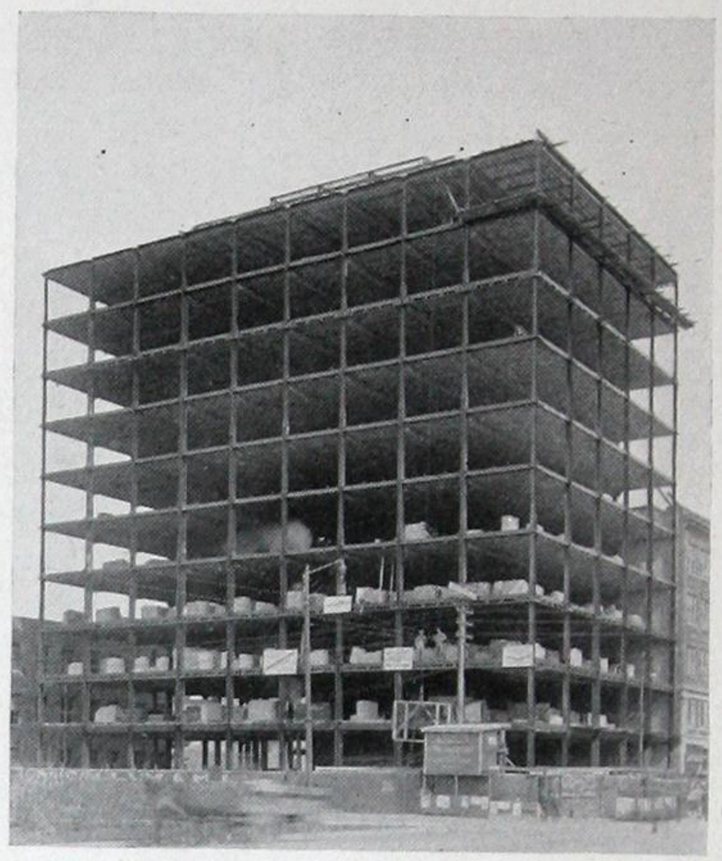
GRAIN EXCHANGE Ext.
Jordan & Over, Architects.



WINNIPEG ELECTRIC BUILDING.
Pratt & Ross, Architects.



G. W. P. L. BUILDING.
J. H. G. Russell, Architect.



McCALLUM & HILL BUILDING, REGINA.
Storey & Van Egmond, Architects.

ILLUSTRATIONS. These buildings were fireproofed with Terra Cotta Hollow Tile because of:

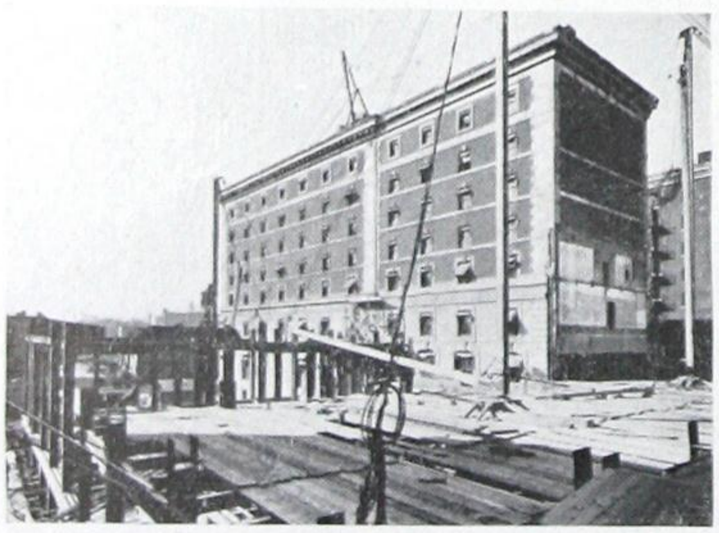
Rapidity of Installation.
Fireproofing Qualities.
Safety of Construction.
Light Dead Loads.
Sound-proof Valve.
Insulation to Extreme Temperatures.
Adaptability to Alterations.
Convenience to Other Trades.
Minimum Insurance Rate.
Result: A net saving of Time, Risk, and Cost to the Owners.



CIVIC BUILDING, EDMONTON.
A. M. Jeffers, Architect.



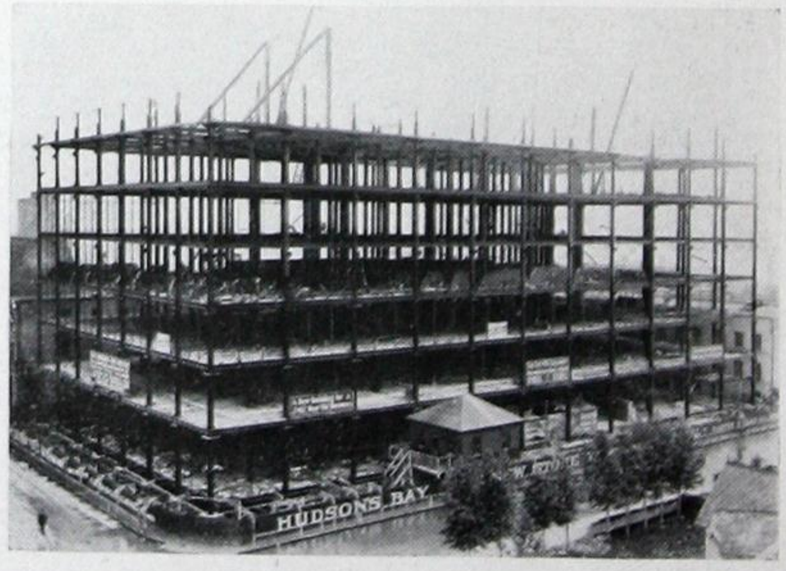
CANADA BUILDING, SASKATOON.
Jas. Chisholm & Son, Architects.



ROYAL ALEXANDRA HOTEL, C.P.R.
Westinghouse Church & Kerr, Engineers.



MERCHANTS BANK BLDG.
J. D. Atchison, Architect.



HUDSON'S BAY STORE, CALGARY.
Burke, Horwood & White, Architects.

CATALOGUE. Illustrated Catalogue mailed upon request.

THE DOMINION BRIDGE CO., LIMITED

HEAD OFFICE, LACHINE, QUE.

P.O. ADDRESS: MONTREAL, QUE.

BRANCH OFFICES:
TORONTO—GEORGE E. EVANS, Manager.
WINNIPEG—GEORGE E. BELL, Manager.
OTTAWA—W. A. MATTICE, Manager.

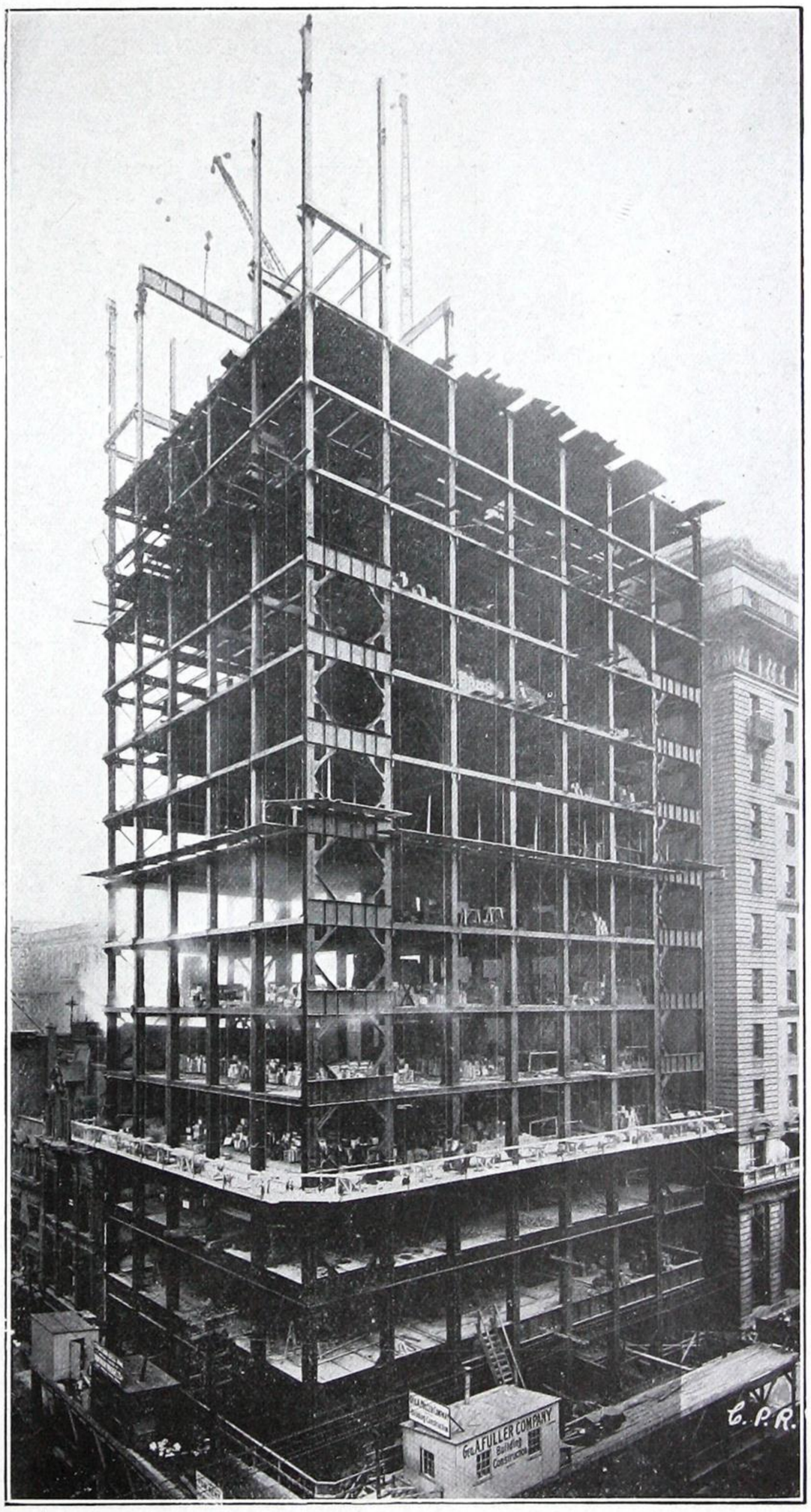
SHOPS AT
LACHINE, P.Q.
TORONTO, ONTARIO.
OTTAWA, ONTARIO.
WINNIPEG, MAN.

PRODUCTS. We are designers and builders of RAILWAY and HIGHWAY BRIDGES, SWING and BASCULE SPANS, and all kinds of STRUCTURAL STEEL WORK, including COLUMNS, GIRDERS, ROOF TRUSSES, TANK TRESTLES, ELECTRIC CRANES, LOCOMOTIVE TURNTABLES, HOISTING APPLIANCES, LIFT LOCKS, HYDRAULIC REGULATING GATES, Etc., Etc.

STOCK. We have always in stock at Lachine, Toronto, Ottawa and Winnipeg, a large supply of steel beams, channels, angles, tees, plates, etc.

FACILITIES. Our shops at Lachine, Toronto, Ottawa and Winnipeg are equipped with the most modern tools, and we are consequently in a position to manufacture and ship structural steel work of every description with the least possible delay.

Our total annual capacity amounts to 100,000 tons.



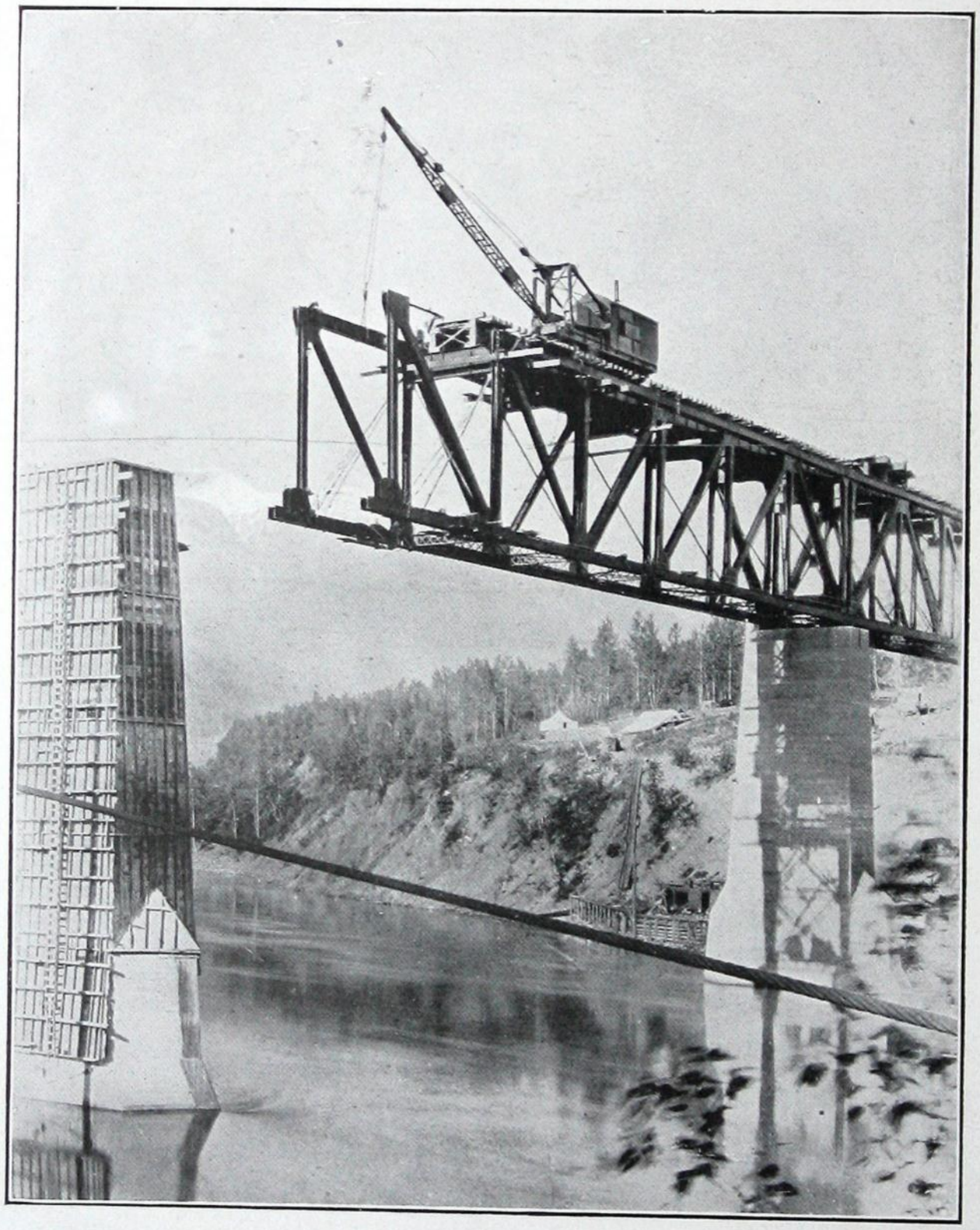
C.P.R. Office Building, Toronto.
Darling & Pearson, Architects. 2,000 Tons of Steel in Position.

THE CANADIAN BRIDGE COMPANY, LIMITED

WALKERVILLE, ONTARIO.

PRODUCTS. STEEL RAILWAY BRIDGES, STEEL HIGHWAY BRIDGES, LOCOMOTIVE TURNTABLES, OFFICE BUILDINGS, and GALVANIZED or PAINTED ELECTRIC TRANSMISSION TOWERS.

CAPACITY. 40,000 tons per annum.



THE SKEENA RIVER BRIDGE, BRITISH COLUMBIA, GRAND TRUNK PACIFIC RAILWAY—THREE 240-FT. SPANS AND THREE 70-FT. SPANS, THE FORMER ERECTED BY CANTILEVER METHOD FROM ONE END.

DESIGNS AND ESTIMATES. Architects and engineers are respectfully requested to accompany their inquiries with plans, specifications and full data.

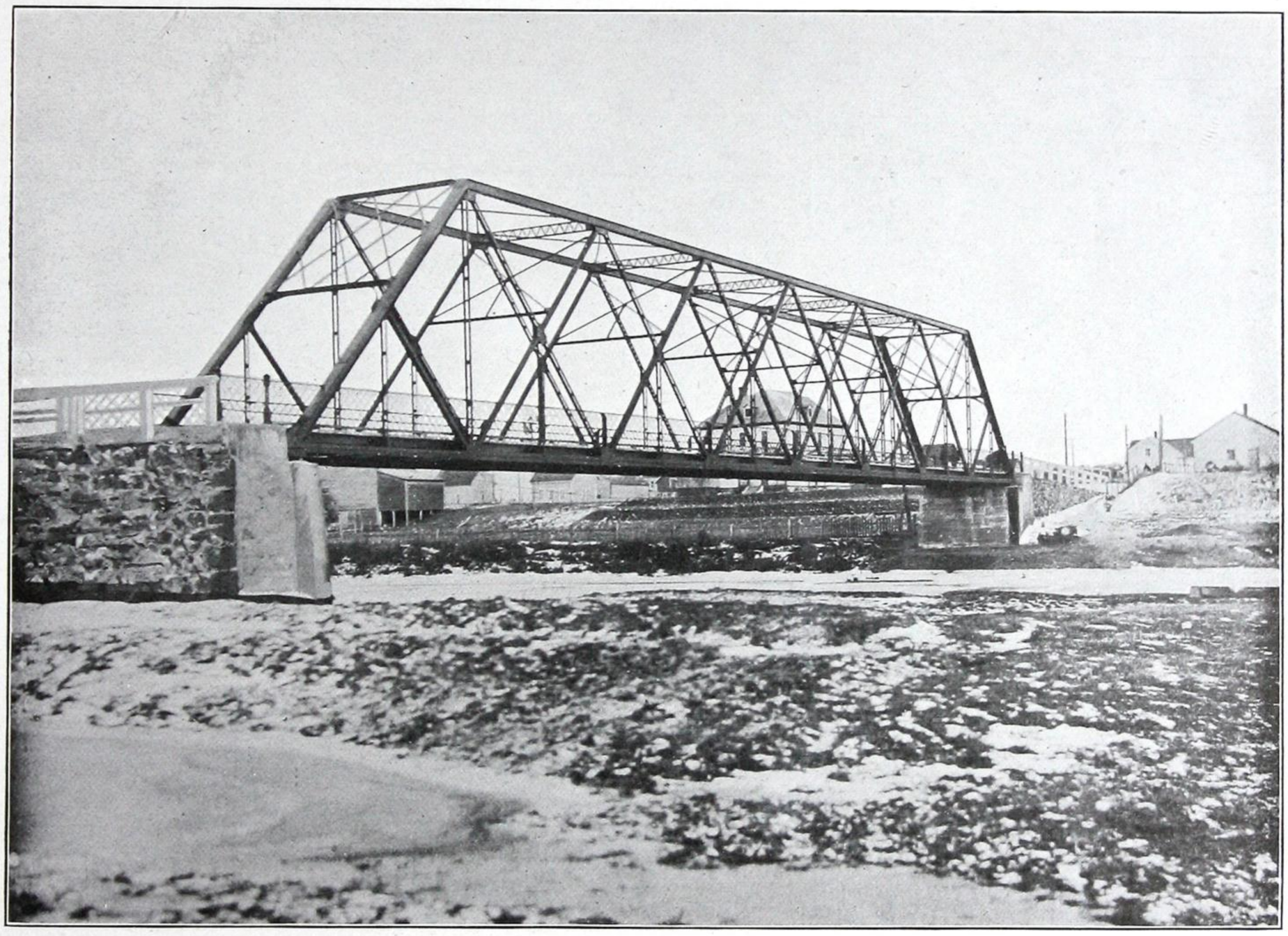
EASTERN CANADA STEEL & IRON WORKS, LIMITED

MONTREAL OFFICE:
CORISTINE BUILDING.

HEAD OFFICE AND WORKS:
QUEBEC, P.Q.

SERVICES. STRUCTURAL STEEL ENGINEERS, MANUFACTURERS, CONTRACTORS.

FACILITIES. Completely equipped modern plant for fabricating and erecting structural steel work for buildings, manufacturing plants, highway bridges, railroad bridges, viaducts, etc., located on the main line of the C.P.R. Annual capacity, 14,000 tons. Stock of 5,000 tons of plates and shapes constantly on hand. Prompt deliveries a specialty.



HIGHWAY BRIDGE AT LYSTER, MEGANTIC COUNTY, QUEBEC.
225-FT. SPAN, FABRICATED AND ERECTED BY EASTERN CANADA STEEL & IRON WORKS, LIMITED.

WORK EXECUTED. A number of other large bridges have been fabricated and erected. The following is a list of some of the buildings, steel work for which was fabricated and erected by the Eastern Canada Steel & Iron Works, Limited:

Quebec Railway L. H. & P. Building, Quebec.
Parliament Library Building, Quebec.
Forestry Building, Laval University, Quebec.
New Customs House, Quebec.
Chicoutimi Seminary.
Art Museum Building, Montreal.
Temple Baptist Church, Montreal.

THE MANITOBA BRIDGE AND IRON WORKS, LIMITED

WINNIPEG, MAN.

REPRESENTATIVES AT

CALGARY, EDMONTON, LETHBRIDGE, SASKATOON, REGINA,
AND ALL OTHER PRINCIPAL POINTS IN WESTERN CANADA.

PRODUCTS. We are Designers and Builders of all kinds of STRUCTURAL STEEL WORK, GIRDERS, ROOF TRUSSES, COLUMNS, TRESTLES and HIGHWAY BRIDGES, FIXED and LIFT SPANS, TANK and PLATE WORK, CAST IRON COLUMNS, BASES, etc.
TRANSMISSION MACHINERY and ELEVATOR EQUIPMENT.



INTERIOR OF OUR NEW FOUNDRY.—CAPACITY, 25 TO 30 TONS DAILY.

OUR PLANT. Six completely equipped departments: Bridge and Structural Shop, Plate and Tank Shop, Foundry, Forge Shop, Machine Shop, Ornamental and Pattern Shop.

Annual capacity of structural steel and cast iron, 30,000 tons.

CANADIAN ALLIS-CHALMERS, LIMITED

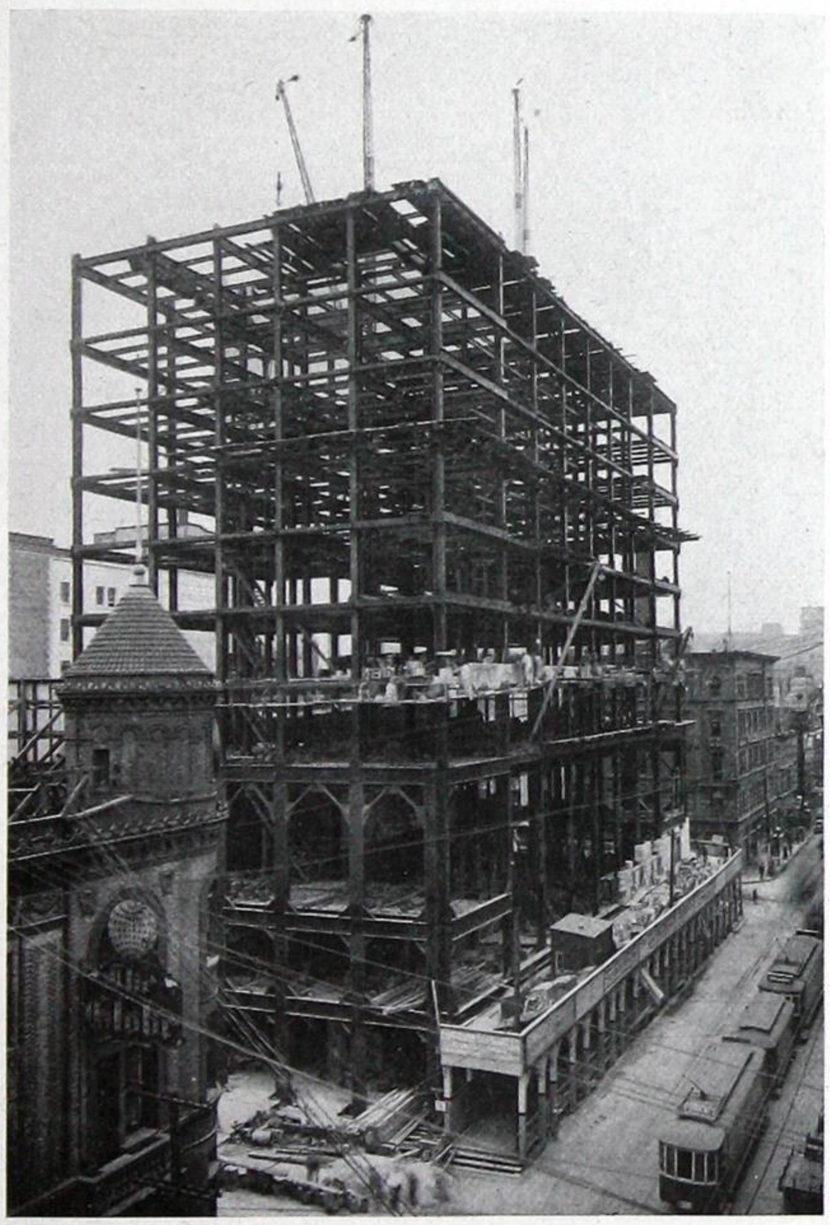
(FORMERLY CANADA FOUNDRY CO., LIMITED)

BRIDGE DEPARTMENT,
TORONTO, CANADA.

A NEW RECORD
FOR THE ERECTION OF STRUCTURAL STEEL.

PRODUCTS. Our Bridge and Structural Department is now in a position, with our own Staff and Shops, to Design, Estimate, Fabricate, and Ship and Erect promptly OFFICE and MILL BUILDINGS, BRIDGES, PENSTOCKS, GALVANIZED TRANSMISSION TOWERS, Etc.

Among other notable buildings and bridges erected in 1913 is the Dominion Bank, noted below, a detailed description of which will be sent on request without charge.



NEW DOMINION BANK,
TORONTO.

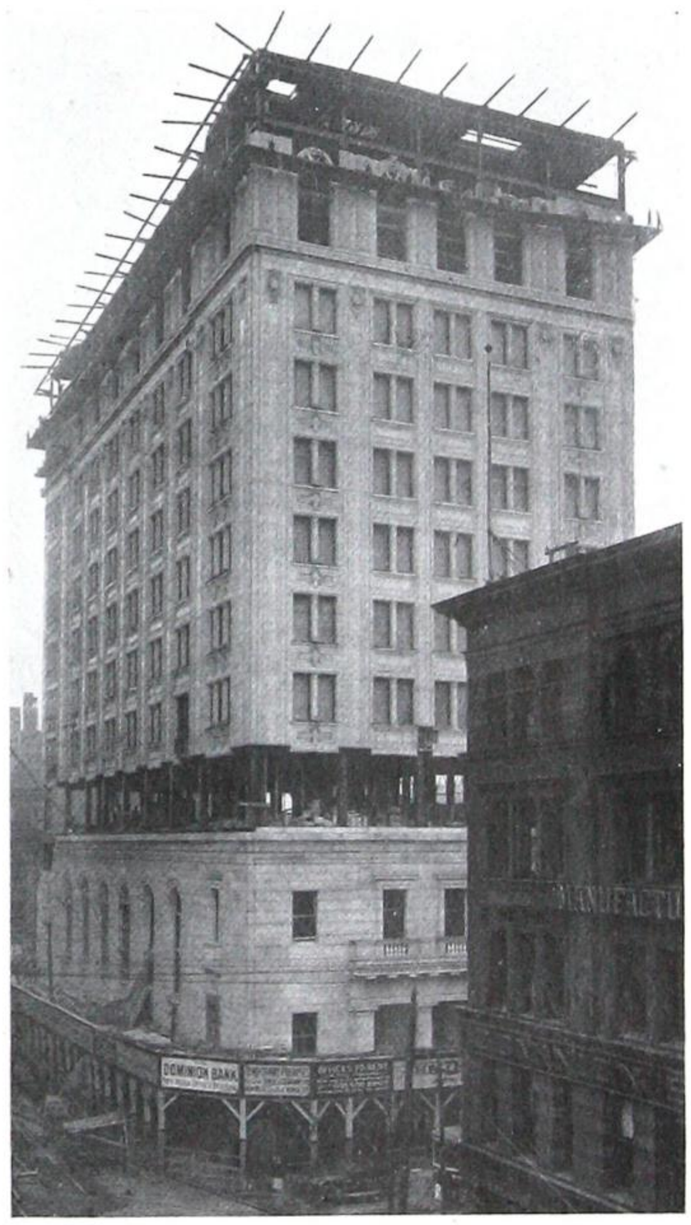
Darling & Pearson, Arch.

Steel Work Furnished and Erected by Canada Foundry Co., Bridge Dept.

First Columns erected Aug. 23rd. Last Steel erected, including Riveting, Painting, and Removal of Derricks, etc., Nov. 10th, 1913.

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64 DAYS (omitting Sundays).



NO. 1—OCTOBER 21ST.

From the above illustration it will be seen that the steel work has been completed to the tenth floor and is ready to receive the last tier of columns. The commencement of the stonework on the fourth floor is also shown.

NO. 2—NOV. 10TH (20 DAYS LATER).

Entire steel work finished and nearly all granite in position. Stonework incomplete at third floor to facilitate handling of material and protect exterior ornamental work.

CAPACITY. Our Bridge Shops at Toronto and Bridgeburg, Ont., have increased capacity for quick deliveries.

8,000 tons Structural Steel in stock.

Send us your enquiries for any class of steelwork for Bridges and Buildings.

THE ROOFERS' SUPPLY CO., LIMITED

BAY AND LAKE STREETS,

TORONTO, ONT.

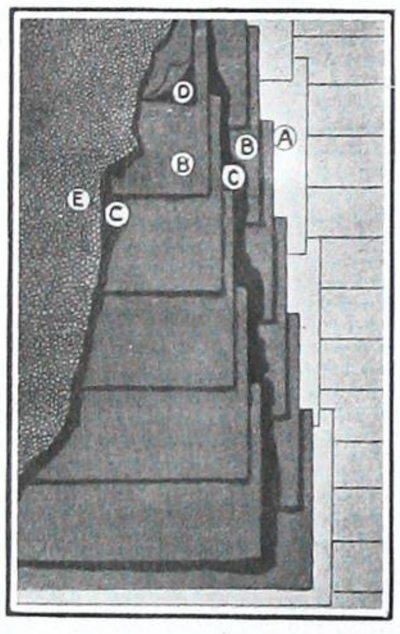
PRODUCTS. We are manufacturers of and dealers in SHEET METALS, ROOFING MATERIALS, ROOFERS' SUPPLIES, WIRED GLASS, Etc.

FELT AND GRAVEL ROOFS. The flat or deck style of roof is conceded to be the most economical for warehouses, factories, office buildings, etc. The slope of roof should be ¼ inch to ½ inch per foot. Where hanging gutters are to be used, have the cornice project at least 10 inches over wall, have the facia board come up to roof and go below the soffit; never have roof boards project past facia; put a 6 inch strip of galvanized iron along eave, turned down 3 inches into gutter, then start your Felt Roofing by sticking the first ply to the edge of roof and over the galvanized iron, projecting the felt over 1 inch to 2 inches to carry water into gutter. Around sky-lights, chimneys, brick walls, etc., turn felt up and stick with pitch, nailing a lath along top of felt, about 3 inches up from roof. If Metal Cloak Flashing is to be used, the lathing is not necessary. Never allow any nailing or flashing, etc., to come within 3 inches of roof. The most successful way to construct flat roofs is to have the water brought down inside the building, grade the roof to one or more points according to size of building, have hoppers about 16 inches across mouth, run down into 4 inch wrought or cast iron pipe, put wire guard over hopper to prevent gravel, etc., getting in. The trouble with ice along eaves and in gutters is done away with, but this style is not suitable unless the building is sufficiently heated to prevent frost reaching the down-pipes during winter. We offer for guidance two specifications, but recommend No. 1 for all first-class buildings.

These roofs resist fire three times as long as iron or tin.

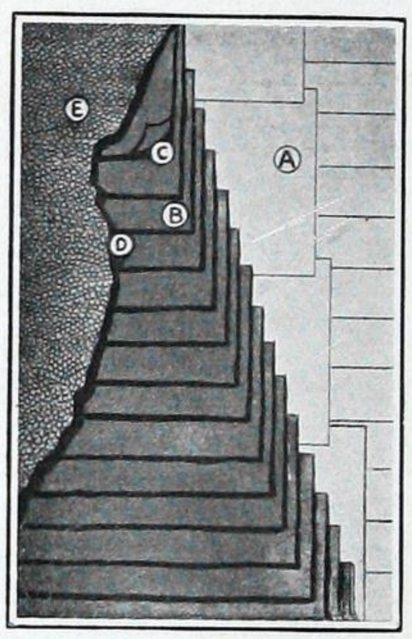
Felt to be *"R. S. Brand"* medium weight Tarred Felt.

Pitch to be *"R. S. Brand"* Roofing Pitch.



Specification No. 1.—Lay one ply of dry felt or sheathing, over this two plies of tarred felt, medium weight, swabbed between each sheet with hot pitch, then swab the whole surface with a good coat of boiling pitch; lay another two plies of tarred felt, swabbed between sheets, and a second flowing coat of hot pitch. When last coat of pitch is set, swab on a light coat of hot coal tar, and evenly spread over the whole, clean gravel to a depth of ⅝ of an inch.

A—Dry Felt or Sheathing. BB—Tarred Felt, each ply shows 15 in. exposed. CC—Flowing Coat of Pitch. D—Pitch between Sheets. E—Gravel.



Specification No. 2.—Lay one ply of dry felt or sheathing, over this four plies of tarred felt, medium weight, swabbed with hot pitch between each sheet, then swab on a flowing coat of hot pitch. When set, apply light sticking coat of coal tar and cover to ⅝ of an inch with clean gravel.

A—Dry Felt or Sheathing. B—Tarred Felt, each ply shows 7½ in. exposed. C—Pitch between Sheets. D—Flowing Coat of Pitch. E—Gravel.

ADVANTAGES OF SLATE ROOF. A roof does not require any stronger construction for slates than for shingles. This theory has long ago been disproved by practical men. A slate roof adds greatly to the appearance of any class of building; its first cost is the only cost. It is fire-proof and therefore lessens the rate of insurance. It does not collect ice or snow, and can be deluged with water and dry out in a few minutes. It cannot rot or corrode, while the rain water from a slate roof is pure and clean.

SPECIFICATION FOR SLATE ROOFING. Put in strong valley rafters. Tongue and grooved sheathing is not necessary, only have your boards even in thickness, your roof ¼ pitch or upwards. Line your valleys 20 inches wide at bottom and 15 inches at top with galvanized iron. Chimneys should always have a saddle at back; step and cloak flash at all intersections around brick work, and cover ridges with galvanized iron. Have your eave-troughs so hung that the outside edge will be ½ inch below the run of the roof, so that ice or snow may slide clear. Lay over boarding one ply Slaters' Felt, then cover with "Roofers Supply Company's No. 1 Roofing Slate" (in black, green, mottled or red), and you will have a good roof for ever. A square contains sufficient slate to cover 100 square feet.

PRICES. We carry a large stock of Roofing Slate in black, green, mottled or red, and quote the following prices for slate laid on roof at Toronto: Black Slate, per square, $9.00 to $10.00; Mottled, $9.00 to $10.00; Unfading Green Slate, $11.00 to $12.00; Red, $16.00 to $20.00.

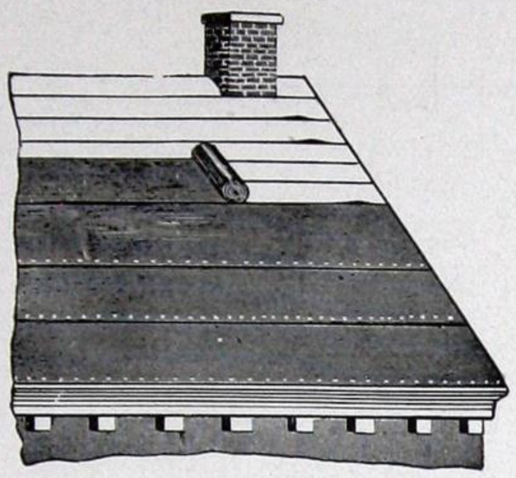
RUST-RESISTING IRON. Our rust-resisting galvanized and black sheets will last five to seven times as long as ordinary galvanized sheets. Write and get particulars.

ROOF TILE. Write for particulars and prices on our Red, Green or Brown Vitrified Tile; also our promenade flat roof tile.

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READY ROOFING.

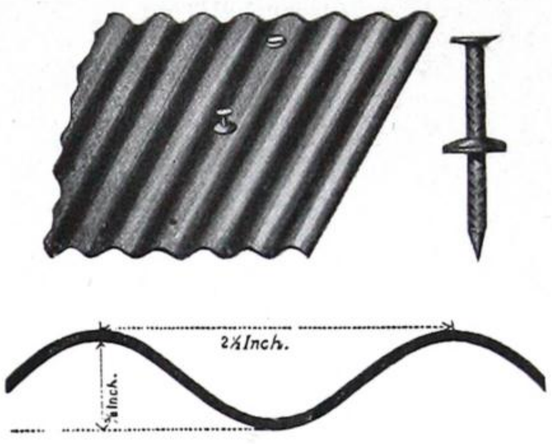
Ready Roofings



For sloping roofs on factories, freight sheds, barns, etc., there is nothing better than our prepared wool felt asphalted roofings. Each roll contains sufficient to cover 100 square feet of roof, also the necessary nails and liquid asphalt for sticking laps. On roofs where there is a short rafter, this style of roofing is often laid from ridge to eave, but we recommend starting at the eave; let the roofing project over eave about 2 inches, and we advise rolling out along roof; stretch tight so as to avoid wrinkles, drive a few nails along top edge to hold in position, the bottom edge can then be turned up and liquid run along; stick down and nail about every 3 inches. This is the most satisfactory way to apply Ready Roofings. Write for samples and prices of Roofers Supply Company's Ready Roofing.

CORRUGATED GALVANIZED IRON.

The use of Corrugated Galvanized Iron is increasing steadily each year, as architects and builders recognize in it a very serviceable material for roofs and siding of warehouses, elevators, barns, etc. The iron may be applied to sheeting of wood or direct to iron or wood purlins. Any gauge can be supplied from 18 to 28, weight depending on gauge, from 75 to 240 lbs. per 100 square feet of iron. All our sheets are corrugated from the very best quality of sheets made for that purpose; they are uniform in size, and the corrugations, being pressed by very heavy machinery, fit exactly. Two sizes of corrugations can be supplied, $2\frac{1}{2}$ inch x $\frac{5}{8}$ inch and 1 inch x $\frac{1}{4}$ inch. The sizes of sheets kept in stock are 6, 8 and 10 feet long, the widths depending on the size of corrugation used. Sheets corrugated $2\frac{1}{2}$ inches x $\frac{5}{8}$ inch are $27\frac{1}{2}$ inches and 33 inches wide; sheets corrugated 1 inch x $\frac{1}{4}$ inch are $26\frac{1}{2}$ inches and 32 inches wide. Odd-sized sheets can be supplied at extra cost.



Half Full-size Corrugation.

Quotations from us are based on 100 square feet of iron after corrugating, no allowance being made for laps, the pitch or angle of roof having a great deal to do with the amount of lap required. We recommend for roofs that are known as quarter pitch or 3 inches to the foot, 3 inch end lap and two corrugations side lap. This makes the covering width of a sheet 33 inches wide ($2\frac{1}{2}$ inch x $\frac{5}{8}$ inch corrugations) $28\frac{1}{2}$ inches. For siding we give an end lap of 2 inches and side lap of one corrugation, this makes the covering width of a sheet $30\frac{1}{2}$ inches. Allowing for the different laps indicated above, 121 square feet of iron is required to cover 100 square feet of roof, and 110 square feet of iron is required to cover 100 square feet of siding.



Half Full-size Corrugation.

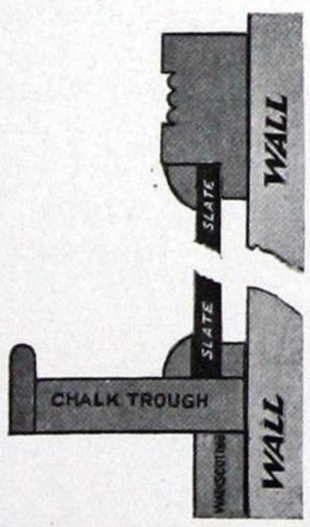
Where sheeting is not used, space the purlins not more than 2 feet 6 inches for 26 gauge iron, from 3 feet to 4 feet for 24 gauge, from 4 feet 6 inches to 6 feet for 22 gauge, and from 6 feet to 8 feet for 20 gauge.

A special fastener is required for iron purlins.

We recommend our Lead Washers for use under nail head when applying corrugated iron to a roof. They make an absolutely water-tight joint and prevent rust from accumulating under the nail head. One pound is required for two or three squares. The additional cost per square of doing a job with these washers is trifling, while a perfect job is made. The application is shown in the foregoing cut.

Quotations for Corrugated Galvanized Iron delivered F.O.B. any point will be mailed upon application. We also supply Black Corrugated Sheet, painted, for which we will be pleased to receive your enquiries.

SLATE BLACKBOARDS.



Our Slate Blackboards are made from the Bangor, Pa., "Big Beds," best in the world for this class of work.

In ordering, be sure and give the exact length of space to be filled, and the width of board required. Our boards are smooth and flat, easily set up in position. The cut shows clearly the best method of setting up. See that joints are even on surface before nailing up the quarter-round stops. Prices furnished on application.

SLATE TREADS AND LANDINGS.

We supply Treads and Landings for stairways, etc. Enquiries for prices must state exact size and thickness required. The usual thickness for this class of work is $1\frac{1}{4}$ inches, and the slate in general use is that known as ribbon stock, being cheaper and just as serviceable as clear stock.

WIRED AND ROUGH ROLLED GLASS.

Wired Glass has come into very general use for fireproof windows, also for skylight work. We carry a large stock of the Wired and also of the ordinary Rough Rolled Glass, 3-16 inch and $\frac{1}{4}$ inch thick. The Wired Glass in general use is $\frac{1}{4}$ inch thick. We also supply to order Clear Wired Glass, which is used for elevator doors and also for office windows. This Clear Wired being rather expensive, is not carried in stock, but is cut to order. Contrary to the general impression that is held concerning Wired Glass, it is cut with very little more trouble than the ordinary glass; in fact, the percentage of breakage in cutting Wired Glass is actually less with us than in cutting the ordinary Rough Rolled, and for skylight work, particularly large skylights, there is nothing to compare with the Wired Glass, as it retains its place and remains water-tight when cracked in two or three places in the one light. As a preventive against fire for partition work or in metal windows it has been found invaluable, and where used reduces the premium on insurance very materially. In writing for prices give exact size and quantity.

THE ASBESTOS MANUFACTURING COMPANY, LIMITED

GENERAL OFFICES:

705 EASTERN TOWNSHIPS BANK BUILDING, 263 ST. JAMES STREET,

MONTREAL.

FACTORY AT LACHINE, P.Q.

BRANCH OFFICES:

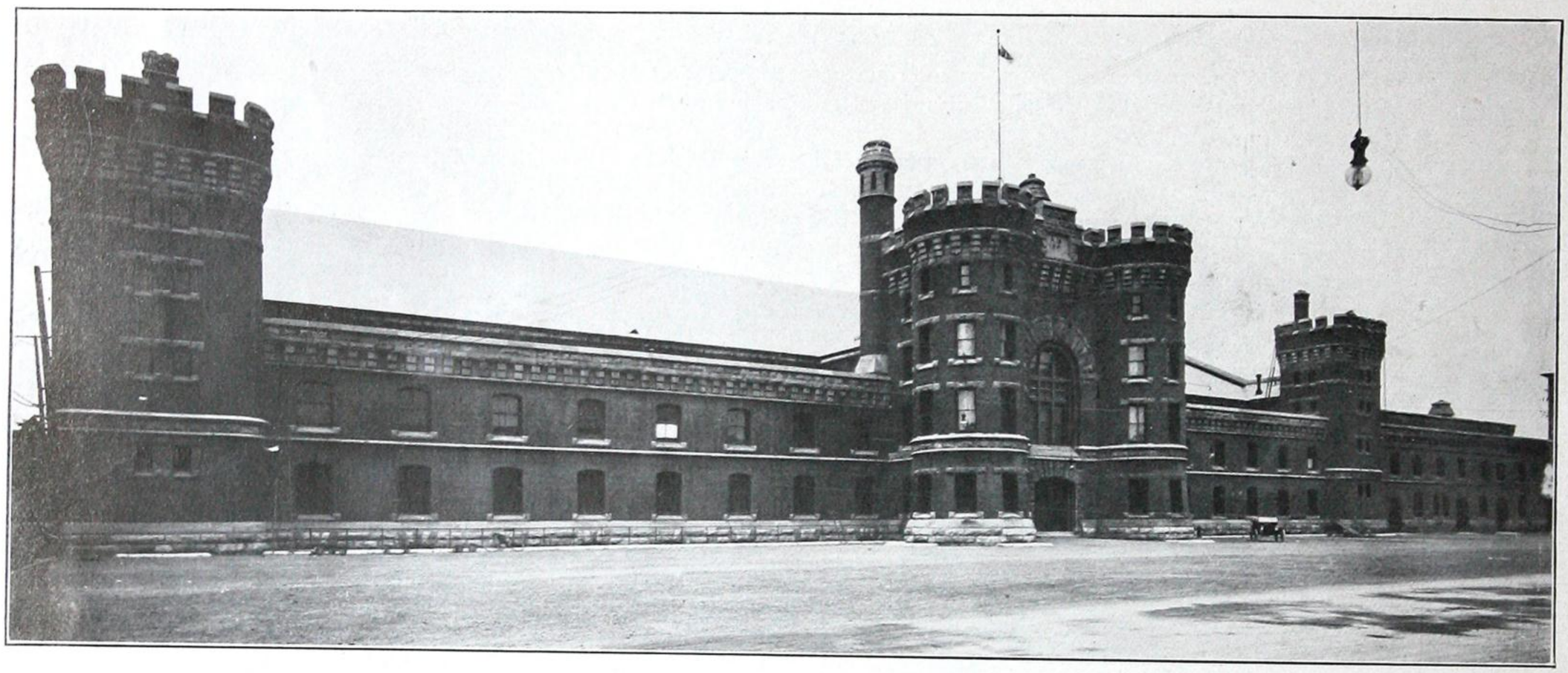
TORONTO: 601 C.P.R. BUILDING.
LONDON: 55 BANK OF TORONTO CHAMBERS.
WINNIPEG: 619 SOMERSET BLOCK.
CALGARY: 401 MACLEAN BLOCK.

MARITIME PROVINCES:
THE ASBESTOS AND CEMENT PRODUCTS CO.,
QUEBEC, P.Q. ST. JOHN, N.B.
HALIFAX, N.S.

PRODUCTS.

We manufacture "ASBESTOSLATE" SHINGLES, ASBESTOS CORRUGATED ROOFING and SHEATHING, LINABESTOS WALLBOARD, ASBESTOS BUILDING LUMBER, ASBESTOS PAPER, MILLBOARD, SHEET and PISTON PACKING, AIR-CELL PAPER and PIPE COVERINGS.

We also handle all products of the Keasbey & Mattison Company, Ambler, Penna., which are not made at Lachine, including 85% Magnesia Pipe Coverings and Cement, Asbestos Packings, Cloth, Theatre Curtains, and all Asbestos textiles.



OWNERS—DOMINION OF CANADA.

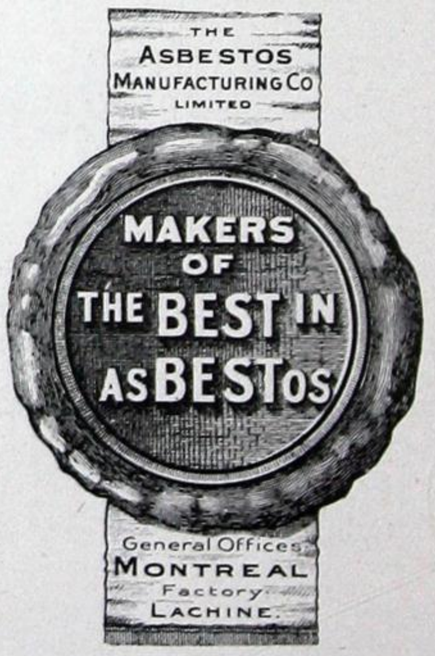
DRILL HALL, UNIVERSITY AVENUE, TORONTO.

ROOFING CONTRACTORS—J. VAN SICKLER & CO.

'ASBESTOSLATE" SHINGLES.

"Asbestoslate" Shingles may be applied either in the straight-laid or American method, employing a shingle of a square or oblong shape, which is laid exactly similar to natural slate or wood shingles. They can also be laid in the diagonal or French method, using a 12" x 12" or 16" x 16" shingle.

The Dominion Government has adopted the material for many of their larger buildings. The roof of the Armoury shown in the above illustration is laid with 16" x 16" Gray "Asbestoslate," in accordance with the French or diagonal method. We advocate this style, type and size of shingle as being particularly suitable and eminently satisfactory.



COMPOSITION OF "ASBESTOSLATE."

"Asbestoslate" Shingles are composed of about 85% of the best Portland cement, combined with long fibre asbestos, manufactured into thin sheets, the fibres of which form centres of crystallization for the cement, and, extending in every possible direction, tie the mass together with great strength. Enormous hydraulic pressure is then applied while the shingles are still wet, after which the setting is completed in the air. It is evident to one acquainted with Portland cement that this process will produce a product absolutely fire and water proof, and one that will increase in strength and firmness with the passing of time. See specifications, next page.

CONTINUED ON NEXT PAGE

ASBESTOS CORRUGATED. A thoroughly efficient roofing and sheathing, made in a single thickness and corrugated to add strength.

SIZE. Standard stock sheets, 27½″ x 4, 5, 6, 7, 8, 9, 10 foot lengths, 3-16″ thick, 2½″ corrugations.

USES. For roofing and sheathing in a manner similar to corrugated iron, for iron foundries, chemical plants, gas houses, car shops, platform hoods. It has been found especially adaptable for gas houses and chemical plants, where other materials fail on account of the fumes and gases.

APPLICATION. May be laid over a steel or wood framework, purlin spacing to be not greater than 36″. See our Asbestos Corrugated Sheathing Catalogue for detailed specifications.

LINABESTOS WALLBOARD. Flat sheets of Asbestos and Cement combination similar to our Building Lumber, but not as dense and decidedly cheaper.

SIZE. Standard stock sheets, 42″ x 48″, 42″ x 96″, 3-16″ thick.

USES. For complete interior lining of residences, cottages or bungalows; is especially well adapted to beam ceiling work and can be used to advantage for wainscoting kitchens, bathrooms, hallways, and for rendering fireproof light, elevator or stair shafts, but is not intended for exterior use. (For exterior use ask for our Asbestos Building Lumber.) This product is sold through agents throughout the country.

ASBESTOS BUILDING LUMBER. Made in flat sheets, very hard and dense. Portland cement and asbestos fibre.

SIZE. Standard stock sheets, 42″ x 48″, 42″ x 96″, thickness 1-8″ and increasing by 1-8″ to 5-8″.

USES. For sheathing the exterior of residences to obtain the English half-timber effect, replacing wire lath and plaster; exterior and interior of garages; wainscoting bathrooms, kitchens, hallways; for ceiling of kitchen or dining-room with beam ceiling finish; lining elevator shafts, for laboratory hoods, and extensively in the electrical industry.

LACHINE WATERPROOF PAPER. This is a superior quality of saturated waterproof paper, put up in rolls of 500 square feet, weighing about 35 pounds to the roll. It is very tough and especially recommended for use under our Shingles and Building Lumber.

ARCHITECTS' SPECIFICATIONS FOR APPLYING "ASBESTOSLATE."

Roof rafters should be covered with well-seasoned.....boards not more than 9 inches wide, edges laid tight together (ship lap or tongue and groove), well spiked to rafters.

PAPER. Cover the roof boards with a good quality of paper (Lachine Waterproof Paper), tacked on with 4-inch side lap and 1-foot lap on all hips and valleys.

AMERICAN METHOD. Over the paper lay "Asbestoslate," manufactured by the Asbestos Manufacturing Company, Limited, Lachine, P.Q., as follows:—A cant or furring strip, 3-16″ thick and 1″ wide (lath will do) to be nailed flush with the lower edge of roof-boards, to give the Asbestoslate the proper pitch. Then apply one course of the No. 16, 8″ x 16″, Newport Gray Asbestoslate, end to end, overhanging the eaves 1½ inches. Over this lay No. 16 Asbestoslate, 7 inches to the weather, in a similar manner to wood shingles, bringing the butts to the eaves edge and being sure to break all joints perfectly. Proceed thus to completely cover the roof.

FRENCH OR DIAGONAL METHOD. Over the paper apply Asbestoslate, Newport Gray, as manufactured by the Asbestos Manufacturing Company, Limited, Lachine, P.Q., according to the French or diagonal method, as follows:

A cant or furring strip not less than 3-16″ thick and 1″ wide (a lath will do), to be nailed flush with the lower edge of the roof boards to give the Asbestoslate the proper pitch; then apply one course of No. 16 Newport Gray Asbestoslate, end to end, overhanging the eaves 1½ inches, then apply starter No. 35 Newport Gray, bringing the lower edge even with the first course of No. 16. Break the joints perfectly. Balance of the roof to be covered with No. 3 Newport Gray Shingle, 16″ x 16″, laid diagonally and exposed 13″ x 13″ to the weather. Each shingle to be nailed with two 1¼-inch galvanized iron needle point nails, as indicated by the nail holes in the shingles. The lower tip to be fastened down with patented copper storm nail, all as shown in the catalogue of the manufacturer.

HIP AND RIDGE ROLL. Hips and ridges to be covered with Asbestoslate Hip and Ridge Roll, same to be properly flashed and fastened in place to hip or ridge pole of sufficient height, with regular copper fasteners, as furnished by the manufacturer. All hips and ridges to be made water-tight previous to the application of the ridge roll.

FLASHING. All hips, valleys, chimneys and against all vertical surfaces, except as otherwise specified, flash and counterflash with each course of shingles, using.....

STARTING COURSES. For the No. 8, 12″ x 12″ shingles, starters No. 21 and No. 36 should be used. For the No. 3, 16″ x 16″ shingles, starters No. 16 and No. 35 should be used.

"Asbestoslate" is now used by all the railroads in Canada, by the Dominion Government, and has been applied to many large, prominent churches, residences, factories, cottages and bungalows throughout the country. It has distinctly proven its merit.

BRANTFORD ROOFING CO., LIMITED

MANUFACTURERS AND EXPORTERS,

BRANTFORD, CANADA.

PRODUCTS.

"BRANTFORD ASPHALT,"
"BRANTFORD RUBBER,"
"BRANTFORD CRYSTAL"
ROOFING MATERIALS.

"BRANTFORD" ASPHALT SHINGLES (in Colours), AND
BRANTFORD ASPHALT SHEET SHINGLES.

WATERPROOFING AND INSULATING PAPERS.
"ROOF-LEAK" COATINGS (in Colours), TERRA-COTTA AND GREEN.

"BRANTFORD ROOFING."

"BRANTFORD ROOFING" applied under a "BRANTFORD SPECIFICATION" may mean either of the following:

No. 1 Brantford Asphalt, 60 lbs. per square.

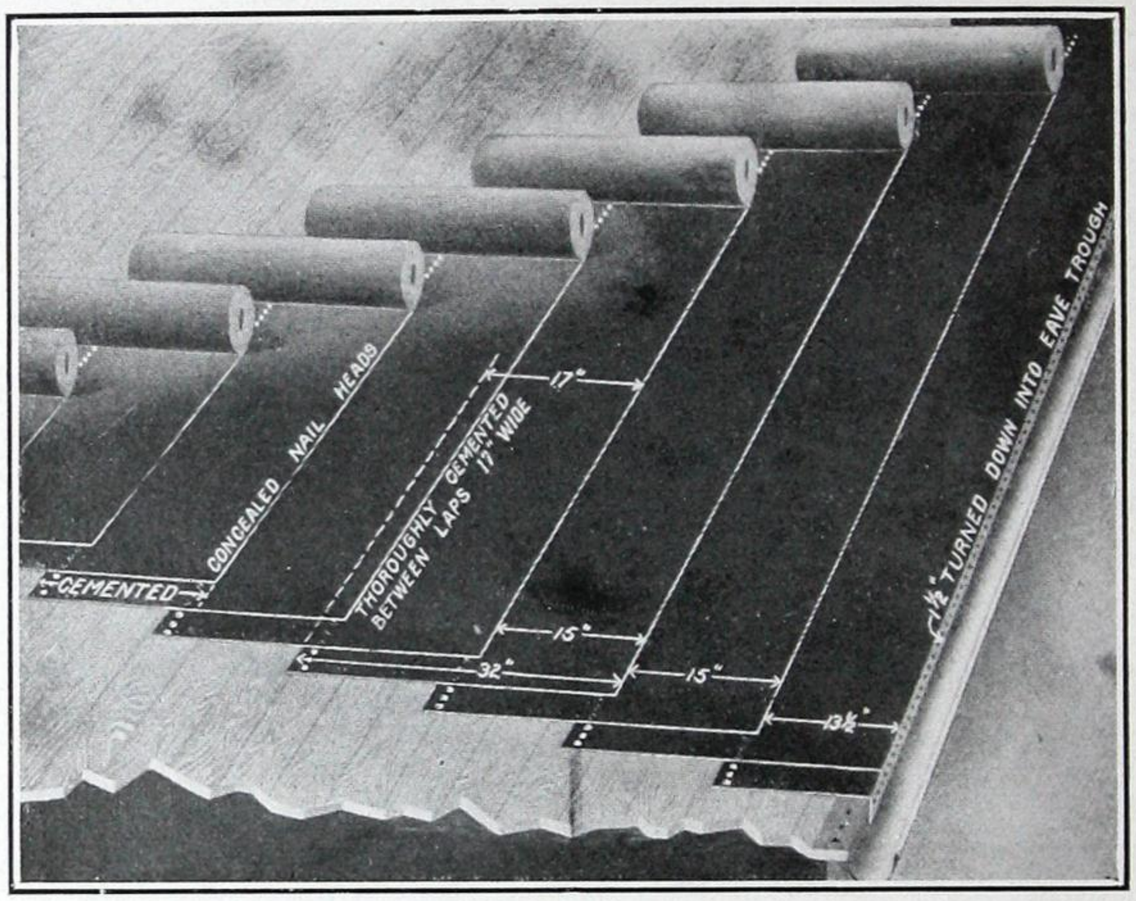
No. 2 Brantford Asphalt, 70 lbs. per square.

No. 3 Brantford Asphalt, 80 lbs. per square.

No. 1 Brantford Rubber, 40 lbs. per square.

No. 2 Brantford Rubber, 50 lbs. per square.

No. 3 Brantford Rubber, 60 lbs. per square.



"BRANTFORD SPECIFICATION."

Laid 15 inches to the weather and cemented between 17 inches with a good coat of asphalt over all, and all nail heads covered.

We use Huff's Patent Stretcher for laying Brantford Roofing; this prevents "Buckling," a common occurrence with other Roofing laid without it.

Therefore specify when ordering "Brantford Roofing," to be laid with "Huff's Patent Stretcher."

Also the same materials may be laid in like manner 10 inches to the weather, or triple thickness, with a fourth lap at the seams, each lap being thoroughly cemented between and one coat over all. *This is a very substantial construction.*

"Brantford Roofing," under its own established "trade-mark," is a guarantee of quality. When offered a roofing without a known brand or trade-mark, you have no assurance of quality.

The felt from which "Brantford Roofing" is made as a base has a cloth resemblance made especially to our specification.

We do by machinery in the factory what others do by hand.

TRADE REGISTERED MARK
B
BRANTFORD ROOFING CO. LIMITED
BRANTFORD, CANADA

CONTINUED ON NEXT PAGE

BRANTFORD ROOFING FOR ARCHITECTS' SPECIFICATION.

This roofing will be constructed and be specified by the marginal numbers, to insure the weight of goods wanted being supplied.

No. 1.—70 lbs. per square F. & W. Felt. Laid with three-inch lap, cemented and nailed. Nail heads covered. 99% of 275° melting point asphalt. 150% saturation. Guaranteed 7 years. Price, per square, $3.25 to $3.50.

No. 2.—80 lbs. per square F. & W. Felt. Laid with three-inch lap, cemented and nailed. Nails covered. 99% of 275° melting point of asphalt. 150% saturation. Guaranteed 10 years. Price, per square, $3.50 to $4.00.

No. 3.—135 lbs. per square F. & W. Felt. Laid 15 inches to the weather; cemented 17 inches. All nail heads covered. 1½ gals. Branroco cement per square. 99% of 275° melting point asphalt. 150 to 200% saturation. Guaranteed 10 years. Price, $5.00 to $5.50 per square.

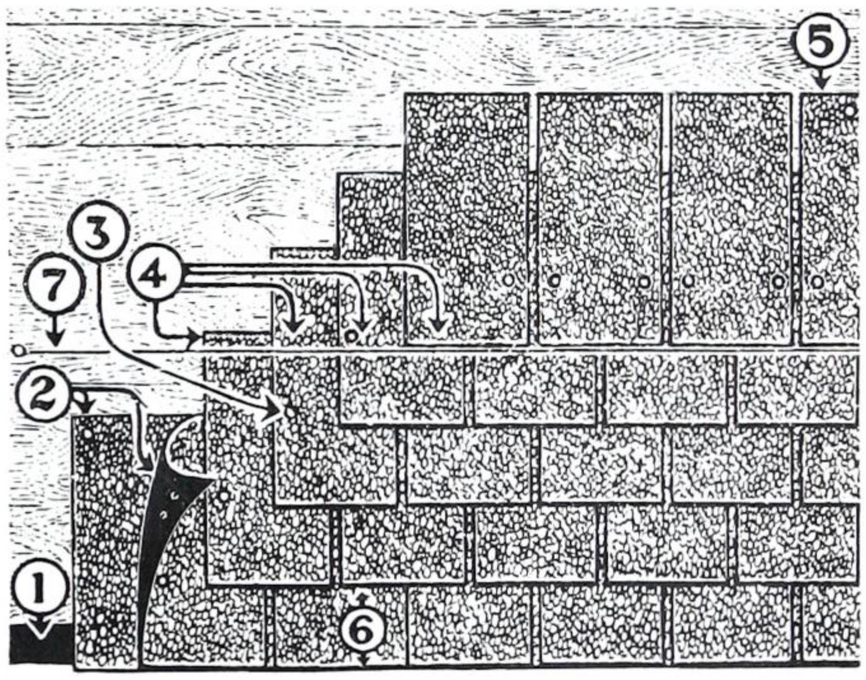
No. 4.—155 lbs. per square F. & W. Felt. Laid 15 inches to the weather; cemented 17 inches; third lap. All nail heads covered. 1½ gals. Branroco cement per square. 99% of 275° melting point asphalt. 150 to 200% saturation. Guaranteed 12 years. Price, per square, $5.75 to $6.25.

No. 5.—175 lbs. per square F. & W. Felt. Laid 15 inches to the weather; cemented 17 inches; third lap 2 inches. All nail heads covered. 1½ gals. Branroco cement per square. 99% of 275° melting point asphalt. 150% saturation. Guaranteed 15 years. Price, per square, $7.00 to $7.50.

No. 6.—235 lbs. per square F. & W. Felt. Laid 10 inches to the weather; cemented 22 inches; fourth lap. All nail heads covered. 2¼ gals. Branroco cement per square. 99% of 275° melting point asphalt. 150 to 250% saturation. Guaranteed 20 years. Price, per square, $8.50 to $9.50.



HEAD OFFICE, STANDARD BANK, TORONTO.
DARLING & PEARSON, ARCHITECTS.
COVERED WITH BRANTFORD ROOFING.



BRANTFORD ASPHALT SHINGLES.

Made in Coloured Red and Green Crushed Rock and White Feldspar—producing a fine appearance and durable. No breaking, curling, or splitting. Put up in cartons, 106 shingles each, four cartons containing 424 shingles 8 inches by 12¾ inches in size. Sufficient to cover a square.

BRANTFORD ASPHALT SHEET SHINGLES (SEXAGON DESIGN).

Each roll of Brantford Asphalt Sheet Shingles is 17½ inches wide, 50 feet long, and put up in one strip to the roll. It is laid 6 inches to the weather; four rolls only will be required to cover 100 square feet of roof. If laid 12 inches to the weather, two rolls only will be required to lay 100 square feet.

Artistic effect can be secured by combining contrasting colours. Can be used successfully for decorative purposes, and around gable roofs. This is a single thickness with a third lap.

PARTICULARS.

Ask for copy of our free Catalogue. Prices and estimates furnished on application.

LUDOWICI-CELADON COMPANY

MANUFACTURERS OF

TERRA COTTA ROOFING TILES.

GENERAL SALES OFFICE: MONROE BUILDING,

CHICAGO, ILL.

BRANCHES:

BOSTON, MASS. . . .	OLD SOUTH BUILDING.
CLEVELAND, O. . .	HIPPODROME BLDG.
DENVER, COLO. . .	COLORADO BLDG.
KANSAS CITY, KANS.	GRAND AVE. TEMPLE.
MINNEAPOLIS, MINN. .	PLYMOUTH BLDG.

BRANCHES:

NEW ORLEANS, LA. .	CONTRACTORS AND DEALERS EXCHANGE.
NEW YORK CITY, N.Y.	5TH AVE. BLDG.
PHILADELPHIA, PA. .	WEIGHTMAN BLDG.
PITTSBURG, PA. . .	PARK BUILDING.
WASHINGTON, D.C. .	UNION TRUST BLDG.

We are represented in Eastern Canada (from Quebec to Windsor, Ont.,) by our own travelling representative who calls in person on all architects, and will call on builders and owners upon request. In Manitoba and the Northwest Provinces the Waite-Fullerton Company, of Winnipeg, represent us, and in British Columbia we are represented by Carter Dewar Crowe Company, Ltd., 922 Metropolitan Building, Vancouver.

PRODUCTS. We manufacture TERRA COTTA ROOFING TILES in all standard shapes, including the Spanish, Shingle and Continental shapes. We also manufacture Promenade Tiles for flat roofs, in size of 6 in. x 9 in. x 1 in. With these tiles and those for sloping roofs we furnish all necessary fittings.

CHARACTER. All these Tiles are made of shales, and subjected to high degrees of heat after painstaking preparation for the kilns. They are devised to interlock in the only practical and effective manner, so that water is carried to the surface of the next lower tile. Their durability is established by the only unassailable verdict—the test of time. The first product of this Company was put on the American market twenty-five years ago at the rate of possibly three hundred squares per *month;* at present, the output of our four factories is approximately seven hundred and fifty squares per *day*, an unmistakable evidence that builders recognize the merits of our ware.

COLOURS. The standard colour of Roofing Tiles is the bright terra cotta red. The greater development of colour study in building has opened a field for glazed roofing tiles, of which we make a very complete line. Aside from the high glazes, we furnish full glazes in satin finish and dull or matt greens.

ESTIMATES AND SPECIFICATIONS. We shall be pleased to furnish catalogue and estimates on application, but inquiries for complete estimates should be accompanied with roof plan and the four elevations. We shall be very glad also to supply suggestions as to specifications for our different patterns, and have these ready prepared, so that immediately upon receiving such request we can mail specifications to those desiring to use Roofing Tiles.

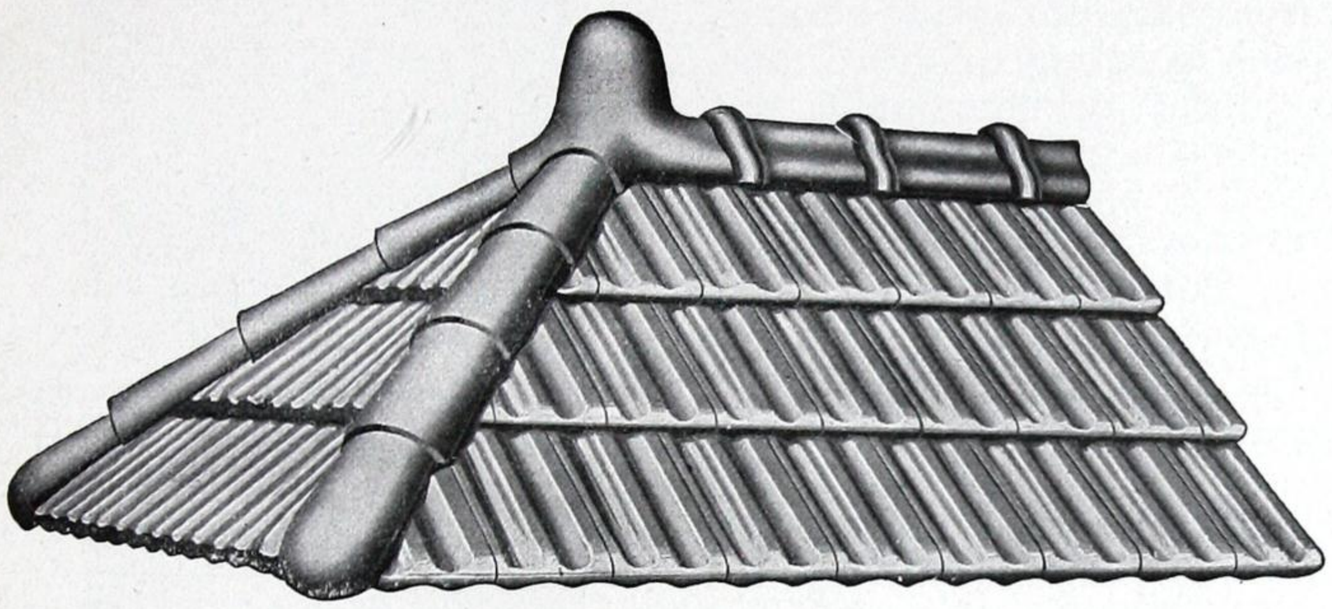
INFORMATION. All inquiries for information should be addressed to the Office which is nerarest to the inquirer, and for this purpose we give below our firm name a list of our vaious branch offices.

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IMPERIAL SPANISH TILE

with mission eave closures
and top fixtures
152 hip starter
102 hip roll
215 cresting and
405 two-way terminal



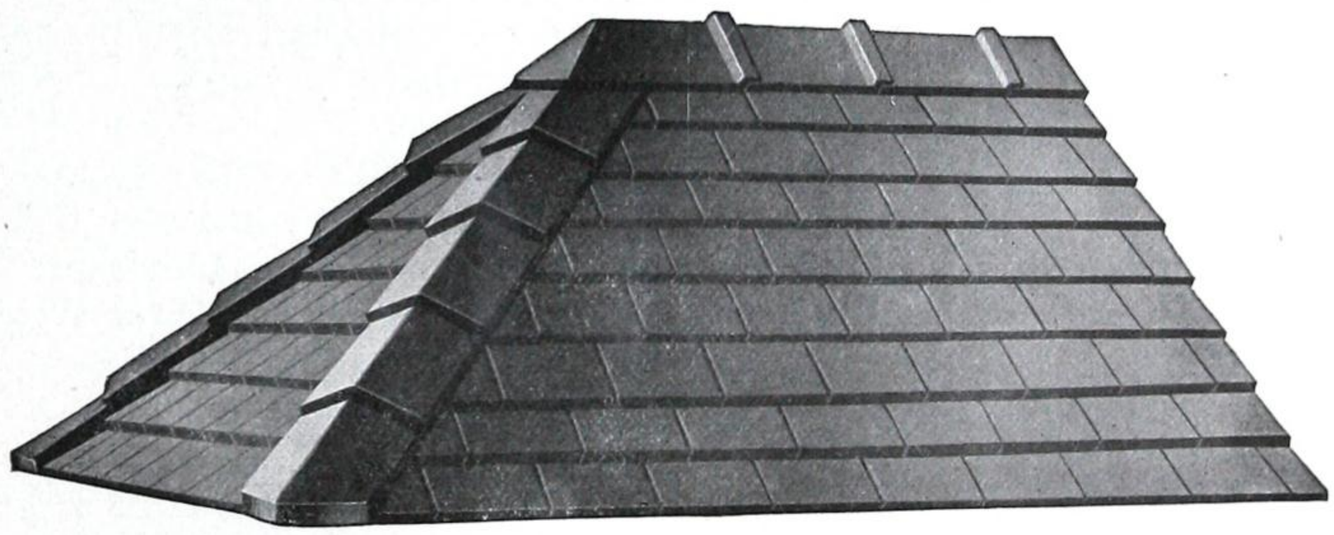


IMPERIAL GERMAN TILE

with 152 hip starter
102 hip roll
206 cresting and
405 two-way terminal

IMPERIAL CLOSED SHINGLE TILE

with 161 hip starter
111 hip roll
203 cresting and
250 two-way terminal



SPECIFICATIONS.

All pitched roofs shall be covered with [Insert Name of Pattern] Tiles made by the Ludowici-Celadon Company with stock fittings suitable for each pattern. The tiles as specified above must be hard burned, of.....colour, and in accordance with samples deposited in the office of the architects.

PREPARATION OF ROOF. Before the roofer is sent for, the owner or general contractor should construct roofs in strict accordance to plans, sheath the roofs TIGHT, have all chimneys and walls above roof line completed, have all vent pipes put through roofs, furnish all strips of required width used under hip rolls, furnish all 1 x $\frac{7}{8}$ inch cant strips used under tile at eaves, and have all scaffolding ready for roofer's use. The metal contractor should have all gutters in place on the roof (gutters, whether box, hanging or secret, to extend over the roof sheathing and cant strip, and run under the felt and tile at least eight (8) inches), and should also have in place all valley metal, the width of which must be not less than 24 inches, with both edges turned up $\frac{1}{4}$ inch the entire length of the valley, the valley metal to be fastened with clips and never nailed or punctured in any manner. The valley metal must be laid over one layer of felt running lengthwise the entire distance of the valley. The metal contractor must have in readiness all flashing metal used along side and in front of dormers, gables, skylights, towers, perpendicular walls, also around vent pipes and chimneys, and place same after the arrival of the tile roofer and under his direction.

LAYING OF FELT. After the roofs have thus been prepared to receive the felt and tile, the tile roofer shall cover the sheathing of the roofs with one thickness of asphalt roofing felt weighing not less than 30 pounds to the square, laying same with a $2\frac{1}{2}$-inch lap and securing in place by capped nails. The felt should be laid parallel with the eaves and lapped over all valley metal about 4 inches and laid under all flashing metal about 6 inches.

LAYING OF TILE. The roof having thus been prepared, the tile layer is to fasten tile with copper nails. The roofer shall see that the tiles are well locked together and lay smoothly, and no attempt shall be made to stretch the courses. The tiles must be laid so that the vertical lines are parallel with each other and at right angles to the eaves. The tiles that verge along the hips should be cut close against the hip board, and a water-tight joint made by cementing cut hip tile to hip board with elastic cement. Each piece of hip roll shall then be nailed to the hip board, and the hip rolls cemented where they lap each other. The interior spaces of hip and ridge rolls must not be filled with the pointing material.

THE PEDLAR PEOPLE LIMITED

OSHAWA, ONTARIO, CANADA.

GENERAL DISTRIBUTERS TONCAN METAL FOR DOMINION OF CANADA.

BRANCHES:

MONTREAL, QUE. QUEBEC, QUE. OTTAWA, ONT. TORONTO, ONT.
LONDON, ONT. CHATHAM, ONT. WINNIPEG, MAN.

THE STARK ROLLING MILL CO., CANTON, OHIO, SOLE PRODUCERS.

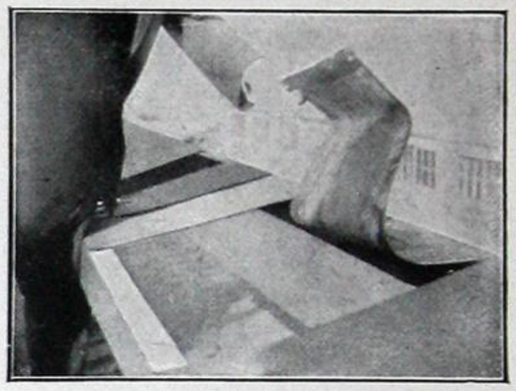
DESCRIPTION. TONCAN METAL is a sheet metal product of great purity, made from iron ore, possessing exceptional rust and corrosion resisting qualities, and superior in ductility and working quality to modern iron and steel sheets.

SERVICE. The cut at the top shows a TONCAN METAL sheet ductile and serviceable, almost as good in every way as when placed on test fence 11 months before.

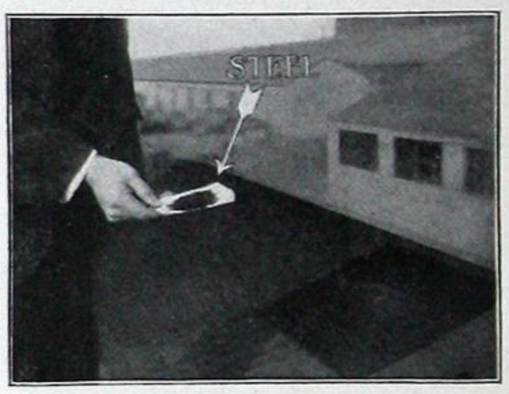
Compare it with adjacent sample of steel in cut next below, so thoroughly rotten that a pencil was run through it with ease.

Both samples, steel and TONCAN METAL unprotected, were exposed on a test fence in the atmosphere common to a rolling mill, for 11 months.

The results are so apparent and so conclusive as to require no comment.



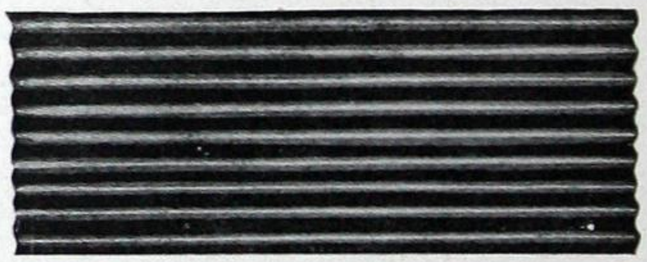
TONCAN METAL AFTER 11 MONTHS' EXPOSURE.
(Still ductile and practically unaffected).



STEEL AFTER 11 MONTHS' EXPOSURE.
(So decayed that a pencil can be run through it.)

PRODUCTS. TONCAN METAL BLACK and GALVANIZED, RUST-RESISTING, ANTI-CORROSIVE SHEETS for Roofing, Siding, Cornices, Eavestrough, Conductor Pipe, Culverts, and all exposed Sheet Metal Work, and TONCAN METAL LATH.

ROOFING. For Roofing purposes TONCAN METAL is supplied in 1″, 2″, 2½″ corrugated.



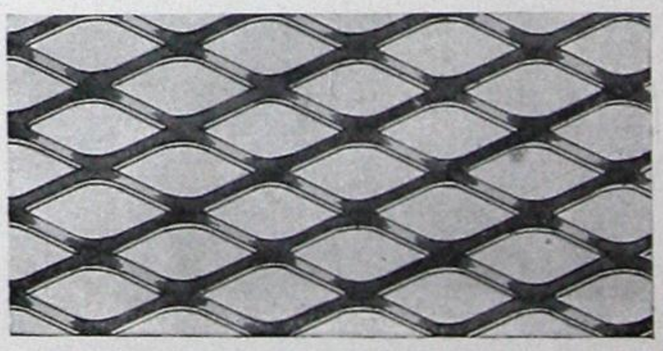
SIDING. TONCAN METAL Siding is supplied in all styles, viz., Weatherboard, Imitation Pressed Brick, and Imitation Rock-faced Brick and Stone, in addition to regular 1″, 2″, 2½″ corrugated sheets, painted or galvanized.



TROUGH, PIPE AND FITTINGS. You can obtain this durable material in plain round or corrugated round Conductor Pipe, square Conductor Pipe, and in single or double bead Eavestrough or Ogee shape, lap or slip joint. The fittings in all shapes, styles and sizes.



METAL LATH. TONCAN METAL Lath is rust-resisting and anti-corrosive, is quickly and easily applied, is fireproof, has maximum strength with minimum weight, and economizes space. Painted or galvanized.



CAUTION. Every sheet bears this registered trade-mark:—

TONCAN METAL

DISTRIBUTION. Carried in stock by jobbers and at all our branches.

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THE PEDLAR PEOPLE LIMITED

HEAD OFFICE AND FACTORIES:

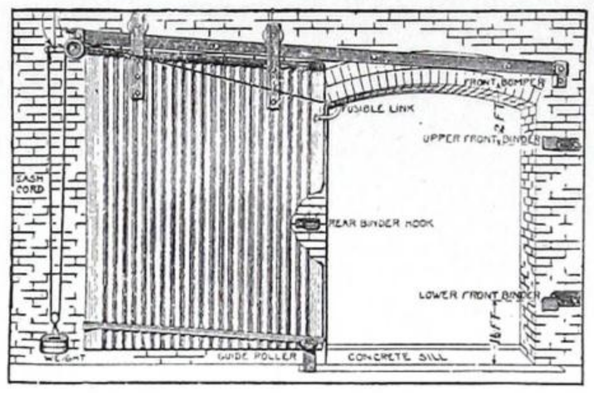
OSHAWA, ONT.

WRITE TO NEAREST ADDRESS:

MONTREAL.	TORONTO.	LONDON.	OTTAWA.
WINNIPEG.	CHATHAM.	QUEBEC.	ST. JOHN.
SYDNEY.	HALIFAX.	CALGARY.	VANCOUVER.

FIRE DOORS.

We have the exclusive Canadian rights of the Saino Patent Fire Door, constructed of corrugated sheets, heavily galvanized, over a steel frame and an asbestos lining. They are rated by the Underwriters' Laboratories in the first-class, and a grade higher than the usual tin-clad, wood-frame fire doors. They will withstand intense heat for long periods of time. Made in standard and special sizes.



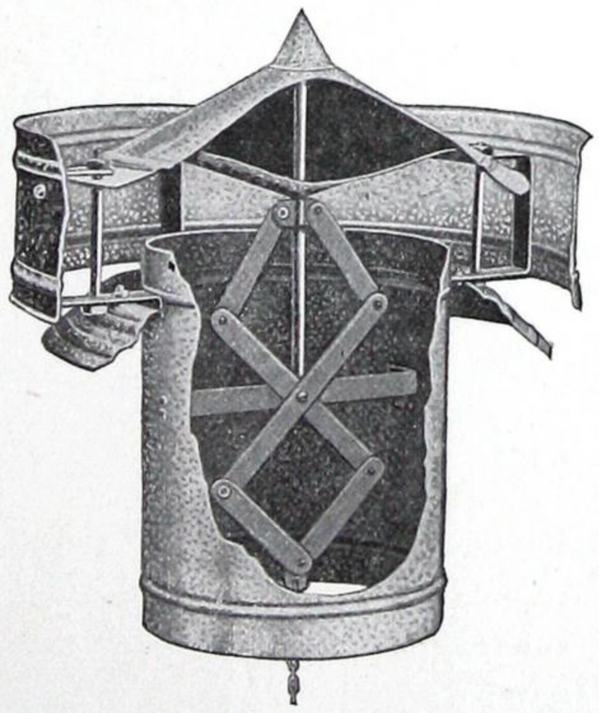
SAINO FIRE DOOR.

GENERAL SHEET METAL WORK.

Our experience, covering a period of fifty-three years in this line of work, enables us to furnish, promptly, the most satisfactory and best products, both as to material and workmanship, in the following lines:

Metal Spanish Tiles and Accessories.
Cornices; Sheet Steel, Zinc or Copper.
Stamped and Ornamental Work.
Skylights—Plain or Wired Glass.
Roofing and Siding—all styles and gauges.
Eavestrough and Hangers.
Conductor Pipe and Fittings (Square Conductor Pipe our specialty).
Metal Ceilings (more than 1,000 designs).
Portable Metal Garages and Buildings.
Metal Factory Bins and Shelving.
Toncan Metal Sheets and Formed Products.

VENTILATORS.



METAL TOP.



GLASS TOP.

PEDLAR'S "PERFECT" VENTILATORS.
Metal Top or Glass Top. An Automatic Exhaust.

Pedlar's "Perfect" Ventilators, either Metal Top or Glass Top, come as near perfection as is possible without the aid of an exhaust fan. There is no possibility of down draft. They will not admit rain or snow, and operate equally well in calm or stormy weather. Used in Railroad, Warehouse, Factory and similar work with the greatest satisfaction. Fitted with automatic closing fusible links to stop all draft in case of fire. Fitted with plain or wired glass in all sizes from 8 in. to 72 in. shaft diameter.

ESTABLISHED 1795.

BIRD & SON

MANUFACTURERS OF

ROOFINGS, WATERPROOF BUILDING PAPERS, WATERPROOFING FELT, ROOFING PAINTS, WATERPROOFING PRODUCTS AND WALL BOARD.

MAIN OFFICE: HAMILTON, ONTARIO.

WINNIPEG, MAN. MONTREAL, QUE. VANCOUVER, B.C. ST. JOHN, N.B.

MILLS: HAMILTON, ONTARIO; PONT ROUGE, QUEBEC.

PRODUCTS.

ROOFINGS: **NEPONSET** Proslate, **NEPONSET** Paroid, **NEPONSET** Red Rope, **NEPONSET** Asphalt Felt, for Built-Up Roofs.

WATERPROOF BUILDING PAPERS: **NEPONSET** Red Rope, **NEPONSET** Black, Coted.

WATERPROOF INSULATING PAPERS: **NEPONSET** Red and Black, **NEPONSET** Kosat.

SOUND DEADENING FELT: **NEPONSET** Florian.

WATERPROOFING FELT: **NEPONSET** Waterdyke.

PAINTS and COMPOUND: **NEPONSET** Waterdyke Preservative Paint, **NEPONSET** Paroid Paint, **NEPONSET** Red Rope Paint, **NEPONSET** Compound.

WALL BOARD: **NEPONSET** Wall Board.



NEPONSET PROSLATE ROOFING.

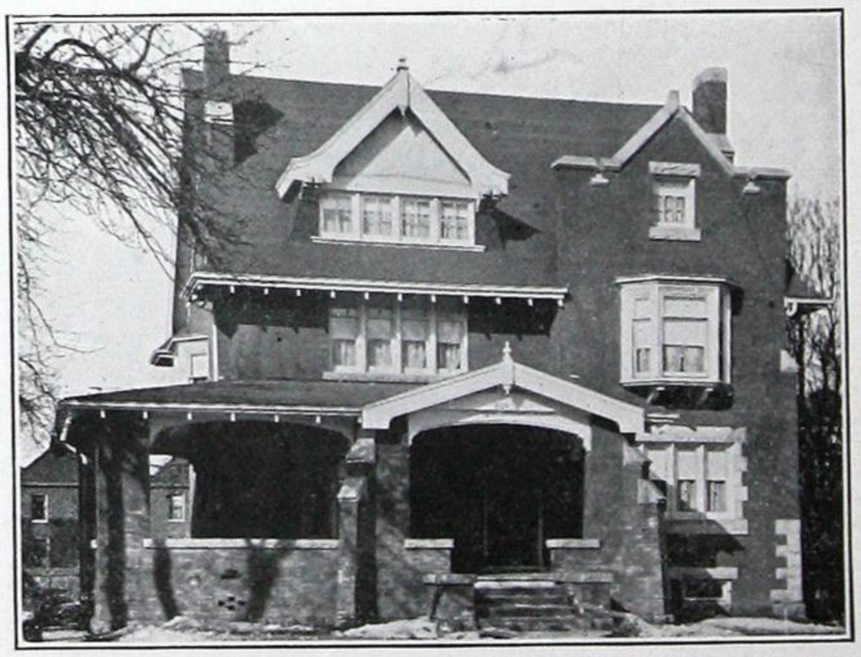
For residences, club houses, bungalows, porch roofs, and all other buildings requiring an artistic roof or siding. Rich red in color. Furnished with straight or ornamental edges; more attractive than stained shingles. Complete directions and fixtures (galvanized caps and nails and cement of same color) for laying, packed in each roll. Put up in rolls 18″ wide, containing sufficient material to cover one hundred square feet. Straight Edge, $4.25 per roll. Ornamental Edge, $4.50 per roll.

NEPONSET PAROID ROOFING.

For industrial, railroad, farm and other similar buildings. Slate in color. Endorsed by National Board of Fire Underwriters. Already has a past record of fifteen years' service on buildings throughout the country and abroad. Complete directions and fixtures (galvanized caps and nails and cement) for laying, packed in each roll. Put up in rolls 36 inches wide, containing 108 and 216 square feet. Price, 2½ cents per square foot for Paroid, and 3½ cents per square foot for Paroid heavy. (See under "Help in Specifying.")

NEPONSET RED ROPE SHEATHING AND ROOFING.

The highest grade waterproof sheathing paper for use under stucco, shingles or clapboards and under slate or tile roofs. Particularly valuable where the building is to be stuccoed at some future time, as it will remain waterproof exposed to the weather for several years. Also used as a low-cost and temporary roofing or siding. Put up in rolls 36 inches wide, of 100, 250 and 500 square feet. Price, 1¼ cents per square foot. (See under "Help in Specifying.")



Residence, King Street East, Hamilton, Ont., roofed with **NEPONSET** Proslate.

NEPONSET BLACK WATERPROOF BUILDING PAPER.

A high-grade waterproof building paper, the standard of architects for general use. For use under stucco, shingles, or clapboards; under slate or tile roofs and between floors. Put up in rolls 36 inches wide, containing 250 and 500 square feet. Price, 45 cents per 100 square feet. (See under "Help in Specifying.")

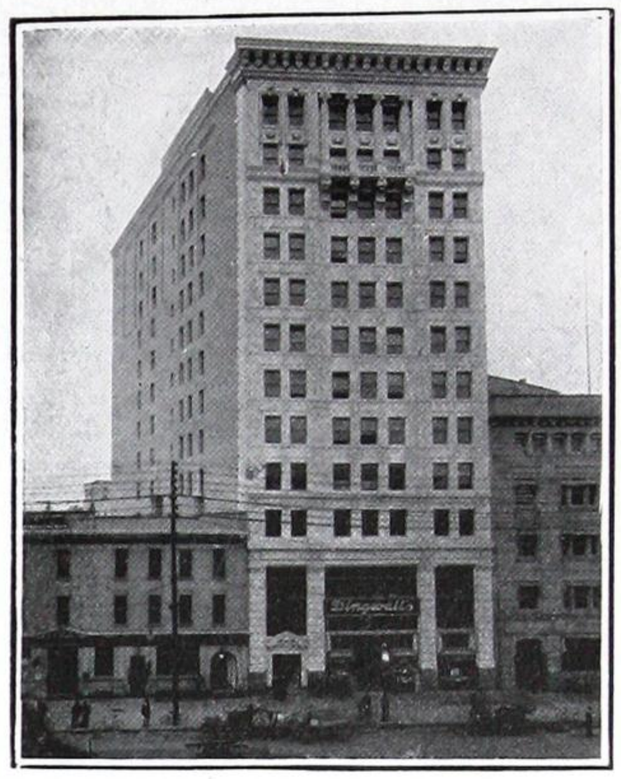
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COTED. A waterproof, dust-proof paper at low cost; used as an all-round building paper and especially in fireproof construction over the screeds and under the finished wooden floors, to prevent warping and to keep down dust. Put up in rolls 36 inches wide, containing 500 and 1,000 square feet. Price, 31 cents per 100 square feet.

NEPONSET FLORIAN SOUND-DEADENING FELT. A scientific, sanitary sound-deadener, for use under floors, under metal roofs, and for partitions, built on the dead air-cell principle. By actual tests, made by the Worcester Polytechnic Institute, it was found that **NEPONSET** Florian is six times as effective as the ordinary felt. Put up in rolls 40 inches wide, containing 500 square feet. Price, 90 cents per 100 square feet. (See under "Help in Specifying.")

NEPONSET ASPHALT FELT. For built-up roofs and general waterproofing work in connection with **NEPONSET** Compound. Specifications furnished upon application. Made in 15 lbs. weight per 100 square feet. Price, $50.00 per ton.

NEPONSET WATERDYKE FELT. For waterproofing foundations, mill floors, battery room floors, swimming-pools, bridges, tunnels, etc. Comes in rolls of 400 square feet. Price, $1.30 per 100 square feet. (See under "Help in Specifying.")



McArthur Building, Winnipeg, Man.
Architect, J. H. G. Russell.
74,500 sq. ft. **NEPONSET** Black in this Building.

NEPONSET PAINTS AND COMPOUND. **NEPONSET** Waterdyke Preservative Paint for damp-proofing concrete and preserving structural iron and steel and woodwork.

NEPONSET Paroid Paint for **NEPONSET** Paroid and other prepared and metal roofings— **NEPONSET** Red Rope Paint for **NEPONSET** Red Rope Roofing and metal roofs. Put up in one-gallon cans. For special jobs where entire package will be used, in 5, 10 and 20 gallon packages. Always to be used in well-ventilated places. One gallon covers about 240 square feet. $1.05 per gallon.

NEPONSET Compound for cementing together plies of **NEPONSET** Waterdyke Felt and **NEPONSET** Asphalt Felt. Comes in barrels, 35 gallons to a barrel. 35 cents per gallon.

NEPONSET WALL BOARD. This material is an inexpensive substitute for laths and plaster, or sheathing or any other wall covering.

This, of course, is not a product that would be specified for highest class interiors, but it is excellent for cottages, stores, restaurants, factories and many other places, also for partitions, booths, exhibits, etc.

Made in three finishes—plain oak, cream white, and burnt leather, as follows:

32 Inches Wide.

7 feet, 16 panels to the bundle, contains about 298 square feet.
8 feet, 14 panels to the bundle, contains about 298 square feet.
9 feet, 12 panels to the bundle, contains about 288 square feet.
10 feet, 12 panels to the bundle, contains about 320 square feet.

Price, $30.00 per 1,000 square feet.

NEPONSET WALL BOARD BATTENS for covering joints between panels, one and seven-eighths inches wide and in same lengths and finishes as the wall board.

Price, 60 cents per 100 linear feet.

HELP IN SPECIFYING. You will find our book, "Specifications for All Roofing, Building Insulation and Waterproofing Work," helpful in making out your specifications. Let us know if you have not a copy on file. With this you can specify for all kinds of work, the product you prefer, and always get the most effective results.

CO-OPERATIVE SERVICE. Any special waterproofing or other problems upon which you desire advice may be referred to our Engineering and Consulting Department.

NEPONSET SPECIFICATIONS EASILY FILLED. There are 10,000 dealers carrying Bird **NEPONSET** Products, so your specifications can always be easily and quickly filled.

Where there is no dealer, we pay the freight.

The prices quoted above apply only to Eastern Ontario, Quebec and Maritime Provinces. Prices for the Western Provinces on application.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

ROOFING MATERIALS.

ASBESTOS

TRADE MARK.

PRODUCTS.

ROOFING MATERIALS: J-M ASBESTOS READY ROOFING AND SIDING, J-M ASBESTOSIDE, J-M BUILT-UP ASBESTOS ROOFING, J-M REGAL READY ROOFING, J-M CORRUGATED ASBESTOS ROOFING, J-M TRANSITE ASBESTOS SHINGLES, J-M ASBESTOS SLATERS FELT.

INSULATING AND SHEATHING MATERIALS: KEYSTONE HAIR INSULATOR, J-M HAIR FELT, J-M PURE COMPRESSED CORK SHEETS, J-M IMPREGNATED CORK BOARDS, J-M WEATHERTITE PAPER, J-M MINERAL WOOL, J-M ASBESTOS FIRE AND DAMP PROOF FLOORING FELT.

Building Materials: J-M Cork Floor Tiling, J-M Sanitor Closet Seats, J-M Transite Asbestos Wood, J-M Vitribestos Smoke Stack Lining, J-M Vitribestos Vault Lining, J-M Asbestos Stucco and Wall Plaster, J-M Asbestos Cloth and Vitribestos Theatre Curtains, J-M Transite Asbestos Wood Picture Machine Booths, J-M Transite Asbestos Wood Ventilators, J-M Asbestos Fire and Acid Proof Chimney Cement, J-M Sea Grass Lining, J-M Asbestos Roll and Sheet Mill Board, J-M Non-Burn Building Paper, Architectural Acoustics, J-M Asphalt Waterproofing Cement, J-M Asphalt Saturated Fabric, J-M Waterproofing Asbestos Felt, J-M Liquid Waterproof Coating, J-M Concrete Primer, J-M Cut Stone Backing, J-M Plaster Bond, J-M Mastic.

Pipe and Boiler Coverings: J-M Asbestocel, J-M Asbesto-Sponge Felted, J-M 85% Magnesia, J-M Asbestos Fire-Felt, J-M Vitribestos, J-M Air Cell, J-M Wire-Stitched Anti-Sweat, J-M Zero, J-M Plumbing, J-M Brine and Ammonia, J-M Sheets and Blocks for Boilers, Heaters, etc., J-M Asbestos and Magnesia Insulating Cements, J-M Sectional Underground Conduit.

Electrical Materials: "Noark" Standard Fuse Devices, "Noark" Service Boxes, "Noark" Service Meter Protective Devices, Frink and J-M Linolite Systems of Electric Lighting for Show Windows, Show Cases, Theatre Stages, Signs, Frink Reflectors, J-M Fibre Conduit, etc.

J-M ASBESTOS READY ROOFING.

The basis of J-M Asbestos Roofing is pure asbestos. This mineral is made into sheets of asbestos felt, after which each sheet is individually saturated. The sheets are then securely cemented together with genuine Trinidad Lake Asphalt, and the result is a solid, homogeneous mass of asbestos (stone) and asphalt (mineral)—making a roofing that is *all mineral all the way through*.

From the crude materials to the finished product every process in the manufacture of this roofing is directly under our own supervision. This enables us, with our experience of over half a century in the manufacture of roofings, to maintain a uniformly high standard in quality, and to manufacture and sell this roofing at low prices.

Advantages.—To all intents and purposes, J-M Asbestos Roofing is solid stone—with the everlasting qualities of stone. It affords perfect fire protection and contains nothing that can rust, rot, melt, crack or deteriorate with age. Even gases and chemical fumes do not affect it. This roofing is still in good condition on buildings in all parts of the Dominion, after more than a quarter century of service.

J-M Asbestos Roofing will not burn like shingles and ready roofings made of organic materials; will not rot, crack or warp, and has no gravel to be washed or blown off and clog up outlets. Like all stone, this roofing never needs coating, gravel or any other protection. J-M Asbestos Roofing is cheaper in first cost than slate, shingles, tin or iron, and costs less per year of service than any other roofing.

The white top weather surface of this roofing gives it a neat and attractive appearance and reflects the heat, which, together with the great insulating quality of the Asbestos, makes buildings from 15 to 30 degrees cooler in hot weather than any other roofing—the exact difference in temperature depending, of course, on what the other roofing is.

As this roofing has a smooth surface, any leaks, which may be caused by nails protruding from the roof boards, or by carelessness on the part of workmen, can be readily located. It is difficult to locate leaks in gravel or slag roofings, as the leaks do not always show directly under the defect in the roofing, making it necessary to virtually tear off these roofings to find the leak.

Another advantage in the smooth surface of J-M Asbestos Roofing is that it sheds water more rapidly than gravel or slag roofings, thus avoiding frost. Frost causes much damage to gravel and slag roofings, as it loosens the gravel and opens up the plies.

J-M Asbestos Roofing is shipped ready to apply, with J-M Roofing Cleats, nails, and Lap Cement, and full instructions for applying, packed in each roll.

When laid with J-M Roofing Cleats, this roofing presents an unbroken surface of white, as the cleats do away with the necessity of smearing the edges with black cement to secure water-tight joints.

BRANDS.

Although we furnish a variety of brands of J-M Asbestos Roofing, it should be distinctly understood that *there is but one quality*. The difference between the brands consists only in the number and arrangement of the plies. Where maximum durability is desired, the Four-Ply Brand is recommended, while for lighter and more temporary construction the lower-priced grades will be found satisfactory.

Four-Ply Brand.—An all Asbestos and Asphalt Four-Ply Roofing, shipped in flat sheets 32 x 80 inches, so that it will always lie flat. This roofing is suitable for steep surfaces, laid white side to the weather. On flat surfaces having a pitch of less than 2 inches to the foot, the black side should be laid to the weather.

Three-Ply Brand.—A very permanent roofing when laid over good, smooth sheathing boards. While not as serviceable as the Four-Ply Brand, owing to its lighter weight, it is made of exactly the same materials. Furnished in one and two square rolls, 32 inches wide.

Specifications.—Remove all loose nails, chips and other rubbish, leaving the surface perfectly clean. See that all ends of boards are resting on a joist or purlin, so that they can not spring. If edges of boards are curled up, draw them down and smooth off any projections. See that all knot holes are covered or filled up before commencing to lay roof, constructed as follows:

Work to be commenced at the eaves or gutters, running the roofing parallel with the same, applying the roofing in sheets not more than 20 feet long, lapping the perpendicular seams 3 inches and the horizontal seams 2 inches, breaking the joints. J-M Asphalt Lap Cement to be applied between the laps, after which the roof shall be nailed with large-headed (½-inch) galvanized nails (⅞-inch shank), nailing ¾ of an inch back from the edge, 2 inches apart, centre to centre. After nailing is completed, seams are to be coated with J-M Asphalt Lap Cement.

All valleys and wooden gutters to be covered with the roofing specified. Material to be placed in same so that the sheet runs lengthwise with the valley or gutter, so that no unnecessary laps or joints will occur in the same. J-M Built-up Asbestos Roofing, under most circumstances, will be best for use under such conditions.

Base flashings shall be composed of the same material as the roofing, made from a sheet 10 inches wide, placing 5 inches on the flat part of the roof and 5 inches on the upright, cementing solidly to the upright work with J-M Asphalt Cement, after which the flashing shall be nailed in the usual manner. Cap flashing to be composed of J-M Asbestile Cement, which shall be trowelled to the wall and over the base flashing, and, while soft, a layer of Single-Ply Asbestos Felt, 5 inches wide, weighing not less than 9 pounds to 100 square feet, shall be embedded in same; over this shall be trowelled another layer of J-M Asbestile Cement. All brick walls, chimneys and upright work to be flashed with the J-M Asbestile System.

CONTINUED ON NEXT PAGE

J-M ASBESTOSIDE.

J-M Asbestoside is a wall siding for factories, warehouses, barns, etc., made of the same material as J-M Asbestos Roofing, previously described, and has the same advantages. It is recommended as a siding in place of clapboards, shingles and sheet iron wall coverings, because of its lower first cost, greater durability and weather-proof and fire-resisting properties. J-M Asbestoside occupies the same position with respect to other siding materials as J-M Asbestos Roofing does in the roofing line. It can be easily, cheaply and quickly applied. It adds to the attractive appearance of a building, and requires no coating or painting. Regularly furnished in flat sheets, 32 x 50 inches, and 16 x 50 inches, or cut to smaller sizes, if desired.

J-M Asbestoside is shipped in crates, complete with special large headed galvanized nails. These nails avoid the necessity for tin caps, and give a very neat finish to the building.

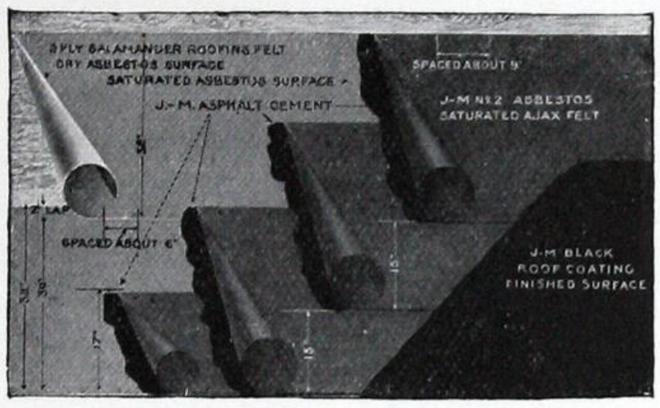
Brands.—J-M Shield Brand is composed of four separate plies of asbestos felt.

J-M Star Brand is similar to "Shield" Brand, except that it has three plies of asbestos felt, instead of four.

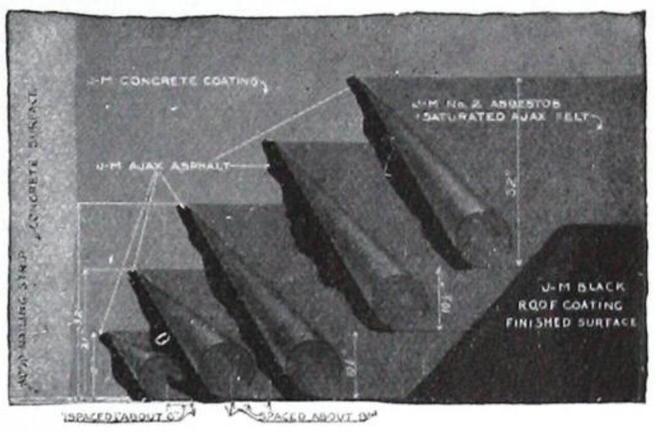
J-M BUILT-UP ASBESTOS ROOFING.

This roofing is built-up on the roof of successive layers of Pure Asbestos Felt and genuine Trinidad Lake Asphalt. It is especially recommended for flat roofs or for use over concrete.

Advantages.—Like J-M Asbestos Ready Roofing, previously described, J-M Built-up Asbestos Roofing, due to its *all-mineral* construction, gives perfect fire protection and is rust-proof, rot-proof, acid-proof, gas-proof, heat-proof and cold-proof, and never needs coating, gravel or slag to protect it from the elements. It also has all the other advantages of our Ready Roofing above mentioned.



Detailed Application of J-M Built-up Asbestos Roofing over Sheathing Boards—Black Finish.



Detailed Application of J-M Built-up Asbestos Roofing over Concrete Surfaces—Black Finish.

Specifications, Standard J-M Built-up Asbestos Roofing Over Sheathing, Black Finish.—Owner or general contractor shall remove all loose nails, chips and other rubbish from the roof, leaving the surface perfectly clean. See that all ends of boards rest on joists or purlins; boards to be secured with not less than two nails if 6 inches wide or less, and at least three nails where wider boards are used. If edges of boards are curled up, properly draw them down and smooth off all projections. See that roof is graded properly to outlets, and that all knot holes are covered or filled up before commencing to lay roof, constructed as follows:

First, lay one thickness of J-M Salamander Brand two-ply Asbestos Roofing, consisting of one impregnated sheet of asbestos weighing not less than 14 lbs. per square, and one sheet of unimpregnated asbestos properly cemented together at the factory with J-M Ajax Brand of refined asphalt, the Salamander felts to be lapped two inches, with the unimpregnated sheet next the sheathing boards and thoroughly cemented at the laps with Ajax Asphalt; this ply to be nailed with 7/8-inch barbed nails driven through flat tin caps at intervals of 6 inches, along laps and in parallel lines 10 inches apart and 10 inches from the edges of each sheet, the nails to be 18 inches centre to centre staggered. After this ply is in place, mop the entire surface with J-M Ajax Brand Asphalt; and, while thoroughly hot, embed into it two plies of J-M No. 2 Asbestos Ajax Felt, these felts to be rolled close behind the mop, so that no possible missing of asphalt can take place. The two upper plies of felt (32 inches wide) shall each have 15 inches exposed to the weather; the first to be nailed with barbed nails and flat tin caps along the upper edge of the sheet at intervals of 9 inches, and in such a manner that all nails shall have two plies of felt over them. At the walls, chimneys and other openings, the roofing material shall be turned up at least 2 inches.

Wherever flashings are necessary, the base flashing shall be bent into the angle of the wall, and shall be fitted closely, so that no sagging can take place; the base flashing to consist of an apron piece of J-M Asbestos Flashing material at least 10½ inches wide, to be laid 6 inches up on the wall and 4 inches out on the roof; this flashing to be thoroughly nailed to roof, and occasionally to the wall, after which a ply of No. 2 J-M Asbestos Ajax Felt shall be laid in hot asphalt in such a manner as to cover all nail heads in flashing material.

Note.—Metal may be used for this base flashing if desired.

Above the base flashing there shall be placed a counterflashing of J-M Asbestile or metal, same to be properly cemented to the wall and brought down over the base flashing at least 2 inches.

Note.—If fire walls do not exceed 12 inches in height, the flashing may be all in one piece to be carried up and over the top of brick wall, the coping to be laid over this flashing.

Otherwise a ply of J-M Felt, cut to the desired width, should be laid over the top of all fire walls before coping is put in place.

After the roof is properly laid and otherwise finished, there shall be spread over it an even thickness of J-M Asphalt Liquid Roof Coating, applied cold and thoroughly brushed out, in order that the entire roof may have a black and even appearance. This coating to be carried up to the top of base flashing, and finished neatly under the lower edge of counterflashing.

To meet the demand for a roof of special insulating qualities for use on cold storage buildings, ice houses, breweries, dairies, etc., we have designed the white surface J-M Built-up Asbestos Roofing. Specifications for this type of roofing may be had by communicating with our nearest branch.

J-M Built-up Asbestos Roofing Over Concrete, Black Finish.—The owner or general contractor agrees to give the roofing contractor the deck of the building absolutely free from all obstructions and to maintain it free from all obstructions other than the materials, tools and appliances belonging to the roofing contractor, and to remove all loose nails, chips, and other rubbish, leaving the surface perfectly clean.

The owner or general contractor also agrees to give the roofing contractor a smooth concrete surface, free from holes, depressions or projections, and truly graded so as to provide for the free flow of water toward gutters and downspouts. The guarantee on this roof is contingent upon the contractor doing the aforesaid.

Over the foregoing shall be laid a 3-ply J-M Ajax Asbestos and Asphalt Roofing, to be constructed as follows:

Three plies of J-M Asbestos Impregnated Ajax Felt to be Asphalt saturated, and to weigh not less than 16 pounds per hundred square feet, single thickness. The Asphalt Cement shall be best quality Trinidad Lake Asphalt, refined by The Canadian H. W. Johns-Manville Co., Ltd., known as their Ajax Asphalt Cement, and there shall be used not less than 60 pounds gross weight per hundred square feet of completed roof.

The liquid asphalt coating shall be The Canadian H. W. Johns-Manville Co., Ltd., J-M Asphalt Roof Coating, using not less than one and a half gallons per hundred square feet of completed roof. The materials shall be used as follows:

First coat the concrete with J-M Concrete Primer, so as to form a perfect bond between the concrete and the asphalt. Then mop the surface with J-M Ajax Brand of Asphalt, heated to flow freely, and into it, while hot, embed three plies of No. 2 J-M Asbestos Impregnated Ajax Felt. The entire surface between each ply shall be mopped with hot Ajax Asphalt and the felts shall be rolled close behind the mop, so that no missing of asphalt can possibly take place. The felts shall be so laid that ten and one-half inches (10½") of each ply will be exposed to the weather.

Over all steep concrete surfaces the felts must be laid up and down the roof, never across, and proper fastenings shall be provided to prevent any possible movement of felts during hot weather.

J-M 3-Ply Built-up Asbestos Roofing shall be carried up on the fire walls at least two inches (2"), and for flashing there shall be provided an apron of J-M Asbestos Flashing material 10½" wide, bent to conform to angle and mopped to roof with J-M Ajax Asphalt.

Above the base flashing there shall be placed a counterflashing of J-M Asbestile or metal, same to be properly cemented to the wall and brought down over the base flashing at least 2 inches.

Note.—If fire walls do not exceed 12 inches in height, the flashing may be all in one piece to be carried up and over the top of brick wall, the coping to be laid over this flashing. Otherwise a ply of J-M Ajax Felt, cut to the desired width, should be laid over the top of all fire walls before coping is put in place.

After the roof is so laid, the entire surface shall be coated with J-M Asphalt Roof Coating, as above, to give a uniform and even appearance.

J-M REGAL ROOFING.

To meet the demand for a low-priced roofing, we are prepared to furnish J-M Regal. This is a smooth-surfaced, ready roofing, composed of a high-grade wool felt, which is manufactured in our own mills, and Trinidad Lake Asphalt. The Asphalt is also processed in our own refineries, which enables us to offer in J-M Regal the best grade of "rubber" type roofing that can be made.

J-M Regal Roofing is put up in rolls of 108 or 216 square feet, with nails and J-M Roofing Cleats packed in each roll.

THE STANDARD PAINT CO. OF CANADA, LIMITED

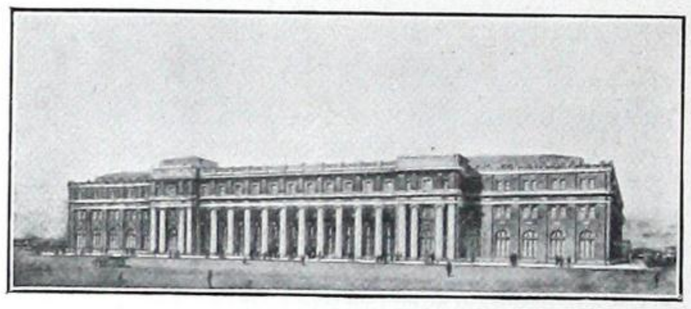
52 Victoria Square,
MONTREAL.

Sales Offices and Warehouses:
Winnipeg. Vancouver. Calgary.

Factory: Highlands, Lachine Canal, Montreal.

PRODUCTS.

RU-BER-OID (our standard quality of roofing); KA-LOR-OID (in handsome permanent shades of red and green); AL-BAR-OID (Ruberoid in white); DURO RIGID SHINGLES; DOMINION & EUREKA (Asphalt Roofings); also RUBEROID WATERPROOFING CLOTH; RUBEROID WALL BOARD; RUBEROID FLOOR CLOTH; "STANCO" CARPET FELT; "SNUG" FELT; BURLAP FELT; SOVEREIGN SHEATHING FELT; DAMP-PROOFING PAINT; "IMP" BRAND CEMENT FLOOR FINISH and MASONRY FINISH; "GIANT," "P. & B." and "HERCULES" INSULATING PAPERS; "P. & B." PRESERVATIVE PAINTS; "P. & B." ELECTRICAL COMPOUNDS; "P. & B." ELECTRICAL WEATHERPROOF TAPE; "P. & B." ELECTRICAL INSULATING VARNISHES; "P. & B." GARDEN HOSE MENDER, Etc., Etc.



Station of Canadian Pacific Railway Co., Vancouver, B.C.
roofing type a ru-ber-oid built-up.
Engineers and Constructors—Westinghouse, Church, Kerr & Co.
Architects—Barott, Blackader & Webster.

EFFICIENCY.

Ru-ber-oid has now been marketed for 23 years in most parts of the world, and in that long period has absolutely demonstrated its claim to permanency and dependability. It is manufactured at our works near Montreal for the Canadian trade, and is also made at three factories in the United States, and at London, England; Hamburg, Germany; Paris, France; and St. Petersburg, Russia. We are making no exaggerated statement, therefore, in saying that it is the *Universal Roofing*. The fact that it is in general use in all parts of the civilized world is absolute proof of the service it will give under *all climatic conditions*.

Ru-ber-oid can be laid in *single layer* or by the *built-up* or *reinforced* method on steep or on flat roofs.

We submit the following as features worthy the careful consideration of architects and engineers in comparing the Ru-ber-oid method of built-up roofing (Specifications following) with tarred felt and gravel roofs and other types of roof covering:

1. Ru-ber-oid Asphaltic Compound will not crack in winter nor will it melt in summer heat, as pitch does.

2. Ru-ber-oid Asphaltic Compound is much more plastic than pitch, insuring a roof covering that will readily answer to all changes of temperature.

3. By actual laboratory test, it has been demonstrated that the pitch ordinarily used in tar roofing is twice as susceptible to changes of temperature as Ru-ber-oid Asphaltic Compound.

4. The Standard Paint Company's Asphalt Saturated Felt, used in specifications following, is a *wool felt* of much higher quality than ordinarily employed in the making of tarred felt.

5. The Ru-ber-oid type of Built-up Roofing, when laid, is homogeneous—fabric through and through. It requires no sand, gravel or slag to weight it down. Therefore, the work cannot be slurred, intentionally or otherwise, by incompetent workmen or by the use of inferior material; also the roofing can be more readily and inexpensively repaired and leaks be more quickly located.

6. Ru-ber-oid can be laid with equal success on steep or flat roofs.

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(TO FOLLOW DESCRIPTION OF ROOF CONSTRUCTION)

SPECIFICATIONS TYPE "A" RU-BER-OID ON CONCRETE, RU-BER-OID BUILT-UP OR REINFORCED ROOFING. COPYRIGHT, OTTAWA, 1914.

Over the foregoing there shall be laid a RU-BER-OID Built-up Roof as follows:

1. PREPARATION.—The concrete should be finished with a hard, clean surface, not trowelled, but properly graded, and free from saucers or depressions.

Suitable raglets shall be provided in all parapet walls or projections above the roof level, to permit the installation of counter-flashings.

It is desirable that a concrete fillet be formed in all angles between the roof surface and parapet walls, etc., to afford an easy turn for the flashings.

Plumbers' pipes or other projections are to be in place before the roofing is laid and provided with suitable metal collars wherever necessary.

2. MATERIALS.—Quantities following per 100 square feet of completed roof surface:

Two layers S.P.C. Saturated Felt—208 sq. ft.	30 lbs.
One layer 2-ply RU-BER-OID ROOFING—108 sq. ft.	42 lbs.
RU-BER-OID HARD COMPOUND	100 lbs.
S.P.C. Asphaltum Paint—½ Imperial gallon	5 lbs.
Material per 100 square feet	177 lbs.

3. APPLICATION.—(*a*) The concrete surface shall be thoroughly dry and swept clean of all dust and loose particles of concrete.

(*b*) Paint the entire concrete surface with one coat S.P.C. Asphaltum Paint, using not less than ½ Imperial gallon per 100 square feet.

(*c*) Mop the painted surface with hot RU-BER-OID HARD COMPOUND, using not less than 30 lbs. per 100 square feet, and, while hot, imbed the two thicknesses of S.P.C. Saturated Felt, lapping each sheet 19 inches over the preceding one and mopping with the hot RU-BER-OID HARD COMPOUND the full width of the lap, so that in no case shall felt touch felt.

(*d*) Install all outlets and collars, nailing same securely in place. Cement a reinforcement of S.P.C. Asphalt Saturated Felt into all angles and around all outlets and over all collars with RU-BER-OID HARD COMPOUND.

(*e*) Mop the surface of the two thicknesses of S.P.C. Saturated Felt with the RU-BER-OID HARD COMPOUND and imbed into this, while hot, the top sheet of 2-ply RU-BER-OID ROOFING. Lap each sheet of RU-BER-OID ROOFING two (2) inches on the preceding one, applying the RU-BER-OID COMPOUND well between the laps.

(*f*) Finally, brush the hot RU-BER-OID HARD COMPOUND carefully and evenly along the top of the lap to a width of from four to six inches.

(*g*) Counter-flashings shall be firmly fixed into raglets with wedges and pointed with cement.

NOTE 1.—The above specifications apply to roofs having a pitch not greater than 4 in. per foot. In cases where the pitch is greater than 4 in., we supply a Special RU-BER-OID HARD COMPOUND of a higher melting point.

NOTE 2.—The material in above specifications should be applied from ridge to eaves on roofs of pitch greater than 1 in. to the foot.

TYPE "B." Substitute 1-ply RU-BER-OID Roofing for 2-ply in par. 2.

TYPE "C." Substitute ½-ply RU-BER-OID Roofing for 2-ply in par. 2.

TYPE "D." Substitute ½-ply RU-BER-OID Roofing for 2-ply in par. 2, and substitute 22 lbs. S.P.C. Saturated Felt for 30 lbs. in par. 2.

GUARANTEES. We are prepared to bid for material alone or for Roofing laid complete. We guarantee:—

Type "A"—10 years without coating or 15 years with 3 coats RU-BER-INE at intervals of 3, 7 and 11 years from date of laying.

Type "B"—10 years without coating.

Type "C"—7 years without coating or 10 years with 1 coat RU-BER-INE 5 years from date of laying.

Type "D"—5 years without coating or 10 years with 2 coats RU-BER-INE at intervals of 2 years and 7 years from date of laying.

BUILT-UP KA-LOR-OID ROOFING. Specifications follow exactly the wording of Type "A," the only change being the substitution of "Heavy Weight KA-LOR-OID" (Red or Green, as desired) for "2-ply RU-BER-OID" in par. 2.

SPECIFICATIONS, RU-BER-OID OVER BOARDS, KA-LOR-OID OVER BOARDS. TYPES A, B, C, D. Substantially the same as foregoing specifications for CONCRETE ROOFS. Full and complete data furnished on request. *Guarantees* given for *same periods* on each type, as detailed foregoing.

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RU-BER-OID.

Our standard quality. Made in three weights, designated plies:—

1 ply, for barns, outbuildings etc. Guaranteed 5 years. Average weight, 35 lbs. per square, with fixtures.

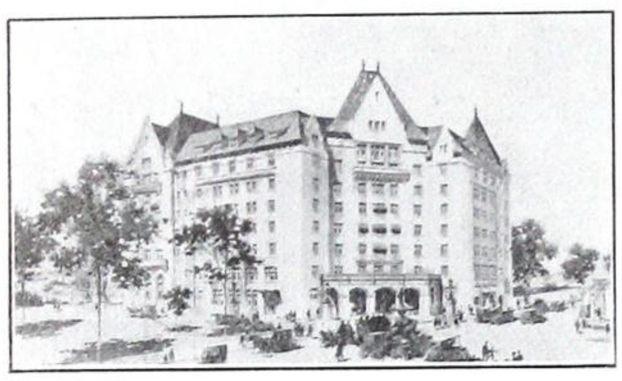
2 ply, for dwellings, warehouses, stores, etc. Guaranteed 10 years. Average weight, 45 lbs. per square, with fixtures.

3 ply, for factories and severest usage. Guaranteed 15 years. Average weight, 55 lbs. per square, with fixtures.

RU-BER-OID is the *pioneer* smooth-surfaced ready roofing. The 2-ply and 3-ply grades are rated by the Canadian Fire Underwriters' Association as "first class"—the lowest or base rate.

For testimonials and fuller details, write for our booklets, "*All About Roofing*," "*Around the World with RU-BER-OID*" and "*RU-BER-OID Why.*"

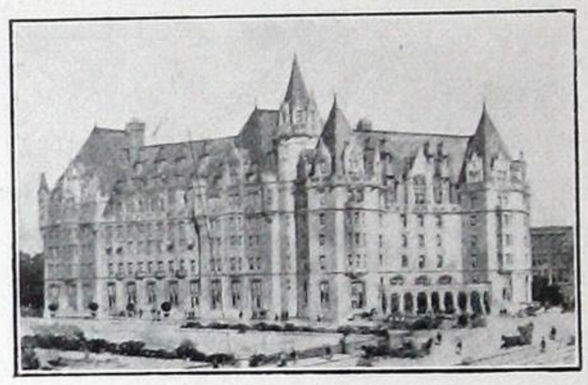




GRAND TRUNK PACIFIC HOTEL, EDMONTON, ALTA.
ROOF SHEATHED WITH RU-BER-OID ROOFING.
ARCHITECTS:—ROSS & MCDONALD.



FORT GARRY HOTEL, WINNIPEG.
ROOF SHEATHED WITH RU-BER-OID ROOFING, BASEMENT WATERPROOFED WITH IMPERVITE.
ARCHITECTS:—ROSS & MCFARLANE.



CHATEAU LAURIER HOTEL, OTTAWA, ONT.
ROOF SHEATHED WITH RU-BER-OID ROOFING.
ARCHITECTS:—ROSS & MCFARLANE.

KA-LOR-OID.

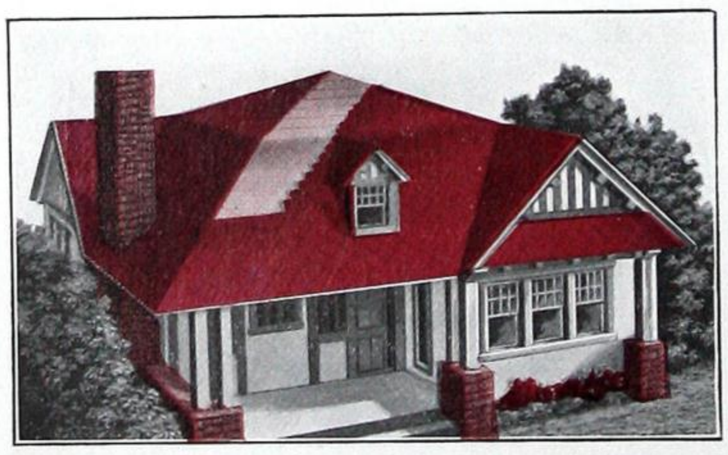
The RU-BER-OID in handsome permanent shades of Red and Green. This is a patented product, the only permanently coloured ready-to-lay roofing marketed in Canada. The colours are made an integral part of the exposed surface in the process of manufacture—*not painted on.* Made in the following weights:

Red—Medium weight, 40 lbs. per square, packed for shipment. (Guaranteed 5 years.)

Red—Heavy weight, 50 lbs. per square, packed for shipment. (Guaranteed 10 years.)

Green—Heavy weight, 50 lbs. per square, packed for shipment. (Guaranteed 10 years.)

KA-LOR-OID is adapted for churches, dwellings, theatres, bungalows or any structures where artistic effect is desired.



ROOFED WITH DURO SHINGLES.

AL-BA-ROID.

The RU-BER-OID in White. This result is obtained by imbedding a sheet of asbestos in the exposed surface, insuring not alone a permanently white roofing, but adding to the fire-resistance of the roof covering. Made only in one weight—45 lbs. per square, complete with fixtures. Guaranteed 10 years.

DURO RIGID SHINGLES.

The only rigid prepared roofing shingles marketed in Canada. Manufactured in Slate and Red; size 8 in. x 12½ in.; laid 5 in. to the weather. Applied in the same manner as wooden shingles. Put up in packages each sufficient to cover 25 square feet of surface. No exposed nails.

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CRONOLITE. A medium-priced Asphalt Roofing, surfaced on both sides with crushed granite. Made in customary weights—1 ply, 35 lbs.; 2 ply, 45 lbs.; 3 ply, 55 lbs.

DOMINION. An Asphalt Roofing similar to Cronolite, with one side surfaced with crushed granite. Customary weights.

EUREKA. An Asphalt Roofing similar to Cronolite, but asphalt smooth-coated on both sides. Customary weights.

EUREKA, TYPE L. An Asphalt Roofing, smooth-coated both sides. Special weights—1 ply, 40 lbs.; 2 ply, 50 lbs.; 3 ply, 60 lbs.

RU-BER-OID WATERPROOF CLOTH. Made of heavy duck, saturated and coated with RU-BER-OID Gum. Marketed in colours, Black and Red, and in two weights. Suitable for covering decks, porches or any exposed surface subject to hard wear under foot.

No. 1 Black—27 lbs. per square, complete with fixtures.

No. 2 Black—37 lbs. per square, complete with fixtures.

No. 1 Red —30 lbs. per square, complete with fixtures.

No. 2 Red —40 lbs. per square, complete with fixtures.

RU-BER-OID WALL BOARD. Manufactured in two weights, medium and heavy, from a wood pulp board, which is suitably sized to prevent absorption of moisture. Made in two styles, one consisting of solid board and the other with the individual layers of board cemented together by means of asphalt. Also having an impregnated back to prevent the absorption of moisture from the exterior of buildings. Made with a plain surface suitable to receive coat of paint of any appropriate colour, which we will supply specially for this purpose; also with a grained effect, exactly duplicating the surface and colour of various kinds of wood, including mahogany, golden oak, weathered oak and Janisero.

RU-BER-OID FLOOR CLOTH. An improved floor covering, adapted for use in residences, hospitals, sanitariums, churches, lodge rooms, billiard rooms, factories, stores, theatres, etc., or for any interior where linoleum, oilcloth or cork carpet has hitherto been used. Its distinctive features are:—Greater durability, giving longer service than old-time flooring. Absolutely waterproof and non-absorbent, no porous canvas back being used as in linoleum. More sanitary, as its composition is so dense that it affords no lodgment for germs, and it will not absorb grease, kitchen drippings or like refuse. May be unrolled and laid at almost any indoor temperature. Highly fire-resistant and may be used with safety around stoves and heaters. Burning embers will not ignite it. Made in Black and Red. Put up in rolls 36 in. or 4/4 and in 72 in. or 8/4 wide. Rolls about 30 lineal yards.

"STANCO" CARPET FELT. Marketed in weights 16 oz., 20 oz. and 24 oz. per lineal yard. Rolls 36 in. wide, each containing 50 lineal yards.

"SNUG" FELT. Marketed in one weight only, 24 oz. per lineal yard, rolls containing 50 lineal yards. A high-grade material for high-grade interiors.

BURLAP FELT. Marketed in Grey, Red and Green. Suitable for interior lining as a cheap substitute for lining boards. Put up in rolls 36 in. wide, containing 400 square feet.



PARLIAMENT BUILDINGS, EDMONTON, ALTA.
SHEATHED THROUGHOUT WITH SOVEREIGN FELT.

SOVEREIGN SHEATHING FELT. Put up in rolls 36 in. wide, containing 400 square feet. Saturated and single-coated with RU-BER-OID Gum. This material was first marketed in Canada some six years ago, to meet an insistent demand for a sheathing free from the objectionable odour of tar paper and of superior quality, to insure permanency in construction, freedom from draughts and dampness—in a word, a sheathing of lasting character, flexible, waterproof and wind-proof, of high tensile strength, that will not harbour vermin. It possesses great insulating qualities, thus contributing to the comfort of the occupier, and insures a cool interior in summer and a warm one in winter, saving coal bills.

JOHN LYSAGHT, LIMITED

MANUFACTURERS,

BRISTOL, ENGLAND.

A. C. LESLIE & CO., LIMITED

MONTREAL, QUE.

MANAGERS, CANADIAN BRANCH.

PRODUCTS.

"QUEEN'S HEAD" and other well-known brands of GALVANIZED SHEET IRON.

"QUEEN'S HEAD."

This brand is the standard the world over for high-class work. Made of the best grade of soft Open Hearth Steel, absolutely flat, it will stand the most severe working tests. It differs from all other makes in the system of galvanizing, which gives a smooth, bright surface, free from thinly coated or defective spots, ensuring the greatest durability. First cost may be a little higher, but it is the cheapest in the end.



HOW TO SPECIFY.

All Galvanized Iron Work to be of "QUEEN'S HEAD." No other brand will be accepted as "equal." Brand to appear on every sheet.

CORNICES—To be made of 28G "Queen's Head" Galvanized Iron.
CONDUCTORS—All Conductors to be either Corrugated or made with expansion joints.
FLASHINGS—To be of "Queen's Head" Galvanized Iron.

GUTTERS—To be made of 26G "Queen's Head" Galvanized Iron.
All Gutters to be set with an even continuous fall to rain conductors.

SKYLIGHTS—To be made of 24G "Queen's Head" Galvanized Iron.
VENTILATORS—Skylights to have condensation gutters with discharge at eaves.

No other brand can fairly be substituted for "Queen's Head," for none is equally durable.

WEIGHTS PER SQUARE FOOT.

GAUGE.....	28	26	24	22	20	18	16
WEIGHT.....	.687 lbs.	.750 lbs.	1.061 lbs.	1.313 lbs.	1.600 lbs.	1.950 lbs.	2.625 lbs.

Lysaght's Sheets are rolled as true to gauge as possible, not varying more than 5% from these average figures. This is important, as light weight sheets are often supplied.

"FLEUR-DE-LIS."

Is made of the same quality of Steel as "Queen's Head," and is fully guaranteed for working purposes. It differs chiefly in the galvanizing, which is somewhat lighter than that on "Queen's Head," but is at least equal to any other brand.

CORRUGATED SHEETS.

"Redcliffe" is the standard brand for this purpose, made of soft Steel, uniform in weight, and of exactly the same finish as "Fleur-de-Lis." For special work requiring the most durable galvanizing, "ORB" Brand should be specified.

THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. ASSOCIATED WITH WINNIPEG.

THE METAL SHINGLE & SIDING CO., LIMITED,

PRESTON, MONTREAL, SASKATOON, CALGARY.

PRODUCTS. NONPAREIL PUTTYLESS SKYLIGHT.
Cannot Leak—Lasts Indefinitely—Simple in Construction—Not Expensive.
Endorsed by architects and approved by governments.

CONSTRUCTION. All Metal and Glass—no putty used.

See lead glazing cushion No. 5, Fig. 2. It has parallel vertical walls that will conform perfectly with the uneven surface of the skylight glass. This is detachable and reversible, so that it can be applied after all the field work, except glazing, has been done.

There are two vertical walls on each cushion and two cushions on each bar, so it is absolutely impossible for any water to get in. Perfection is the aim of the patentee, and a special gutter, No. 7, Fig. 2, has been arranged to take care of any water which might get through under abnormal conditions.

The perfection of these cushions has been tested by leaving off caps Nos. 3 and 4, Fig. 2, during several severe storms, and not a leak has developed.

The bars of galvanized or lead-coated steel are made as No. 7, Fig. 2. This is the principal part of the bar, and is bent up to form condensation gutters. Although this makes a bar of great strength, it is reinforced by the bent metal No. 6, Fig. 2, which supports the cushion and glass, and forms an extra dust gutter.

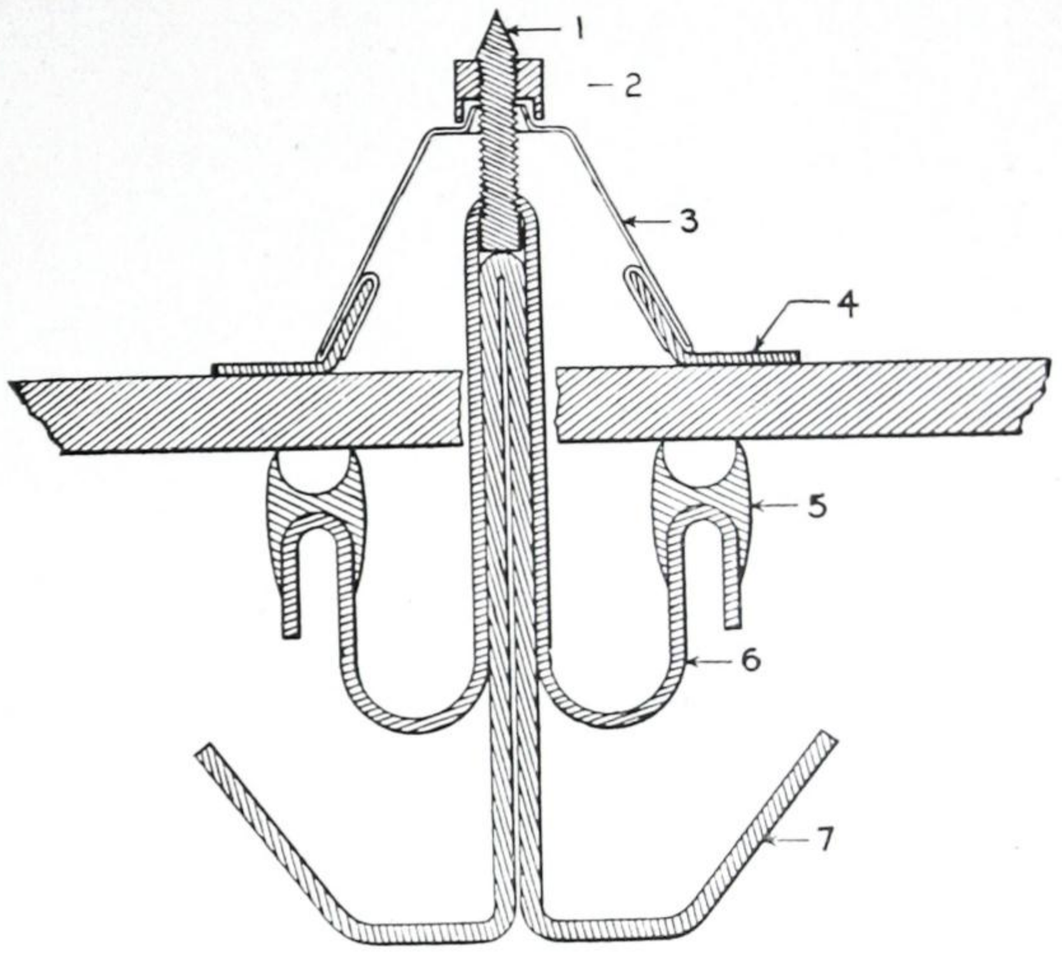
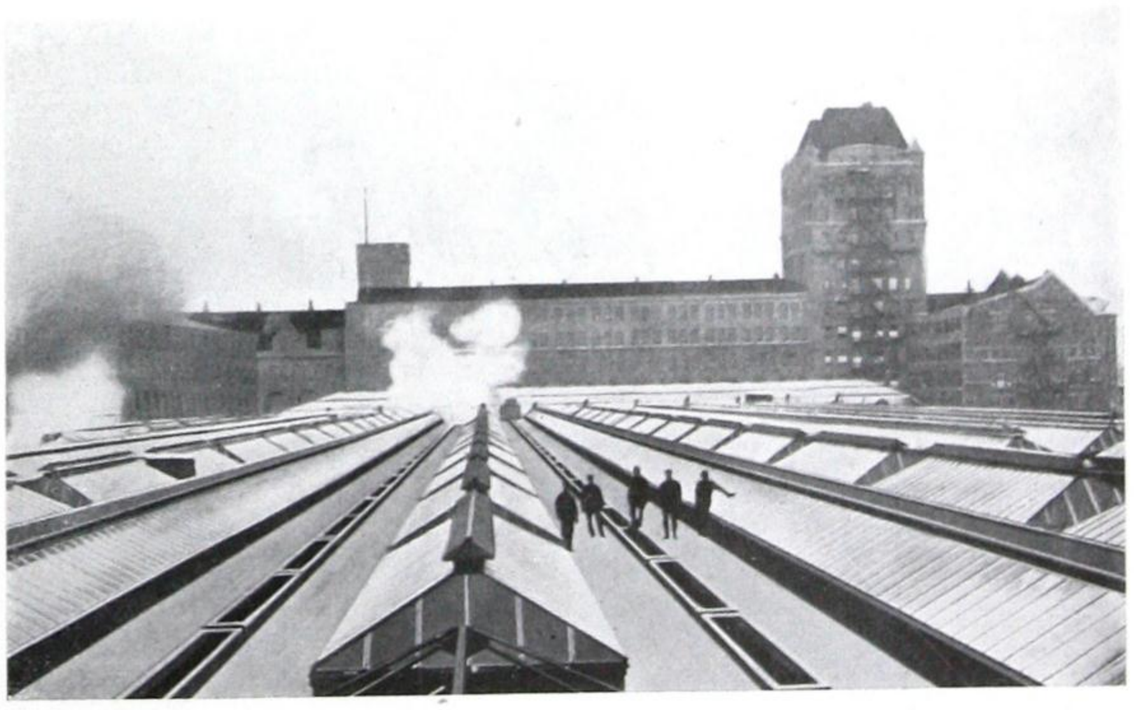


Fig. 2.


NEW C.P.R. TRAIN SHEDS AT WINDSOR STREET STATION, MONTREAL.

INSTALLATIONS. On these sheds we have supplied and erected over 100,000 square feet glass area Nonpareil Skylights. This is one of the largest skylight contracts ever let in America. There was used in connection with this contract over 100,000 square feet of ¼-in. ribbed wired glass, 30 tons 16-oz. cold-rolled copper, and over 100 tons of lead-coated 16 gauge bars. The Canadian Pacific Railway adopted this Nonpareil bar in preference to all other makes.

OTHER RECENT SKYLIGHT INSTALLATIONS.

Redford Building, Montreal	Peter Lyall & Sons, Contractors. Ross & Macdonald, Architects.
Lewis Building, Montreal	E. G. M. Cape, Contractor.
Canadian Vickers Maxim Co., Maisonneuve	E. G. M. Cape, Contractor.
Imperial Wire & Cable Co., Montreal	E. G. M. Cape, Contractor.
Abitibi Pulp & Paper Co., Iroquois Falls, Ont.	
University of Saskatoon.	

These are just a few of the many.

GEO. W. REED & CO., LIMITED

37 St. Antoine Street,

MONTREAL.

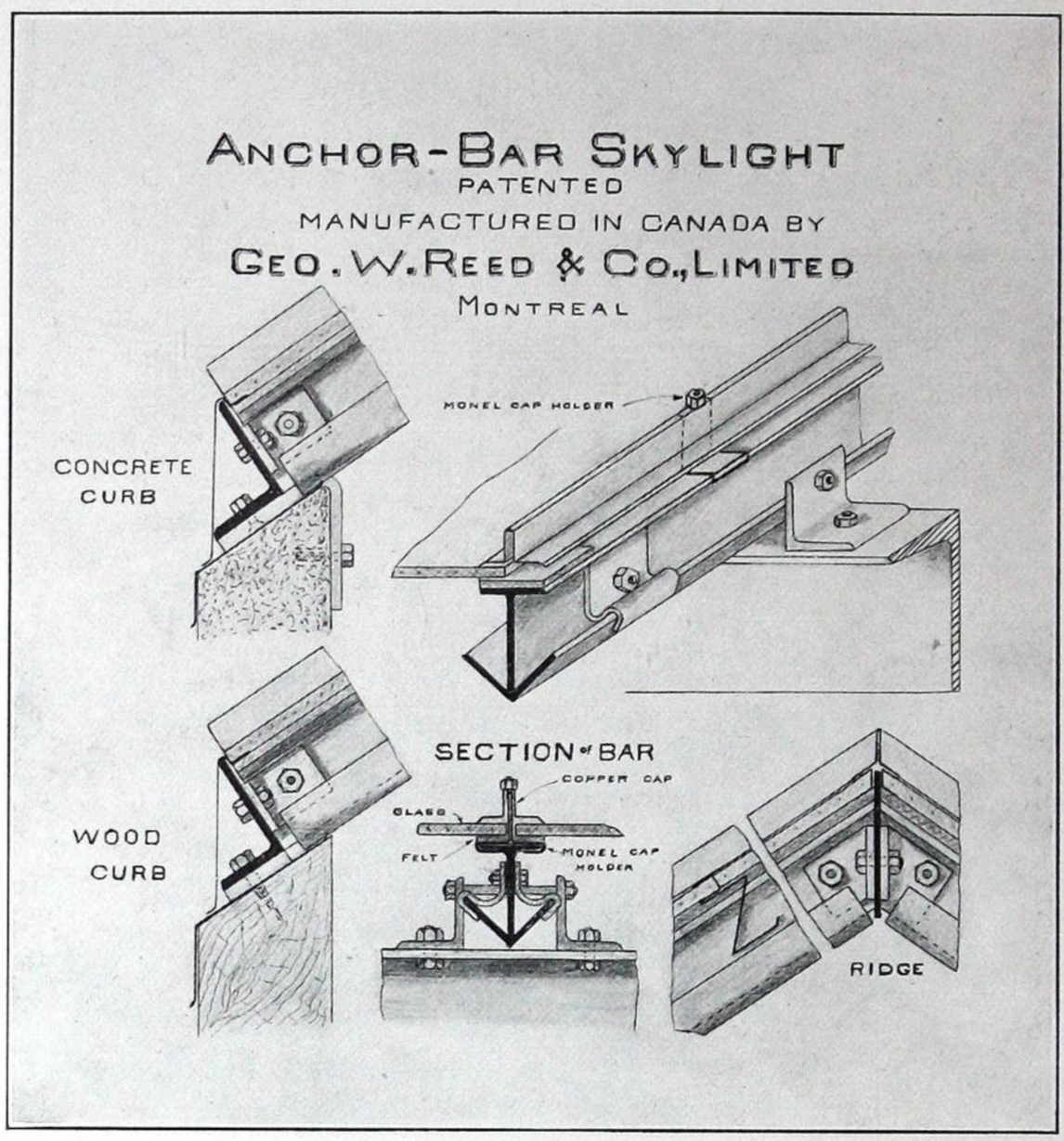
BUSINESS. We do Slate, Metal, Gravel, Plastic and Tile Roofing, Asphalt and Cement Work, Waterproofing, and Sheet Metal Work of all kinds.

ROOFING. Sixty years' experience in the roofing business in Montreal and vicinity enables us to handle all its problems with satisfaction to all concerned.

THE ANCHOR-BAR SKYLIGHT.

The Anchor-Bar Skylight is especially designed for large areas where the bar length is in excess of eight feet. The bar proper consists of two structural members, a 2 x 1½ inch tee and a 1½ x 1½ inch angle, which are secured together with malleable iron clamps at sufficient intervals to secure proper strength and rigidity. The angle member serves as a gutter for condensation. Glass rests on flange of tee on a bed of pure wool felt. Copper saddles are set about four feet apart to receive caps after glazing.

Especial attention is called to method of securing skylight to curbs, as shown in accompanying cut, clearly indicating the great strength obtained. The thrust of skylight is directly against the heavy angle, which is lag screwed to curb and which cannot give way while curb holds. Compare this feature with other so-called "improved" types of skylight construction, which are largely weak at the curb. The relative position of tee flanges and base angle forms a shoulder, which prevents any possibility of the sliding of glass (an important feature in large skylights). A copper apron protects base angle from weather, and also prevents snow from percolating through condensation outlets.

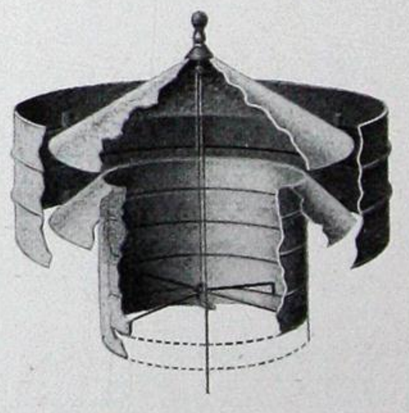


Cross gutters, caps, apron and saddles are of copper unless otherwise noted. By increasing depth of tee stem, the strength of bar is increased, but for ordinary spans our standard 2 x 1½ inch tee should be specified.

RECENT CONTRACTS.

New Birks Building, Montreal.
Can. Pac. Ry., Completion of Concourse.
City Hall Annex, Montreal.
Dominion Textile Factory, Magog.
Dominion Government, Marine and Fisheries Bldg., Halifax.
Fraser Building, Montreal.
Sir R. Forget, Residence.
Fairmont School, Prot. Bd. of School Com.
Montreal Locomotive Works.
Metropolitan Bank Bldg., Montreal.
National Breweries, Dow Branch.
Standard Building, Montreal.
St. Lawrence Sugar Refinery.

VENTILATORS. We are the sole licensed Canadian manufacturers of the celebrated Burt Ventilator. These Ventilators are made with either glass or metal top. The Sliding Sleeve is a very valuable feature found in no other ventilator. A special booklet dealing with this Ventilator will be sent on request.



SPECIFICATION FOR "REED'S" FOUR-PLY FELT AND GRAVEL ROOF.

There shall be four thicknesses of best No. 1 tarred roofing felt, weighing not less than 14 lbs. per hundred square feet, single thickness, and not less than 120 lbs. of best straight-run gas pitch, and not less than 400 lbs. gravel, from ¼″ to ⅝″ in size, per 100 sq. ft. of completed roof. Applied as follows: Lay four full thicknesses of felt, lapping each 24″ over the preceding one, mopping with hot pitch the full width of the 24″ lap between the plies. All walls, curbs, etc., to be well flashed up with felt at least 10″. Spread over the entire surface of the roof a uniform coating of pitch, into which, while hot, embed the gravel. The gravel must in all cases be dry. This roof we guarantee for ten years.

BASEMENT FLOORS. Our vulcanite underfloor is perfectly sanitary, being absolutely damp-proof and vermin-proof. Top floor may be either cement or wood. Asphalt and Cement work of all kinds executed. Asphalt is especially adapted for use in School Basements and Playrooms, Locker Rooms, Drill Halls, Breweries, Abattoirs, Railway Baggage Rooms, etc.

OTHER ADVERTISEMENT. See Fireproof Windows, Doors, etc., on page 342.

CANADIAN SUPPLY & CONTRACTING CO., LIMITED

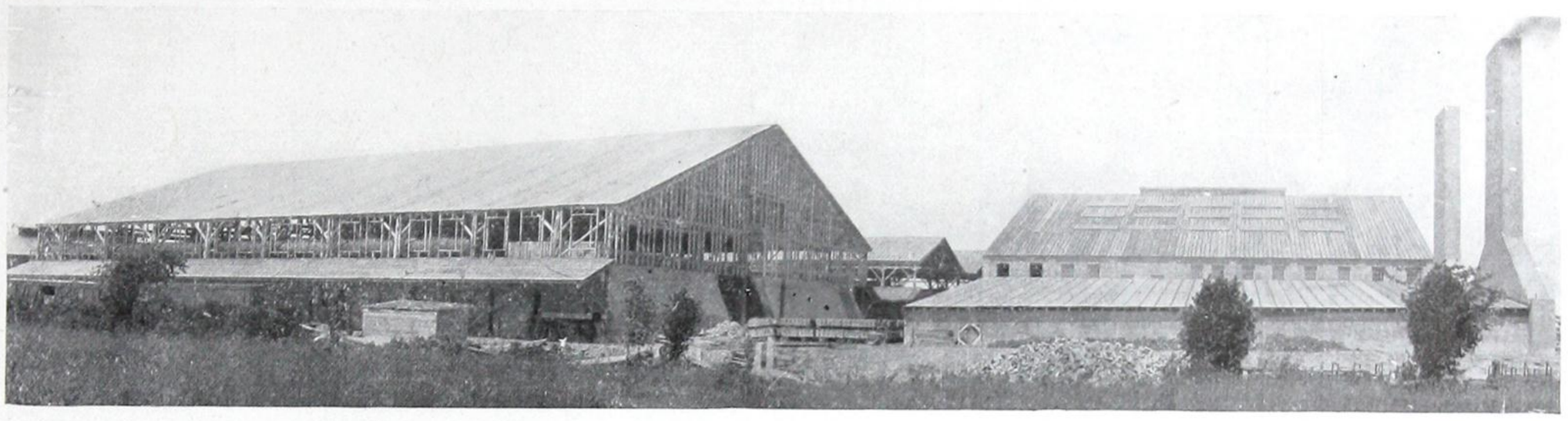
STRUCTURAL WATERPROOFING ENGINEERS AND CONTRACTORS,

TORONTO, CANADA.

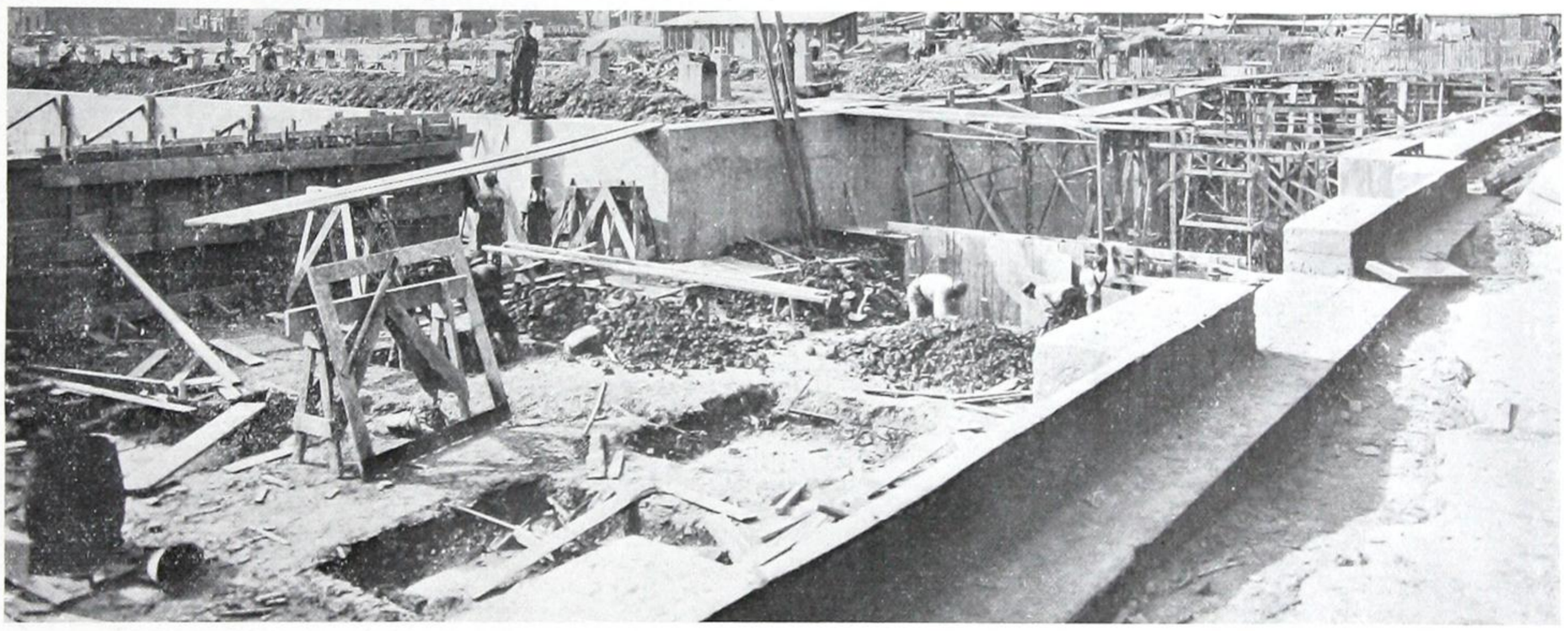
PRODUCTS. Let us tender on your ROOFING, WATERPROOFING and FLOORING specifications.

We undertake contracts for Roofing, Waterproofing, Tar Rock, and Mastic Asphalt Flooring. Our Complete Equipment enables us to execute the work in accordance with Architects' and Engineers' Specifications.

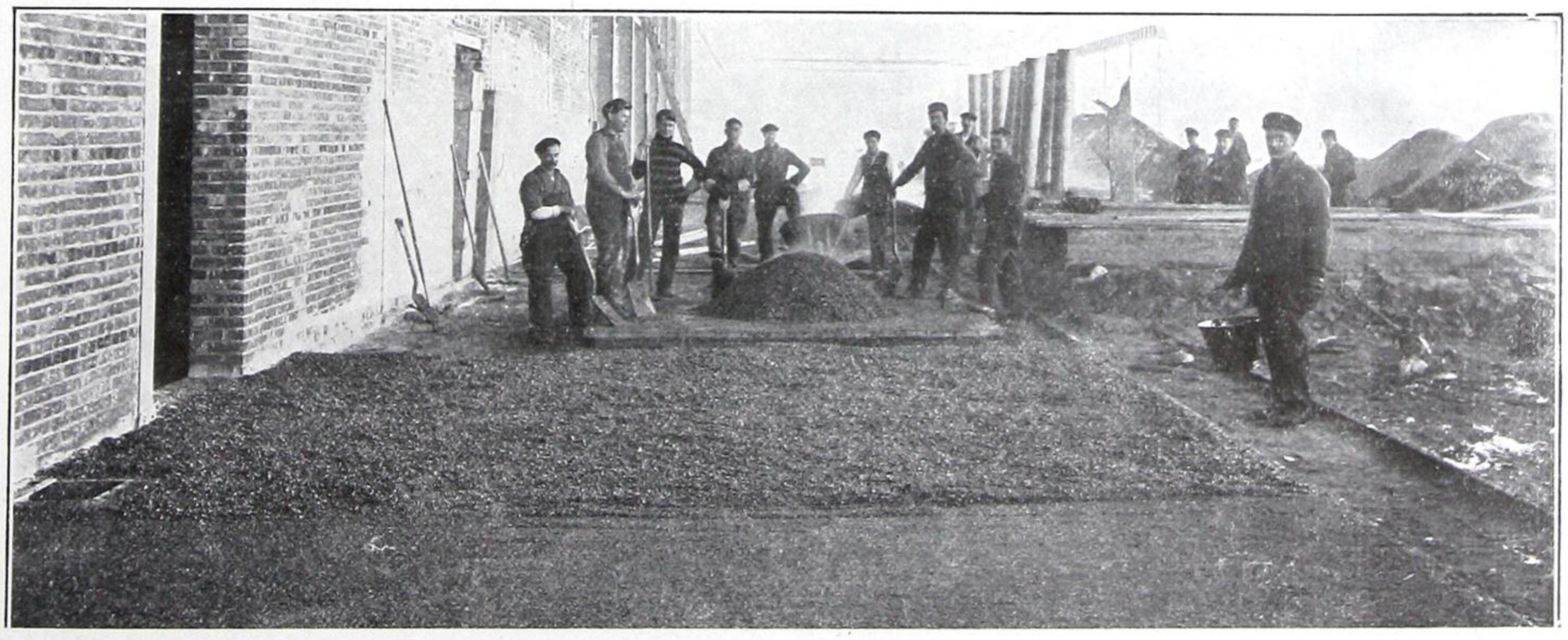
We supply Roofing, Waterproofing and Insulating Materials.



ONTARIO NATIONAL BRICK CO., LIMITED, COOKSVILLE, ONT. 200,000 SQ. FEET ROOFING ON ABOVE BUILDING SUPPLIED BY US.



FOUNDATIONS OF TEN C.P.R. FREIGHT TERMINALS, TORONTO. THE WATERPROOFING ON ABOVE FOUNDATIONS EXECUTED BY US.



TORONTO STRUCTURAL STEEL CO., LIMITED, WESTON, ONT., 60,000 SQ. FEET OF TAR ROAD FLOORING LAID BY US.

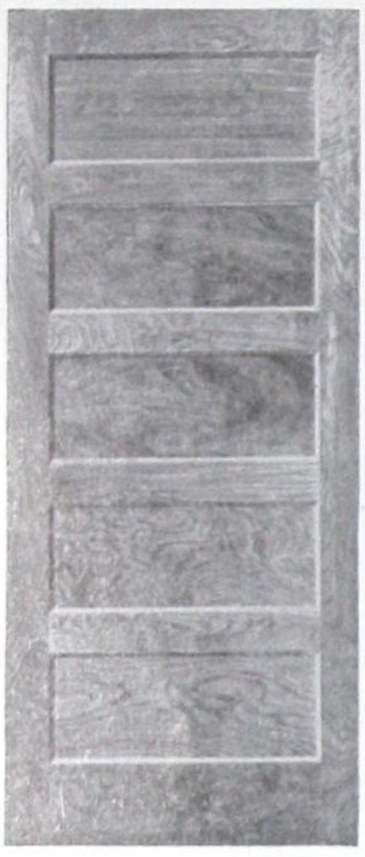
NOTE. Our work on many notable Canadian Buildings is a guarantee of our ability to successfully carry out the most important contracts.

CANADA LUMBER COMPANY, LIMITED

"That Reminds Me"—
Those Hardwood Veneered Doors.

106 McKinnon Building,
TORONTO, ONT.

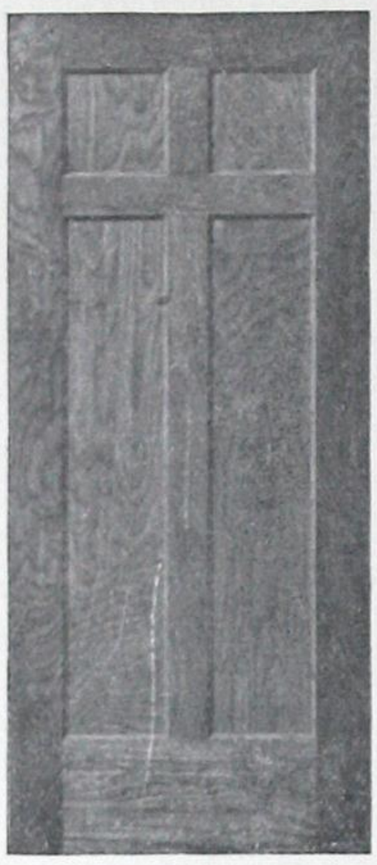
Telephone
Adelaide 195.



C.L.Co. 150



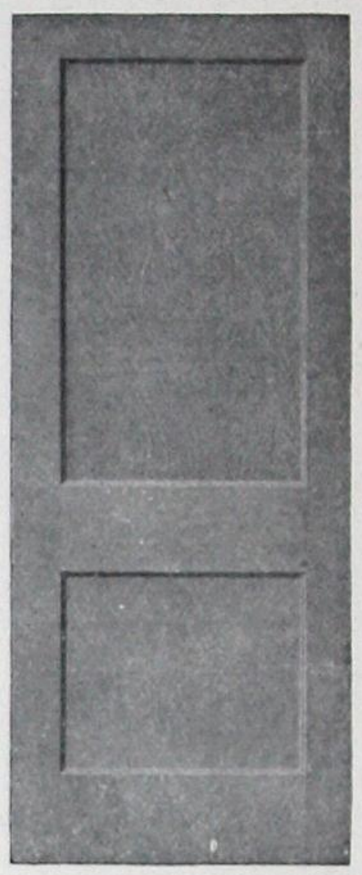
C.L.Co. 153



C.L.Co. 245



C.L.Co. 249



C.L.Co. 152

CANADA LUMBER COMPANY'S DOORS.

In Veneered Hardwoods, are made up in many kinds of woods, and so manufactured to be ready for either natural or the many stained finishes, when leaving our plant.

Birch, Plain Red Oak, Satin Finish Red Gu n, for either Circassian Walnut or Mahogany finish, Yellow Pine in rotary cut large figured flake or straight grained veneers, Quarter-Sawn Red and White Oaks, are some of the woods entering into our product.

Our Veneered Door Plant is housed in buildings erected to suit the needs of the manufacturing of perfect doors, and the equipment is the best that money and brains can put together. With this excellent equipment, including our special dry kilns for properly treating hardwood lumber, we guarantee to give our customers doors equal to the finest on the market. On this page are shown a few designs as manufactured by us, but we wish it known that we are able to make special designs when wanted by architects for use in office buildings, hotels, apartment houses, etc.

TREATMENT OF HARDWOOD DOORS.

Veneered Hardwood Doors, being the finest grade of doors manufactured, must not be handled and exposed like ordinary stock doors, but need a small amount of attention when the doors are first received by you, just like any other high-grade piece of furniture would receive from your hands.

All wood is porous, and the drier and more thoroughly seasoned it is the more readily it absorbs moisture. For example: Should an unfinished door "in the white," as received by you, be placed in a damp room or warehouse or a newly plastered house not yet dry, it rapidly absorbs the moisture in the air, naturally expanding and swelling the wood in the door. Later on, when such a door is dried out, the wood shrinks and twists and requires considerable repairs.

All this trouble can be avoided if proper care and attention is given in the handling of high-grade veneered doors.

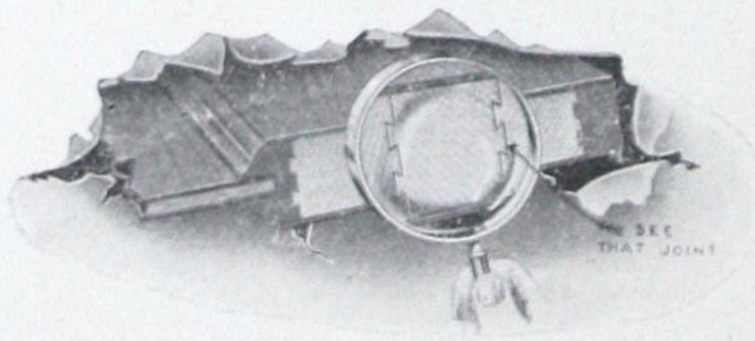
First: As soon as the doors are received from the depot and the packing and crating removed, have them filled with one coat of good filler; two coats are better, but one coat well applied will do. Doors being shipped "in the white" and filled as above, will be protected from the moisture in the atmosphere until ready for use, but doors, even so filled, must be kept in a reasonably dry place until hung and varnished. Never place a veneered hardwood door, nor any other interior finish, in a freshly plastered building. Be sure that the plaster is thoroughly dry, and where possible, it is best to dry out the building with artificial heat. When a door has been fitted and hung, paint the top and bottom edges of the door with pure lead and oil. Veneered doors exposed to the weather must be filled and given at least two heavy coats of good exterior varnish. This should be applied to the edges as well as on the flat surfaces. Hang no outside exposed door without immediately filling and varnishing same.

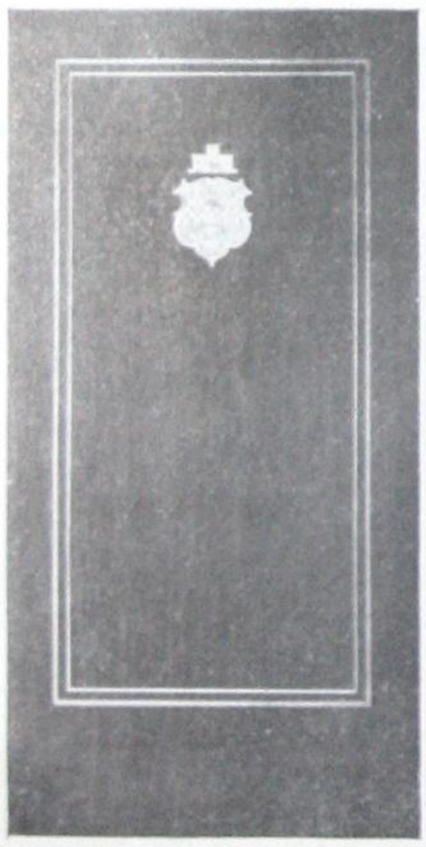
Providing the above suggestions are followed after the doors leave our warehouses, we guarantee "our doors" to stand and prove satisfactory.

We carry these doors in stock in the city. Samples of them can be seen at our office.

We handle everything in lumber. Special bills of timber cut to order on short notice.

High-grade Oak, Maple and Birch Flooring for dwellings, etc. Also good sound grades of the above for factory floors, and in Maple up to 5 inches thick when heavy strain and rough usage prevails.

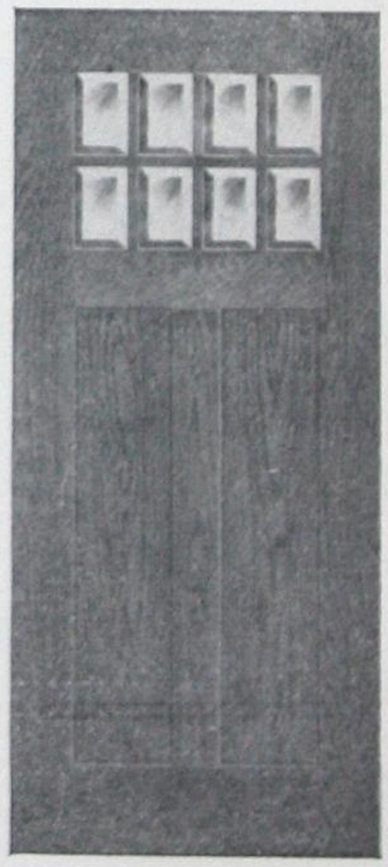




C.L.Co. Style S.

Note.—The above cut shows the construction of the best Hardwood Veneered Door made.

The above are a few cuts of our Hardwood Doors. We can supply any design required.



C.L.Co. 249½

BATTS LIMITED

Office and Mill: 368-400 Pacific Avenue, WEST TORONTO, ONT.

PRODUCTS. We manufacture VENEERED AND PINE DOORS, STAVED COLUMNS for Exterior and Interior Use, FRAMES, SASH, FLOORING, PINE AND HARDWOOD TRIM, NEWEL POSTS, BALUSTERS, TURNINGS, STAIR MATERIAL, ETC.

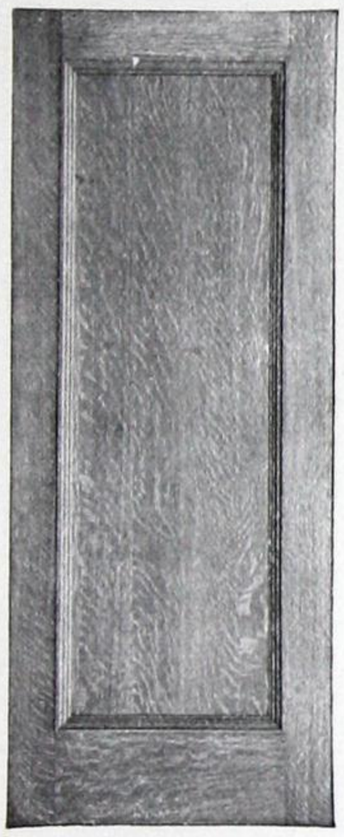
COLUMNS. High-grade Staved Columns, manufactured in all kinds of wood, in any diameter or length, are a specialty with us. A large stock of columns always on hand, enables us to make prompt shipment. Our facilities for the execution of orders to special design are such that we can satisfactorily meet any requirement.

NEWEL POSTS. In Quarter-Cut Oak, Birch, Georgia Pine. Several designs always in stock. Special Newels to detail quickly made to order.

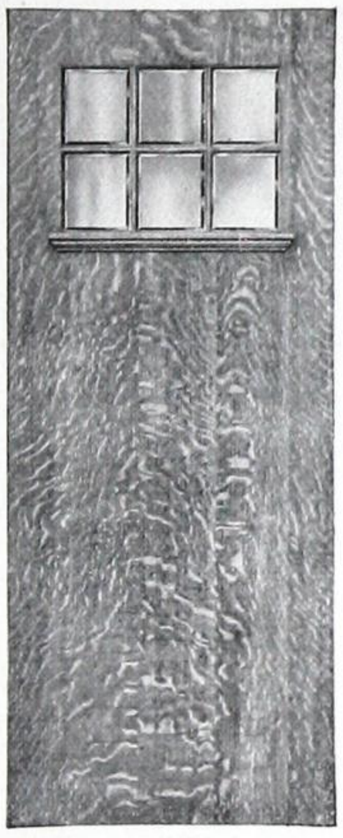
BALUSTERS. We carry a large stock of Verandah and Stair Balusters ready for immediate shipment, and we are well equipped for turning Balusters to detail.

SASH. Our complete, up-to-date Sash Machinery is turning out large quantities daily. All sash are dovetailed at the meeting-rail.

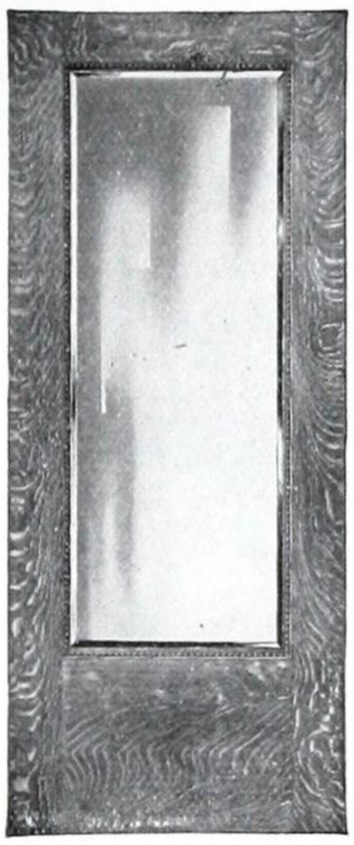
DOORS. We are specially well equipped in our Door Department, having the best door machinery obtainable. In our Glue-Room we have a 100-ton Power Press, used exclusively on our Veneered Doors. Only thoroughly kiln-dried White Pine is used for our Veneered Door cores. A large stock of door veneers in all the cabinet woods are always kept on hand.



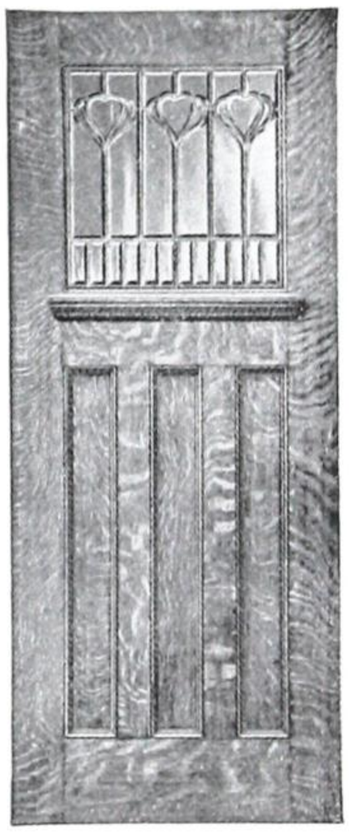
B.L. No. 316, ¼-Cut Oak.



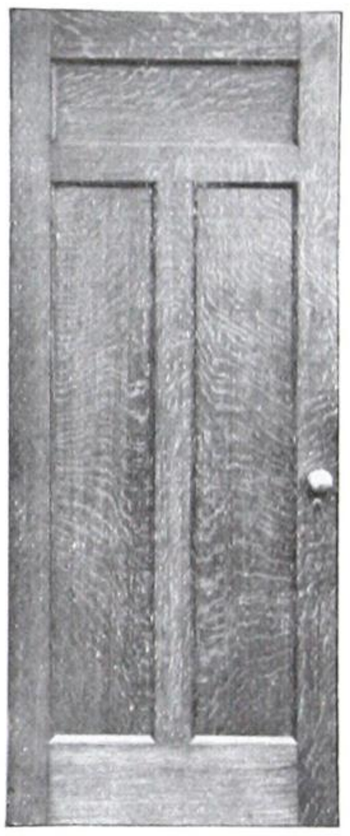
B.L. No. 312, ¼-Cut Oak.



B.L. No. 306, ¼-Cut Oak.



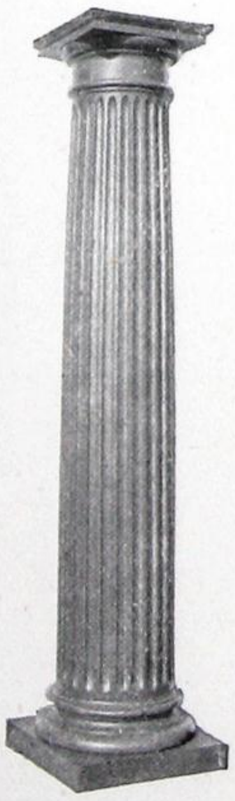
B.L. No. 314, ¼-Cut Oak.



B.L. No. 319, ¼-Cut Oak.



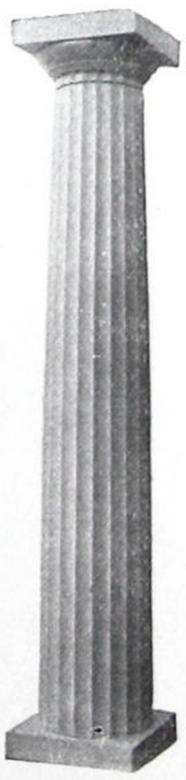
Design B.L. No. 1.



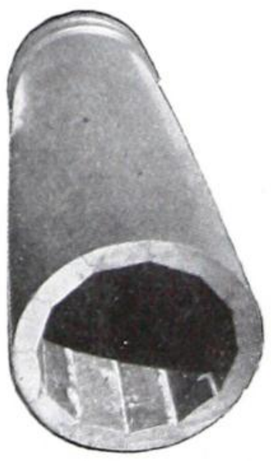
Design B.L. No. 3.



Design B.L. No. 4.



Design B.L. No. 6.





Illustrated Construction.

The above illustration shows our lock joint and our method of connecting the cap and base to the shaft of our stock columns. Both ends of the shaft are bedded in Mastic Putty. This is our own idea, and, as far as we know, is not in use by any other manufacturer. By this means it is impossible for water or moisture to get to the inside of our columns.

CATALOGUES. A complete catalogue of our various lines will be mailed on request, and we particularly invite correspondence from architects, builders and contractors regarding special work.

THE RAT PORTAGE LUMBER COMPANY, LIMITED

MANUFACTURERS OF EVERYTHING FOR A BUILDING.

WINNIPEG, MANITOBA.

VENEER DOORS.

The Veneers used in building Rat Portage Doors are from many varieties of hard and soft woods. The principal woods are Red, White and Unselected Birch, plain Red and White Oak and Red and White Quarter-Cut Oak, Mahogany, and Yellow Fir.

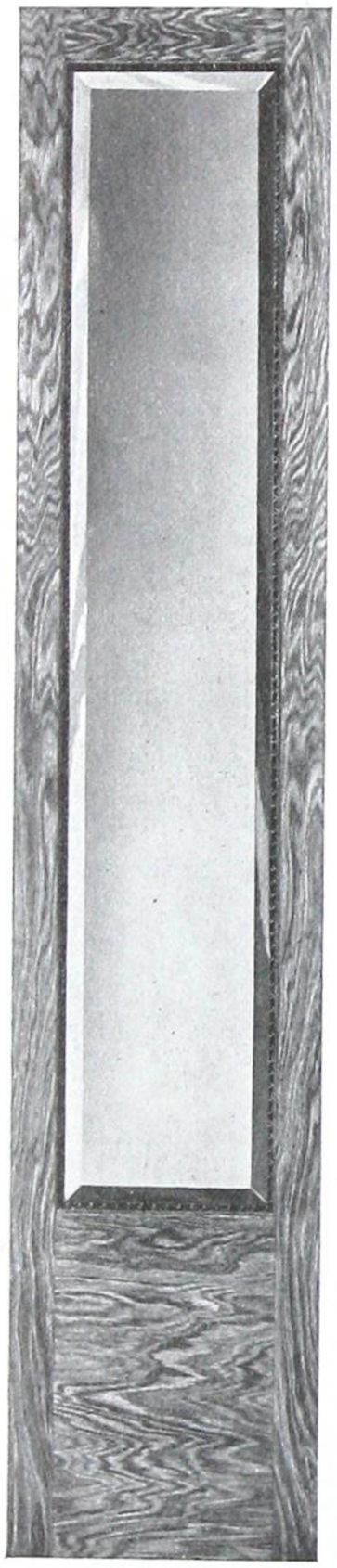
Our plain Oak, Birch and Fir Veneers are rotary cut and selected for their beautiful figures. Our Veneer Doors are all built on cores made from kiln-dried pine strips, glued together under powerful pressure. Rat Portage Doors are perfect doors and are guaranteed as good as the best.

INTERIOR FINISH.

We are experts at reading architects' designs, and employ only experts to manufacture Interior Finish to their details and requirements.

We make a specialty of manufacturing Interior Finish, Store and Bank Fixtures, Counters, Hotel Bars, Store Fronts, Church Furniture, etc., in stock or special designs.

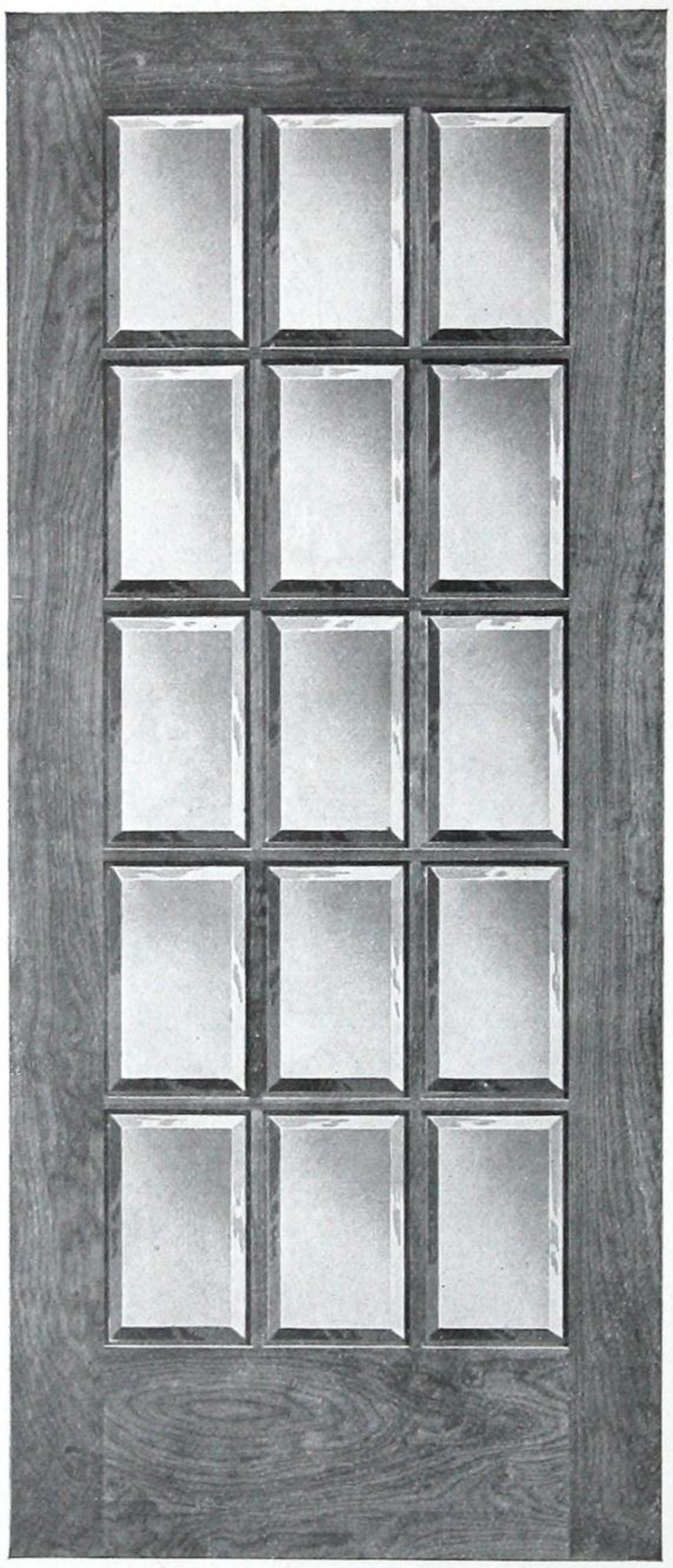
A large supply of seasoned Hard and Soft Wood always on hand. Rat Portage work is always good work and guaranteed.



SIDE LIGHTS—M. 108.

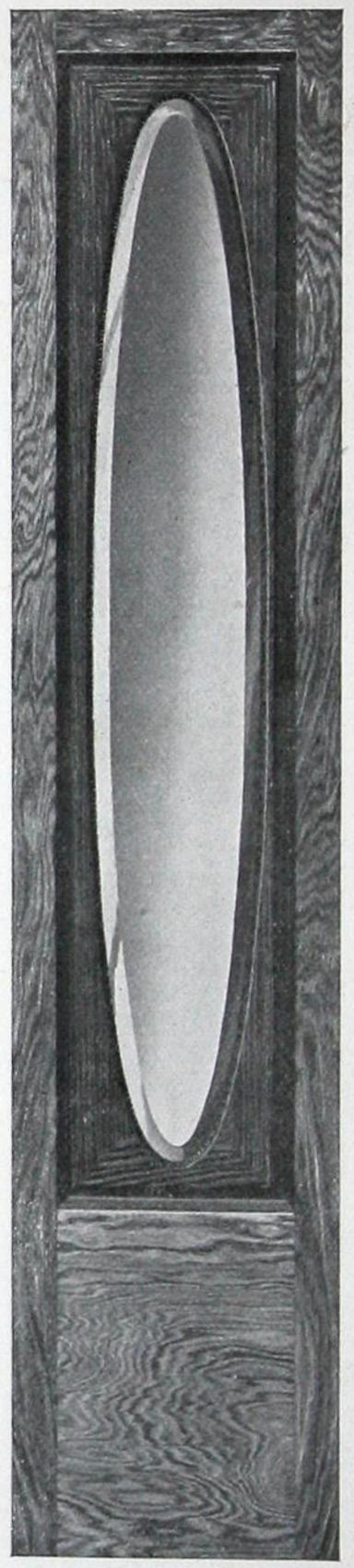
This Sidelight is designed to go with our M. 108, 109 or 89; also made with bottom panel to match M. 189. Cut shows plain Red Oak filled with bevel plate glass. We build with any wood to match the door.

We manufacture designs to match any standard door made.



CRAFTSMAN DOOR—M. 117.

A beautiful form of sash door for use between dimly lighted rooms and in vestibules. Can be glazed with any form of glass. Illustration shows Red Birch, square edge stiles, rails and bars with bevel plate glass. We build with any wood desired.



SIDE LIGHTS—M. 106.

This beautiful Oval Sidelight will match any form of oval light door. Cut shows plain Red Oak filled with bevel plate glass. We build with any wood to match door. Art glass makes a beautiful filling.

We make a specialty of manufacturing to architects' special designs.

Architects will find it to their own and clients' benefit to specify Rat Portage Finish and Designs. Estimates cheerfully given on all stock or special designs of work. The largest capacity in Western Canada. We manufacture everything for a building.

OUR MOTTO:

QUALITY. PRICE. SERVICE.

THE DUPLEX HANGER CO.

GENERAL OFFICE AND WORKS:
EAST 53RD STREET AND LAKESIDE AVENUE,
CLEVELAND, OHIO.

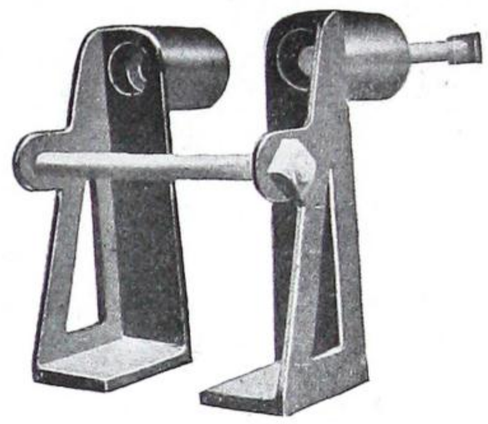
AGENTS:

MONTREAL: DAVID MCGILL, 83 BLEURY ST.
TORONTO: HEPBURN AND DISHER, LTD.
WINNIPEG: MACKENZIE BROS., 244 PRINCESS ST.
VANCOUVER: WM. N. O'NEIL CO., LTD.
CALGARY AND EDMONTON: CANADIAN EQUIPMENT AND SUPPLY CO., LTD.

PRODUCTS. We are the sole manufacturers of the "Duplex" Joist, Wall and I-Beam Hangers, "Duplex" Post Caps, Post Bases, Wall Plates and Wall Boxes, both in Steel and Malleable Iron, for use in the erection of heavy mill-constructed warehouses and factory buildings, as well as in ordinary joist - constructed buildings. Also the "Cleveland" Galvanized and Corrugated Wall Ties and Snow Guards; the "Duplex" Concrete Inserts for Floors and Girders.

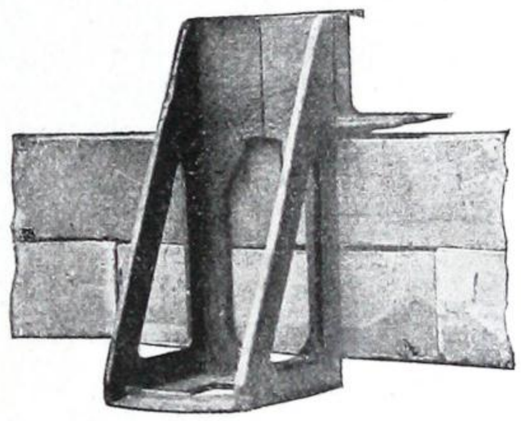


"DUPLEX" JOIST HANGER.
FOR ORDINARY CONSTRUCTION.

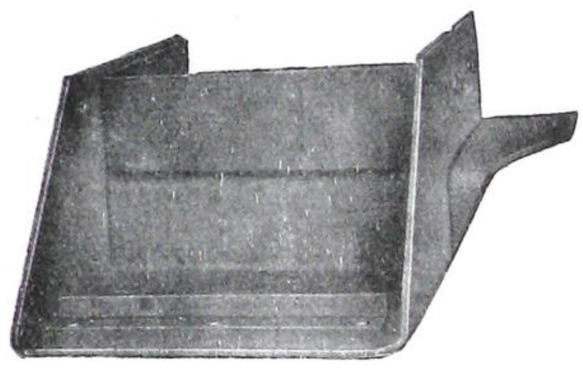


"DUPLEX" JOIST HANGER.
FOR HEAVY MILL CONSTRUCTION.

ENDORSEMENT. "Duplex" Hangers and Post Caps are recognized by Architects and Builders as the standard. Endorsed by the Building Commissioners of the large cities of the United States and Canada. Approved by the National Board of Fire Underwriters, and a reduced rate of Insurance will be granted where "Duplex" is used.

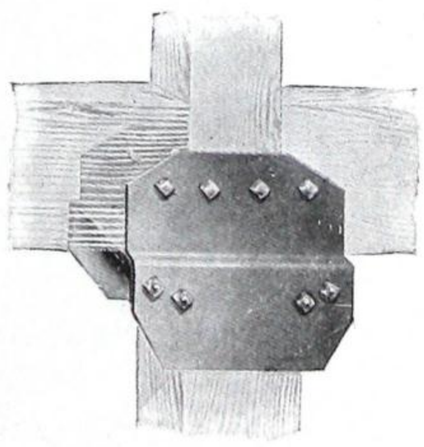


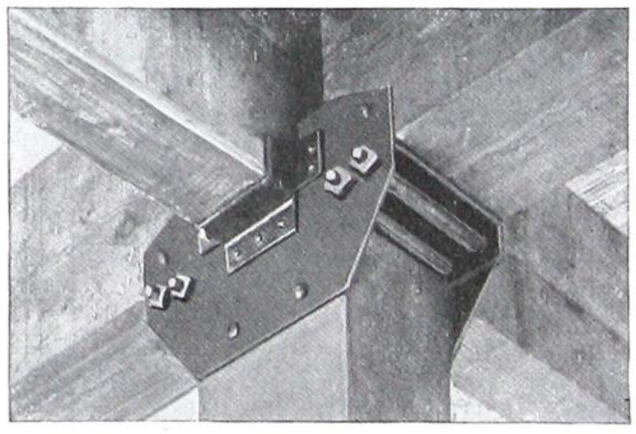
"DUPLEX" WALL HANGER.



"DUPLEX" EXTRA HEAVY WALL HANGER.

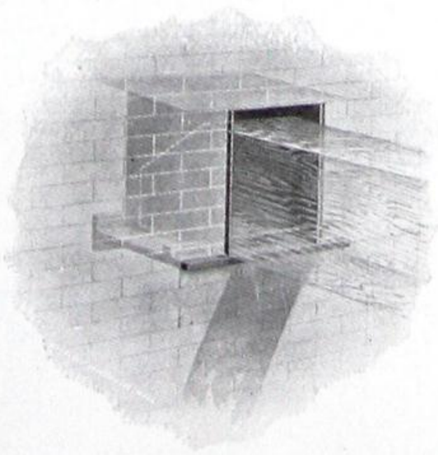
SPECIFICATION. If architects and engineers, in specifying Hangers and Post Caps, will mention the name "Duplex," the proper Hangers and Caps for the timbers will be furnished. "Duplex" Hangers and Post Caps are designed to carry the timbers for which they are intended with a large factor of safety.



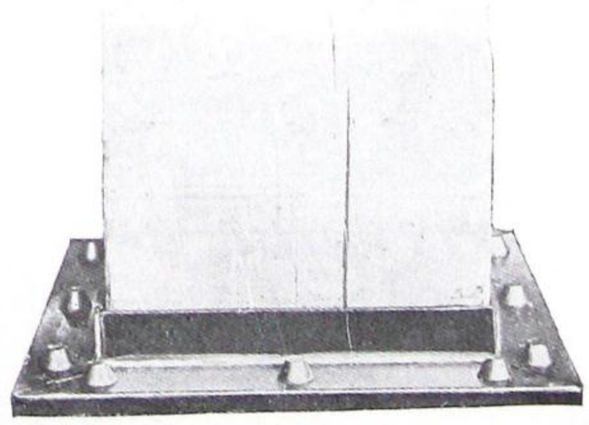


"DUPLEX" STEEL POST CAPS.
FOR ONE-, TWO-, THREE- OR FOUR-WAY TO SUIT ANY FRAMING.

REFERENCE. We will furnish list of installations and any special information, upon request.



"DUPLEX" WALL BOX.



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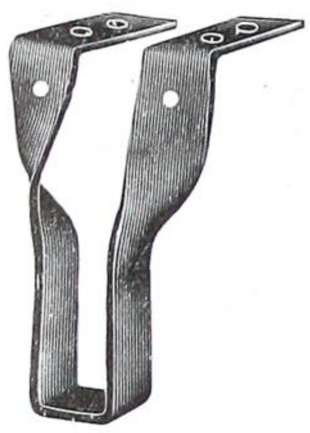
CHARLES MULVEY MANUFACTURING COMPANY

1537 West 35th Street,
CHICAGO, ILL.

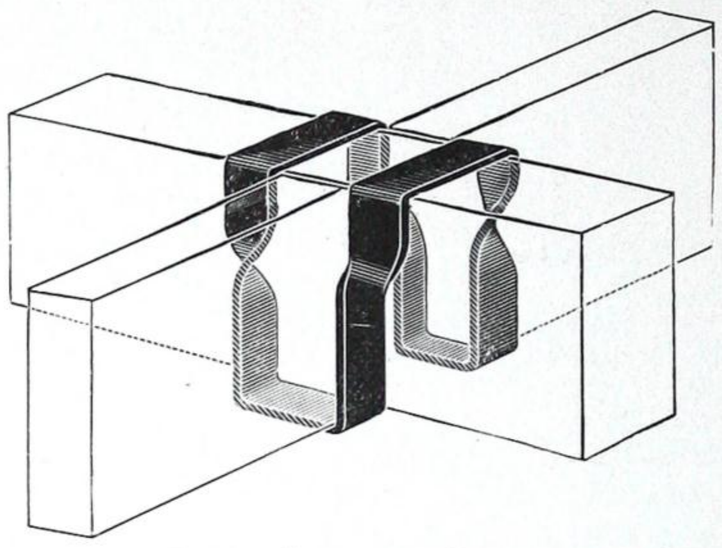
PRODUCTS. Manufacturers of BUILDING SPECIALTIES for Mill Constructed Buildings.

ILLUSTRATIONS. We present herewith cuts of some of the leading Building Specialties manufactured by us and used very largely throughout the United States for mill constructed buildings.

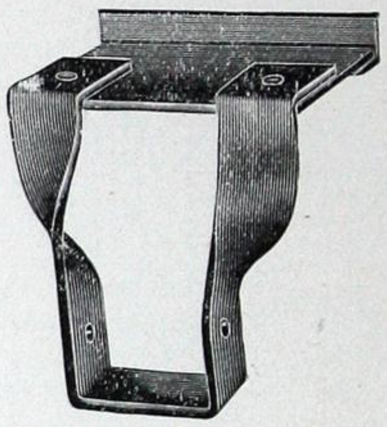
HANGERS. We make Hangers to fit any special condition.
All Joist Hangers bent while hot.
When ordering, please give net exact size of timbers.



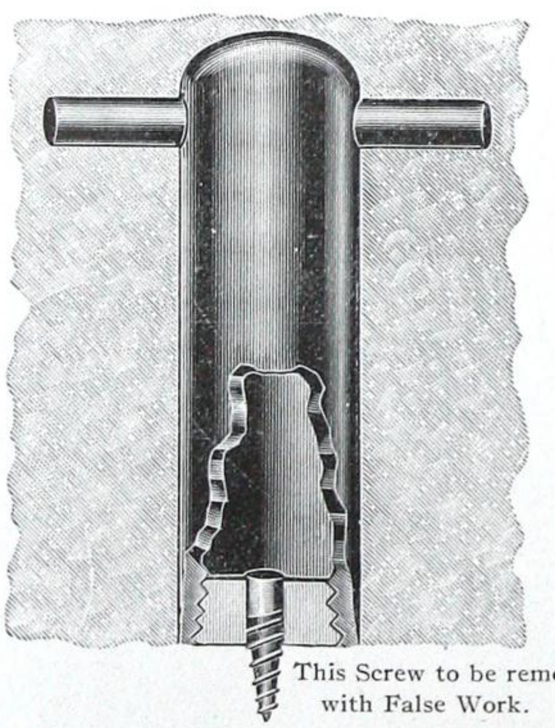
Joist Hanger.



Double Hanger, or Stirrup.

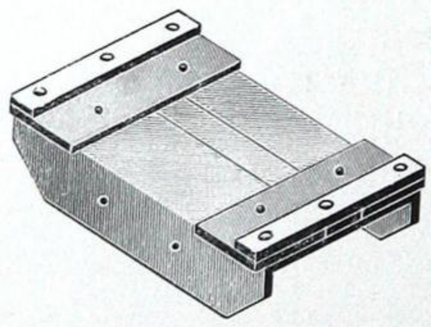


Wall Hanger

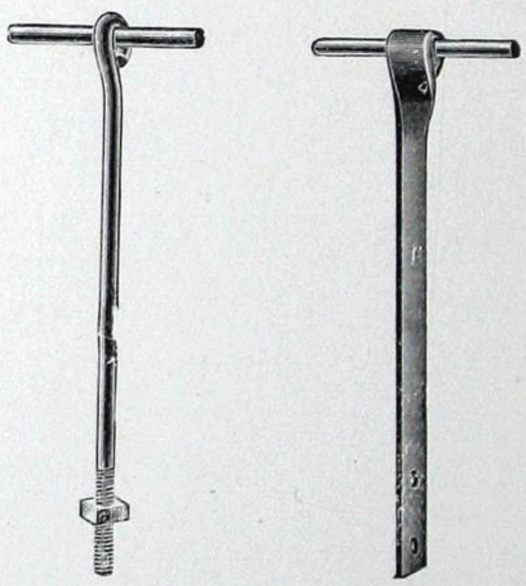


This Screw to be removed with False Work.

Insert for Concrete Walls.



Two-Way Post Cap.



Anchors (of Every Kind).

INSERT FOR CONCRETE WALLS. How do you fasten your Shafting, Pipe, Hangers, etc., to Concrete Walls? Use this Insert and save all labour and expense of breaking holes in concrete.
Send for descriptive pamphlet.

PRICES AND INFORMATION. We aim to make our prices reasonable, and, to the observer, it is evident at once that the cost of handling and installing in the building any of the products shown is extremely low.
Prices and other information furnished upon request.

JAS. G. WILSON MFG. CO.

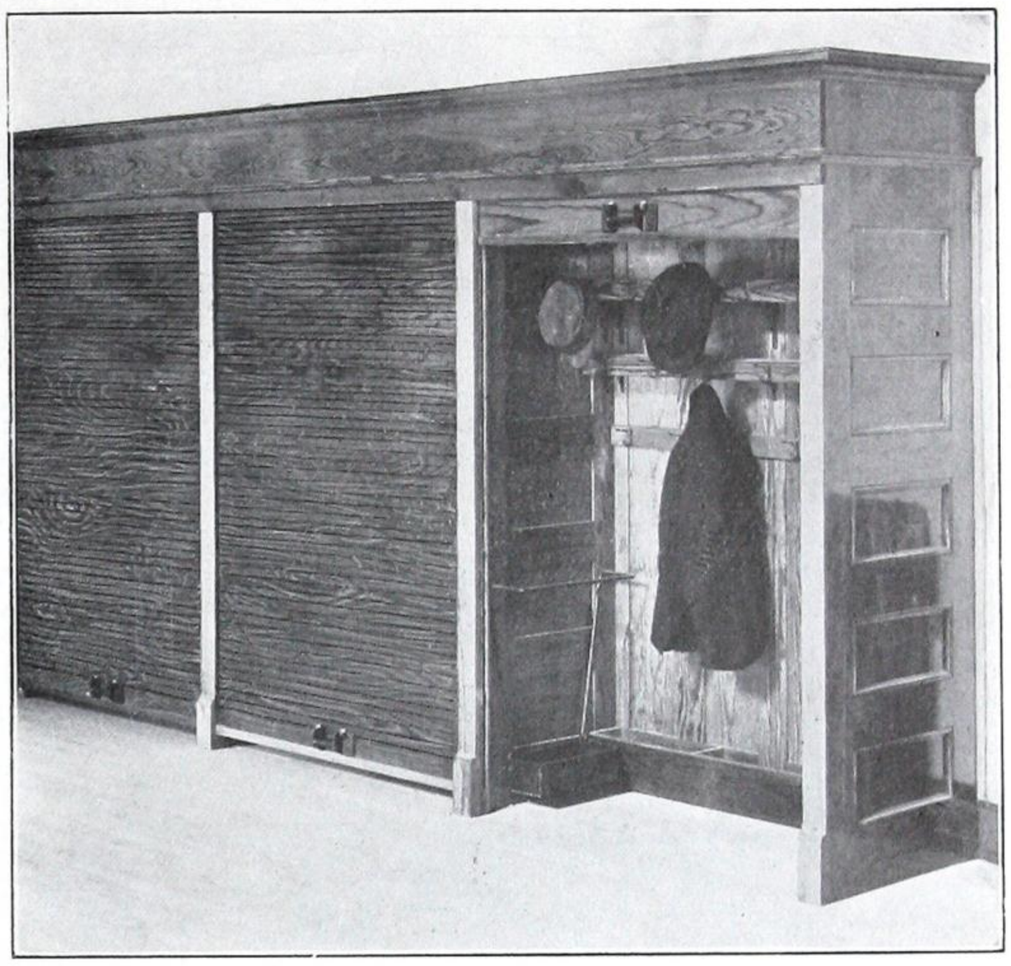
MANUFACTURERS OF WOOD ROLLING PARTITIONS AND WARDROBES,

332 So. MICHIGAN AVENUE, CHICAGO, ILL. | 3 WEST 29TH STREET, NEW YORK, U.S.A. | FACTORY, NORFOLK, VA.

PRODUCTS. WILSON'S PATENT HORIZONTAL AND VERTICAL-ROLLING WOOD PARTITIONS; WILSON'S HYGIENIC WARDROBES.

DESCRIPTION. Wilson's Rolling Partitions are adapted for church and school buildings as a means of economizing space in the subdivision of schoolrooms. About thirty thousand churches and schools are fitted with our Rolling Partitions.

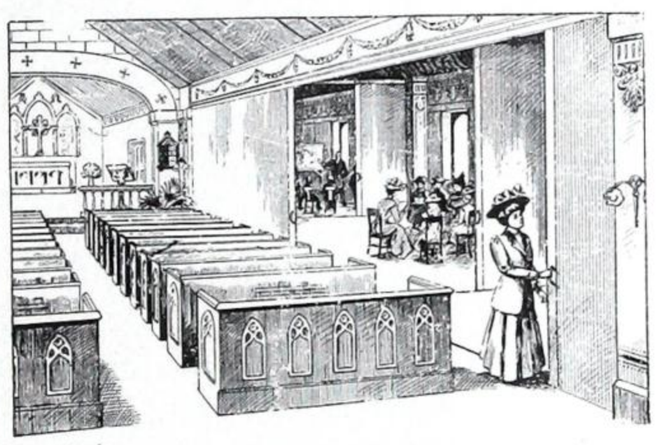
WILSON'S HYGIENIC WARDROBES. As shown, are made in several styles desirable for schools and institutions. The arrangement shown in the illustration is one plan of ventilating our wardrobes. The air, being drawn into the wardrobe from the room, at the bottom, passes out through the air shaft or flue and can not re-enter the room. This avoids the unpleasant odours of the drying clothing on a wet day. Every wardrobe is equipped with hooks, shelves and racks for the children's convenience.



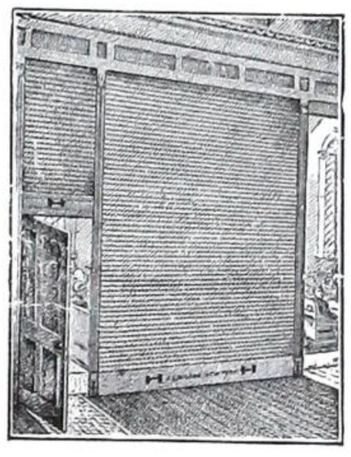
WILSON'S HYGIENIC WARDROBES. STYLE B, HORIZONTAL-ROLLING.

WILSON'S PATENT ROLLING PARTITIONS. Are constructed of wooden slats that adjust themselves *automatically* to atmospheric changes.

The Horizontal-Rolling Partitions, as shown, *coiling up*, have no limit to the width of openings to be closed. In auditoriums and churches where large openings are to be closed we divide the width into sections by using movable posts.



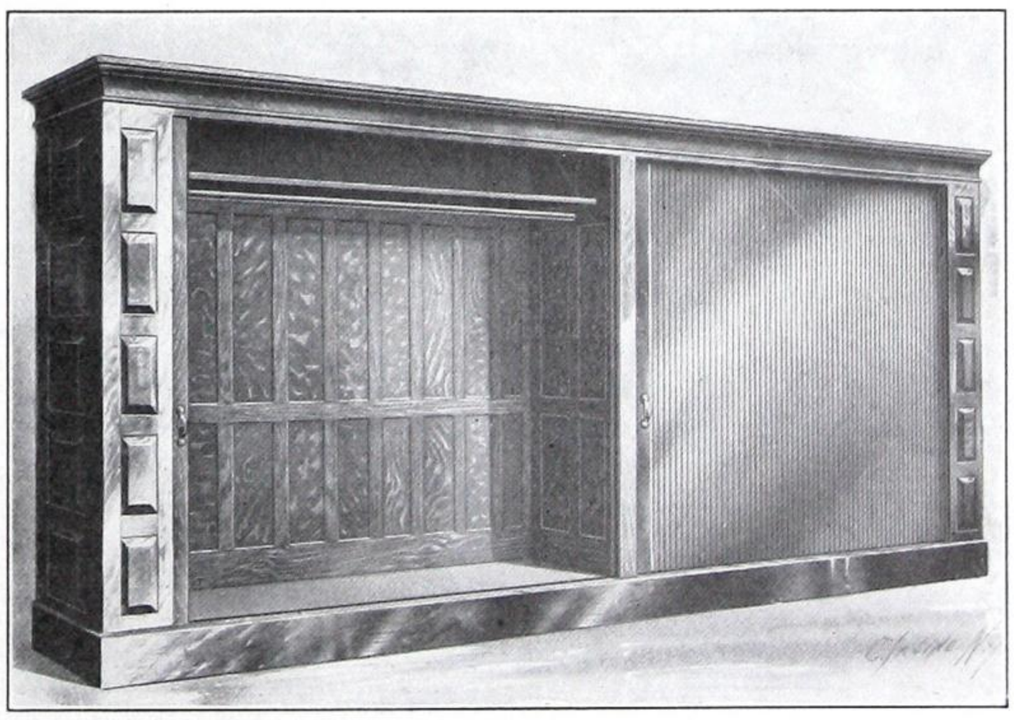
VERTICAL-ROLLING PARTITIONS.



HORIZONTAL-ROLLING PARTITIONS.



The Vertical-Rolling Partitions, as shown, *coiling sideways*, will readily close openings 50 ft. wide without the aid of intermediate parts. Only one inch head room is required above the line of partition or clear opening. No helical springs, wire cords or complicated cog-wheel gears are employed. The operating device is so simple that it can not get out of order.



WILSON'S HYGIENIC WARDROBES. STYLE D, VERTICAL-ROLLING.

ADVANTAGES. These rolling partitions are air-tight, soundproof, noiseless and easy in motion. Damaged slats can be replaced in a few minutes. No working parts to get out of order. A blackboard surface can be placed on the opposite side of the roller, when desired for schools and institutions.

PRICES, CATALOGUES AND TESTIMONIALS—Furnished upon request to the New York Office or nearest agent.

For our Special Protective Steel Rolling Doors and Shutters see our advertisement on page 360.
For our Venetian Blinds and Awnings see our advertisement on page 217.

WILLIAM PEACE CO., LIMITED

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BANK OF HAMILTON BUILDING,
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AND

THE WINDOW STRIP & SUPPLY CO., LIMITED

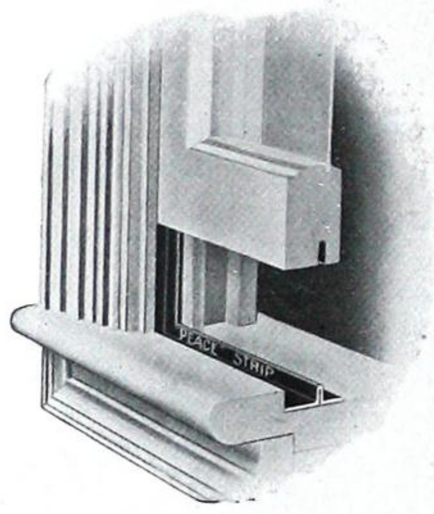
107 UNITY BUILDING, ST. ALEXANDER STREET,
MONTREAL, QUE.
MANUFACTURERS.

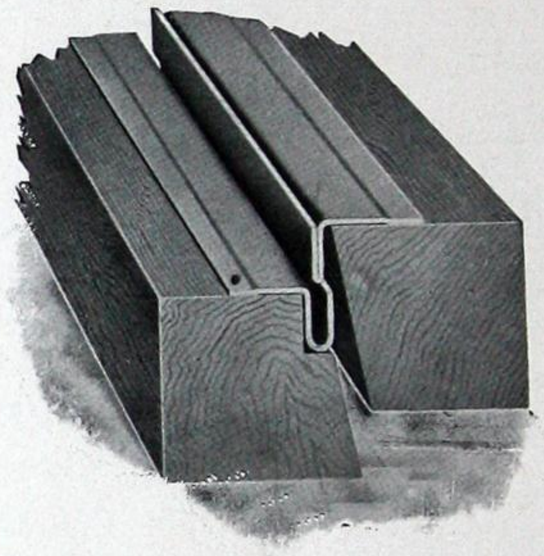
PRODUCTS. Manufacturers of the PEACE METAL WEATHER STRIP for Windows and Doors, made of Zinc, Brass or Bronze.

ADVANTAGES. The "Peace" Weather Strip is a permanent fixture which, when applied to Windows and Doors, excludes draughts and cold winds, dust and atmospheric filth, cuts off outside noises, tightens loose sash and prevents rattling. It saves the cost of storm sash and trouble of same, and enables the house to be aired and kept healthy, which is almost impossible with storm sash. It provides a means for easy and free sliding of the windows at all times. Sticking is next to impossible.

REINFORCING. The Strip is fashioned with a rib running lengthwise and into which is forced a wooden core, which reinforces the strip and makes it practically indestructible. The reinforcing prevents all chances of the strips becoming bent, which so frequently occurs with other makes of weather strips. This point of merit places it far above any other make of weather strip known and enables us to guarantee all equipments.







APPLICATION. The Weather Strip is fastened into the window casing channel, top, sides and bottom. The rib of the Strip fits into a groove in the sash, thus making a joint very similar to a tongue and groove in the matched lumber. "Peace" Weather Strips can be applied to any and all classes of windows, such as straight, curved or swell windows, and doors. We take the windows as they are found and guarantee the proper installation and working of the Strips.

INSTALLATION. "Peace" Weather Strips are not sold to the Trade, but installed by our own experienced workmen, of whom we have a number in various sections of the country. Estimates on work are submitted by the managers of our Branch Offices.

With our headquarters and factory in Hamilton, Ont., and an efficient staff of workmen, we are enabled to keep in close touch with our patrons, wherever located, by which means we have equipped many thousands of windows and doors.

TESTIMONIALS. When we make the assertion that the "Peace" Metal Weather Strip reduces coal bills from 25 to 40 per cent., we are advancing no mere theory, but a hard proven fact.

We have records in the shape of voluntary testimonial letters from all sections of the country, and our managers of branches will at all times be ready to verify this to your satisfaction.

SUMMARY. The "Peace" Metal Weather Strip proves its usefulness and money saving principles by:
Strengthening and adding life to the window.
Preventing admission of the winter blasts and cold.
Keeping out dust, dirt and annoying outside noises.
The enormous saving of the fuel bills.
Its installation at one-half the cost of storm sash, and no further trouble.
Making the home more comfortable in numberless ways.
Making sashes practically burglar proof, as it is impossible to open sash fasteners from outside without breaking glass.

ESTIMATES. Estimates and samples will be furnished from our nearest Branch Office, or a representative will always be pleased to demonstrate the merits of the Weather Strip with a model on receipt of a card or telephone call from you.

WATSON LIMITED

HEAD OFFICE AND FACTORIES,

BRADFORD, ONT.

NOTES ON ROLLING PARTITIONS.

PARTITIONS BETWEEN CLASS ROOMS UNDER GALLERY.

For the above provision is usually made for the roller between the gallery joists, and the Partitions are run down pilasters which are scribed to the column and to the wall. Pilasters need not be thicker than 2¾ inches. The space required for the rollers vary according to the height of Partition. The following table gives space required.

Height of Partitions.	Coiling Space Required.	Height of Partitions.	Coiling Space Required.
7 feet	12 in. x 12 in.	10 feet	13½ in. x 13½ in.
8 feet	12½ in. x 12½ in.	11 feet	14 in. x 14 in.
9 feet	13 in. x 13 in.	12 feet	14½ in. x 14½ in.

For the relative position for coiling space and pilasters see detail.

FOR ROLLING PARTITIONS BETWEEN CLASS ROOMS IN GALLERY.

The roller for this Partition usually operates beneath the gallery ceiling; if, however, there is not sufficient headroom at the back of the gallery, the roller is put up between the joist and run down pilaster at column and wall.

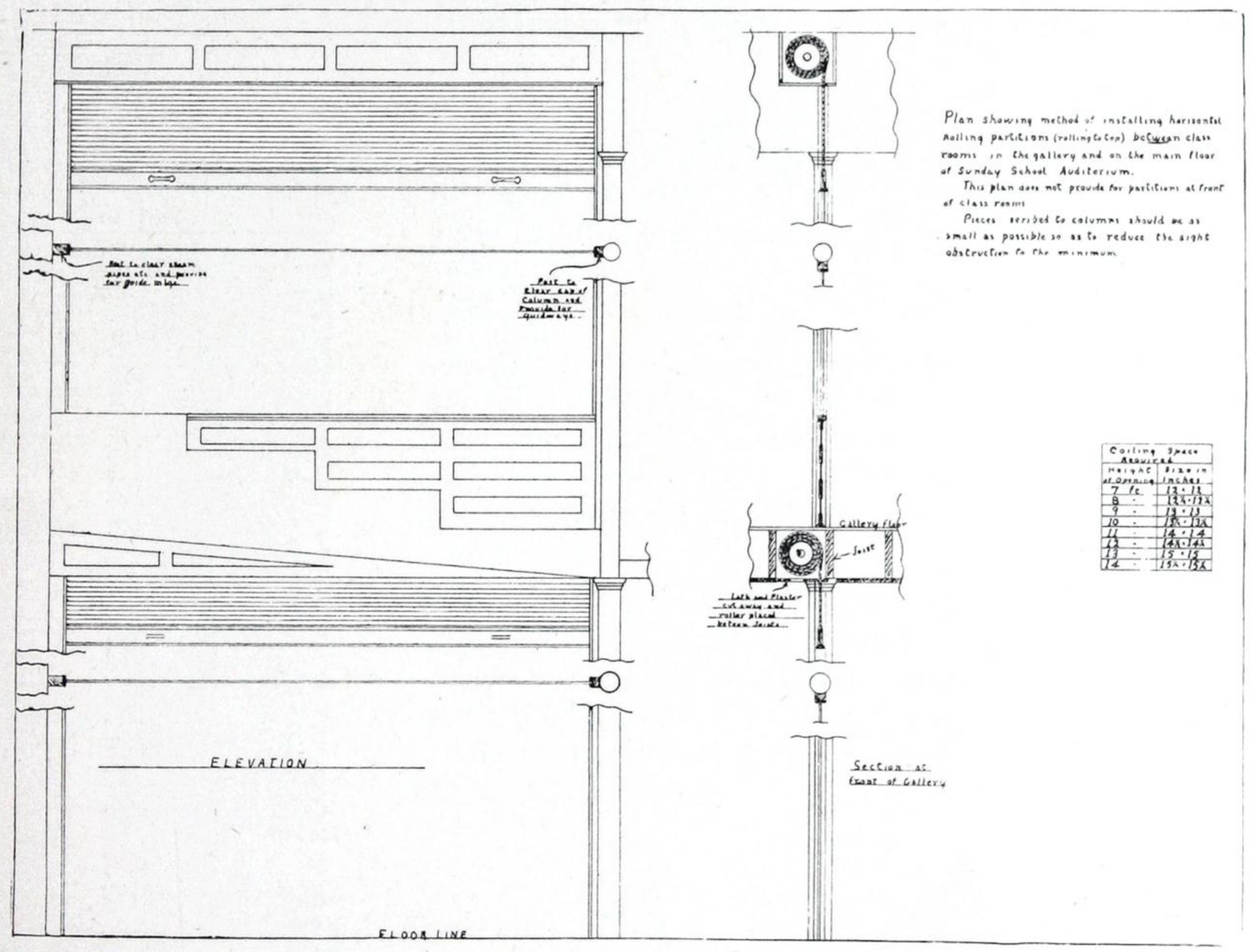
The gallery floor is usually levelled up even with the highest part by means of panel work with cap, so that when the Partition is down, the whole opening is closed. In cases where the gallery is very steep, the Partition is usually divided into two sections, the rear section can be pulled down to the floor level at the wall, the front section can be pulled down until it strikes the highest step in that section.

ROLLING PARTITIONS IN FRONT OF CLASS ROOMS.

These work most satisfactorily when provision has been made in the cornice of the gallery. Coil space required as above. Partition runs down pilaster on the supporting column.

ROLLING PARTITIONS FOR EXTRA WIDE OPENINGS.

For openings over 15 feet Partitions are put in in more than one section divided by movable posts (size of post 2½ in. x 3½ in.). By this means any width can be enclosed, and in a few moments, by throwing the Partitions to the top and taking away the posts, the floor can be left entirely clear.

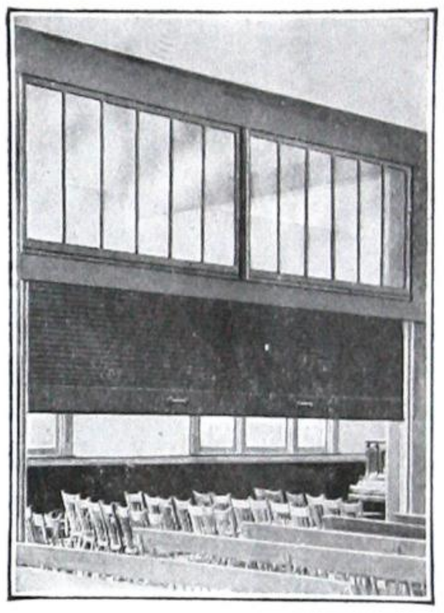


Plan showing method of installing horizontal rolling partitions (rolling to top) between class rooms in the gallery and on the main floor of Sunday School Auditorium.

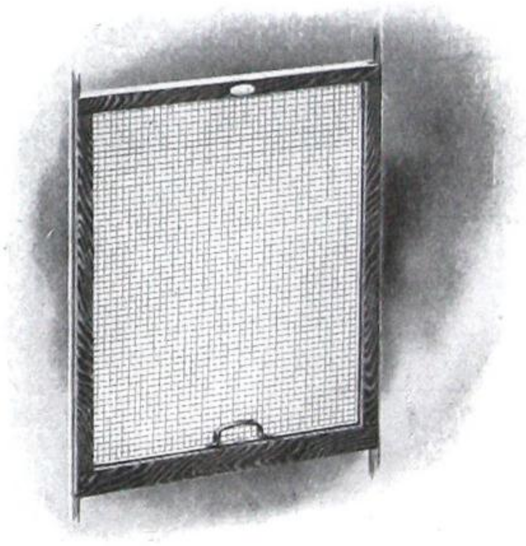
This plan does not provide for partitions at front of class rooms

Pieces scribed to columns should be as small as possible so as to reduce the sight obstruction to the minimum.

Coiling Space Required	
Height of Opening	Size in Inches
7 ft.	12 · 12
8 "	12½ · 12½
9 "	13 · 13
10 "	13½ · 13½
11 "	14 · 14
12 "	14½ · 14½
13 "	15 · 15
14 "	15½ · 15½



"Watson" Partition with Sash over Roller.



"Watson" Rustless Insect Screen

FOR ROLLING PARTITIONS BETWEEN CLASS ROOMS.

WHERE FREQUENT ACCESS IS REQUIRED DURING SESSION.

In this case the door is put at the side of Partition opening against the wall, and shutting against movable post. The balance of the space above the door is closed in with the ordinary rolling partition. When the floor is desired clear, the Partitions are rolled up and door swung back against the wall and post removed.

VERTICAL PARTITIONS.

These are frequently used between class rooms, and rolled into box at the wall. The coil space required as follows.

Width of Partitions.	Coiling Space Required.	Width of Partitions.	Coiling Space Required.
7 feet	13½ in. x 13½ in.	11 feet	16½ in. x 16½ in.
8 feet	14¼ in. x 14¼ in.	12 feet	17¼ in. x 17¼ in.
9 feet	15 in. x 15 in.	13 feet	18 in. x 18 in.
10 feet	15¾ in. x 15¾ in.	14 feet	18¾ in. x 18¾ in.

Track for the above can either be let in below the floor so as to be flush, or it can be put on the finished floor, making a projection of about ¾ in.

Horizontal Partitions with glass at top are frequently desirable for the sake of light, having glass over the top of roller. For this plan a heavy transom panel is provided at the point where the roller operates. The above transom panel provided for the roller also sustains the weight of the sash. The panel should be firmly fastened at each end to jambs or pilasters down which the Partition runs.

BLACKBOARD SURFACE.

Blackboard surface for teaching purposes can be supplied in all of the above Horizontal Partitions. The Blackboard going on the closed side of the Partition or the side opposite the roller.

ROLLER WALL CASE FRONTS.

The roller in this case is always concealed behind the frieze, and groove is provided in pilaster or division, so that the curtain can unroll until the base strikes the top of the bottom part of case.

BLUE PRINTS COVERING THE ABOVE APPLICATIONS MAILED ON REQUEST.

ATHEY COMPANY

MANUFACTURERS OF

CLOTH-LINED METAL WEATHER STRIPS.

HOME OFFICE AND FACTORY:

17 E. TWENTY-THIRD STREET, CHICAGO, ILL.

NEW ENGLAND BRANCH: BOSTON, MASS., 184 SUMMER STREET.

CANADIAN AGENCIES:

CALGARY: CANADIAN EQUIPMENT & SUPPLY CO., 514 Eleventh Ave. West.
EDMONTON: CANADIAN EQUIPMENT & SUPPLY CO., 751 Ninth St.
HALIFAX: A. M. BELL & CO., 131 Granville St.
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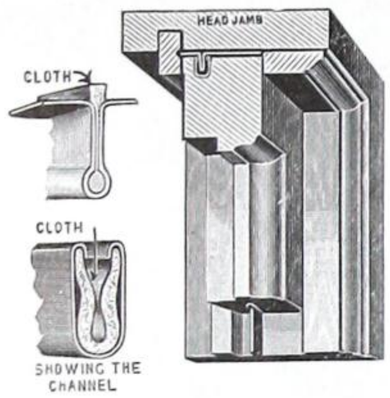


FIG. 1.
STRIP AND APPLICATION.

Athey

Our flexible contact of cloth to metal gives an absolute protection against both wind and dust not possible with any metal-to-metal or metal-to-wood contact. Saves fuel. Seals the opening.

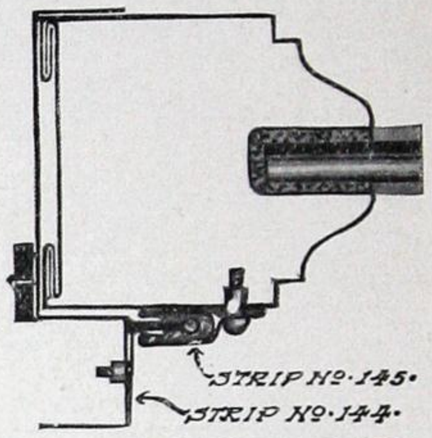


FIG. 4.—ONE OF NUMEROUS METHODS OF INSTALLING CLOTH-LINED STRIP ON SURFACE OF SHEET-METAL FIREPROOF SASH.

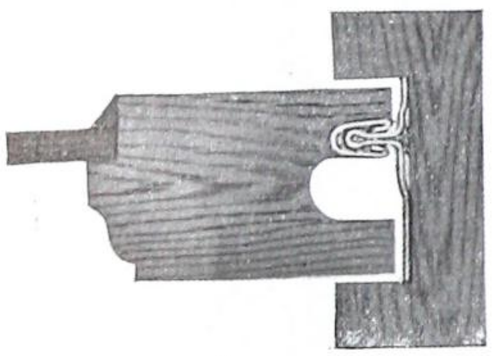


FIG. 2.
CLOTH-LINED CHANNEL.
No leakage possible.

Sheet metal fireproof windows made wind and dust tight with the ATHEY Cloth-Lined Metal Weather Strip, without friction. Various types to fit any detail. Over 5,000 metal windows now equipped.

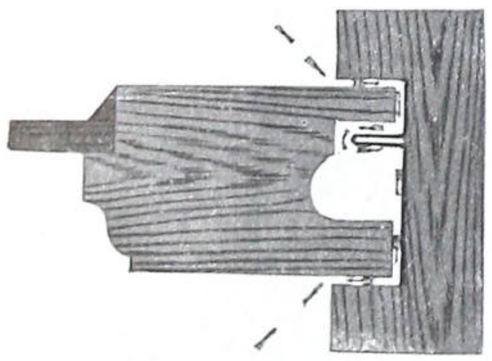


FIG. 3.
ORDINARY WEATHER STRIP.
Showing leakage without channel.

The cloth in our channel is not felt, but a three-ply Windsor or billiard table cloth, which will not stretch, and which we chemically treat in a way which makes it impervious to moisture. We guarantee that it will not rot or mildew, nor cut, stretch or tear for years.

Send us your difficult problems, and we will submit drawings and samples of equipment which will make any wood, metal or metal-covered door or window absolutely wind, water and dust tight.

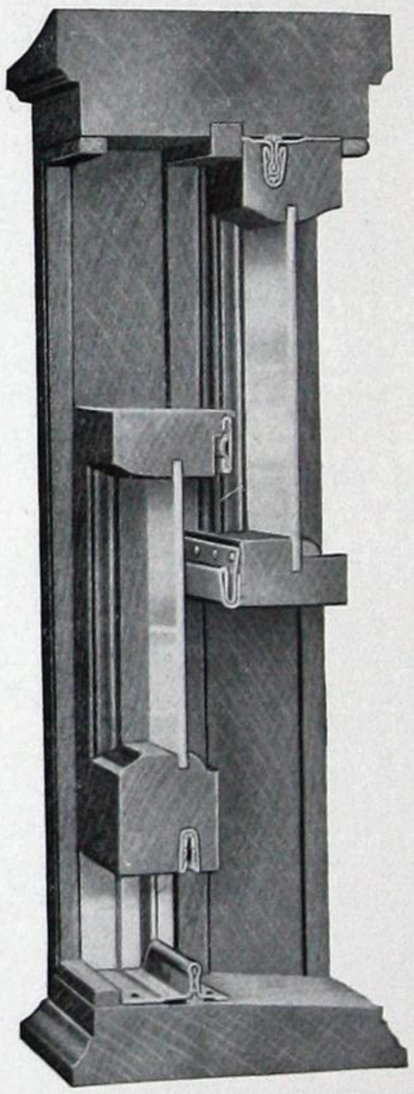


FIG. 5.—SECTION OF COMPLETE WINDOW MODEL FITTED THROUGHOUT WITH CLOTH-LINED EQUIPMENT

Note cloth-to-metal contact top, bottom, sides and meeting-rail. No wind or dust leakage, no friction, binding or rattling.

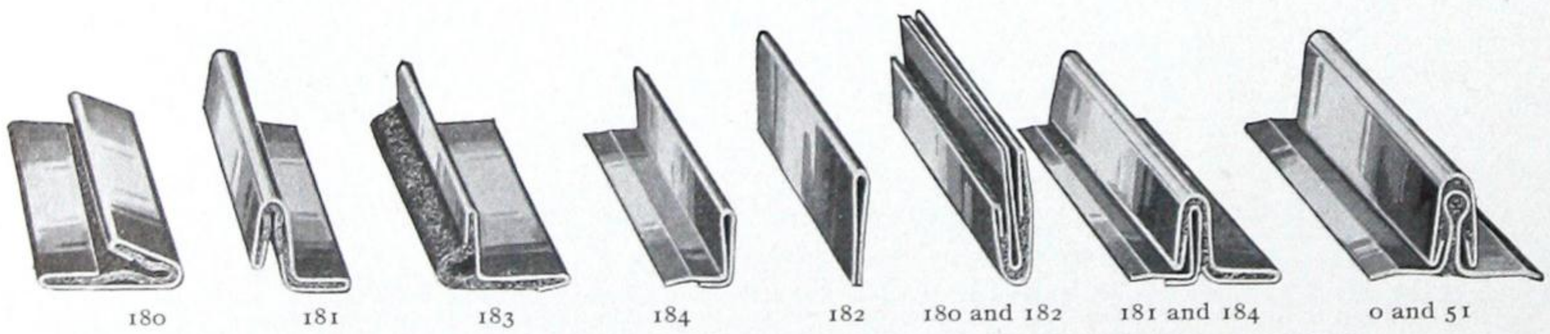


FIG. 6. SOME OF OUR VARIOUS TYPES FOR DOORS AND CASEMENT WINDOWS.
Nos. 180 and 182 for top and lock edge. Nos. 181 and 182 or Nos. 0 and 51 for hinge edge. Special details for casement bottoms.

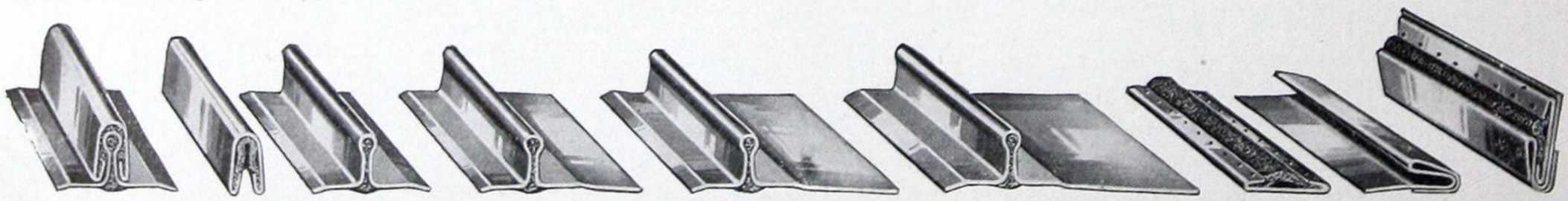


FIG. 7. OUR STANDARD CLOTH-LINED EQUIPMENT FOR DOUBLE-HUNG SASH.
No. 0 channel in sash, all sides in connection with rail 51 to 54 as thickness of sash demands. No. 5 at meeting-rail. Cloth to metal contact throughout an absolute protection against wind, dust and binding. No friction as with metal-to-metal or metal-to-wood weather-strips. See Figs 1, 2 and 5. Note ball tip on rail sealing channel, cloth insert in back of rail, preventing back leakage.

L. H. PETERS, LIMITED

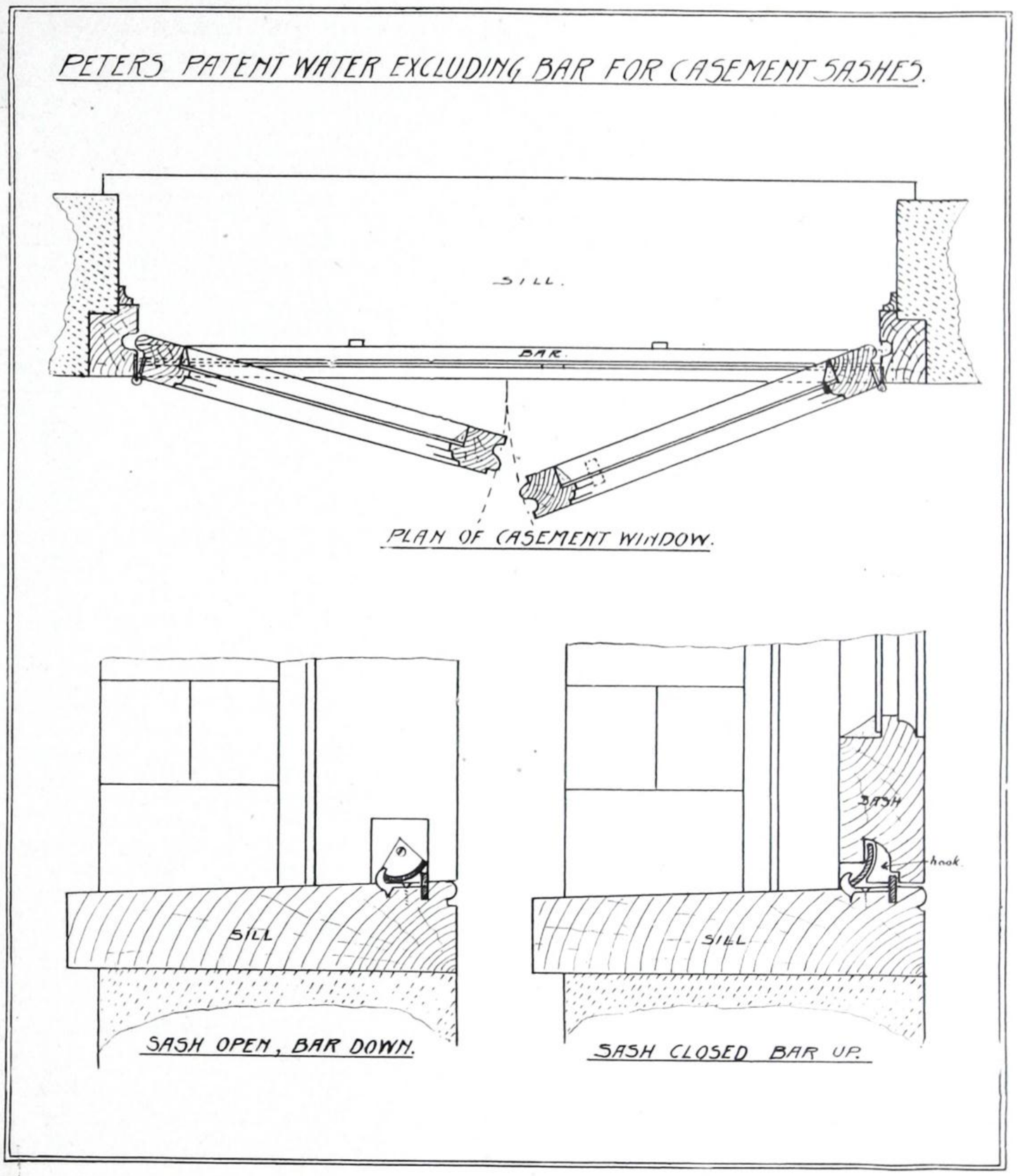
10 St. Angele Street,

QUEBEC, QUE.

PRODUCTS. We are manufacturers of the Peters' Water Excluding Bar, the most perfect excluding bar on the market, for Casement Sashes opening inward.

CONSTRUCTION. Peters' Water Excluding Bar System consists of the ordinary iron sill bar or feather in use to cut sash joint. The water excluding bar proper is formed of a crescent-shape metal bar, which moves up and down when closing or opening sashes. It is held in place by two sockets, set into the frame, and small clips fixed to the sill. The right-side sash is fitted with a special hook, which catches and moves the water excluding bar in position.

The bars are made in Galvanised Iron, Statuary Bronze, Copper or Brass.



EFFICIENCY. The efficiency of this bar is plainly shown by the fact that, when the sashes are closed, the bar rises a full 3-8 of an inch underneath the sash and, therefore, absolutely prevents water from getting in.

ADVANTAGES. This device is very simple in construction, cannot get out of order, will last a lifetime, can be applied to old as well as new sashes, making all joints absolutely weatherproof.

This system is now in use in all kinds of buildings and is giving entire satisfaction.

REFERENCES. The following is a partial list of buildings in which Peters' Water Excluding Bar has been applied to windows:—

Christian Brothers' School, King Street, Quebec.
Technical School, Boulevard Langelier, Quebec.
Villa Manrese, St. Foy Road, Quebec.
Franciscan Convent, Grande Allee, Quebec.
Jacques Cartier Convent, Boulevard Langelier, Quebec.
Dry Goods Store for The Garneau Limited, Quebec.
Quebec Central Railway Building, Dalhousie St., Quebec.
Jonquiere Presbytery, Jonquiere, Que.
Residence for A. K. Hansen, Maple Avenue, Quebec.
Residence for F. W. Ross, Esq., Cacouna, Quebec.
Residence for A. J. Price, Esq., Belvedere Road, Quebec.
Residence for J. A. Hudon, Esq., Laurier Ave., Quebec.
Quebec Bank Building, Montmagny, Quebec.
Store for P. G. Russiere & Co., Dalhousie St., Quebec.

THE CANADA ACME METAL WEATHERSTRIP CO., LTD.

FACTORY AND OFFICES: 173 KING STREET EAST,
TORONTO, ONT.

AGENCIES:

MYERS, PETERS CO.,
305 READ BLDG., ST. ALEXANDER ST., MONTREAL, QUE.

R. S. ROCHE,
188 QUEEN ST., OTTAWA, ONT.
Phone, Queen 5725.

THE SMILEY CO.,
TEGLER BLDG., EDMONTON, ALTA.

AGENCIES:

R. A. DE VINE,
PORT ARTHUR AND FORT WILLIAM, ONT.

AGENCIES TO BE OPENED:

HAMILTON AND LONDON, ONT.
WINNIPEG, MAN.
CALGARY, ALTA.
VANCOUVER, B.C.

PRODUCT. We manufacture the celebrated "CANADA ACME" METAL WEATHER STRIP, in styles adaptable for use on windows of every description, including Casement, French and Round Top Windows, also Doors.



INTERLOCKING HOOK STRIP FOR CASEMENT AND FRENCH WINDOWS.

Illustration by number of the different points of excellence of our Acme Metal Hook Strip:

No. 1 Shows a piece of metal strip bent in such a way so as to form a hook. This piece of metal hook is fastened to the jambs of the window.

No. 2 Shows a piece of metal double in thickness, extending around the sash, which enters into metal hook No. 1 when the window is closed, making the window absolutely weather, dust and soot proof.

ILLUSTRATIONS BY NUMBERS OF THE DIFFERENT POINTS OF EXCELLENCE OF THE CANADA ACME METAL WEATHER STRIP:

No. 1 Shows the edge of metal strip turned at right angles and located the depth of the parting stop in the jamb, to prevent the cold wind, dust or soot from passing between the strip itself and the jamb.

No. 2 Shows a part of the metal strip bent at right angles and doubled in thickness, and forms a tongue that fits into groove cut into edge of window sash.

No. 3 Shows a part of the metal strip extending to the outside stop.

No. 4 Shows the metal tongue, same as No. 2.

No. 5 is a groove cut into the sash to receive metal tongue as shown in Nos. 2 and 4.

No. 6 Shows a piece of flat metal strip of double thickness, so placed as to pass behind strip No. 8.

No. 7 Shows a groove behind metal strip No. 6, to receive metal strip No. 8.

No. 8 Shows a metal strip same as No. 6, and enters groove No. 7 when sash are closed.

No. 9 Shows a groove in sash same as No. 5.

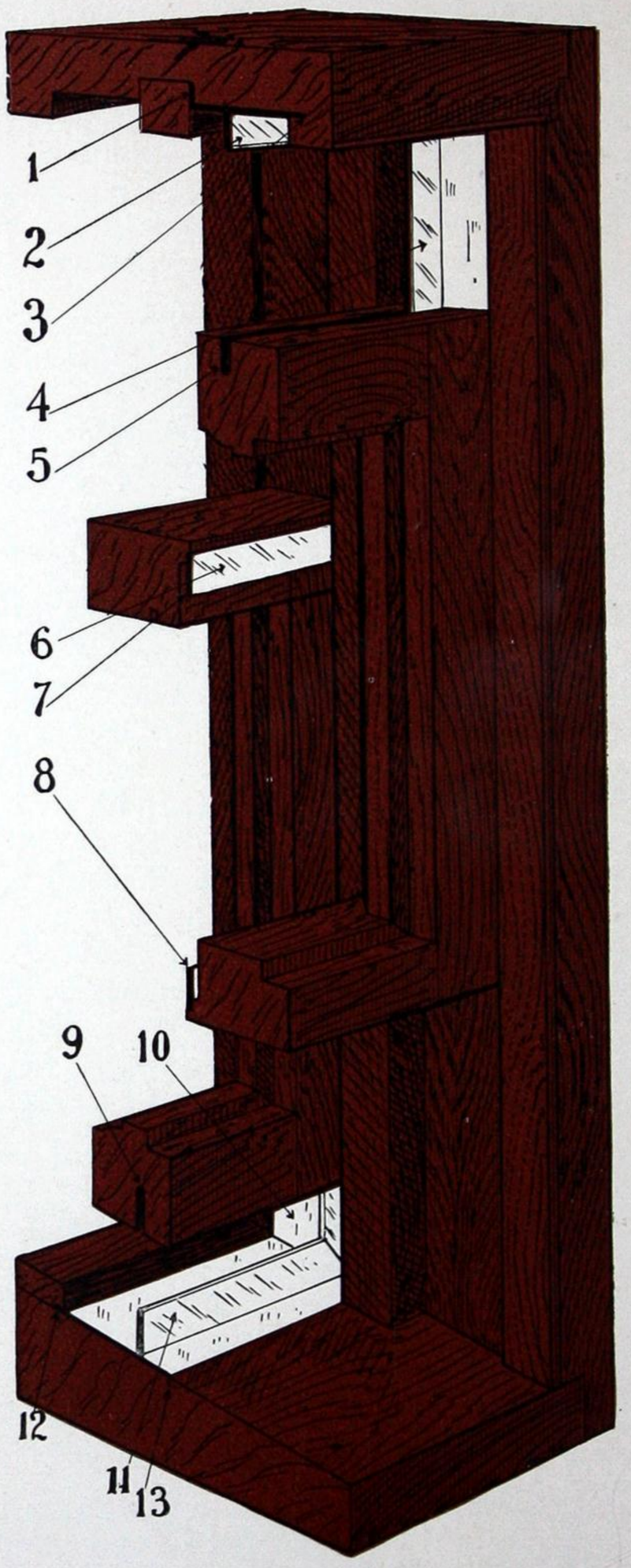
No. 10 Shows the air tight construction of corner joint, by telescoping the side and bottom tongues of metal strips.

No. 11 Shows the metal tongue, same as Nos. 2 and 4.

No. 12 Shows the inside edge of metal sill strip passing under inside stool.

No. 13 Shows bent edge of metal strip sunk into window sill, which prevents the passing of winds, dirt or soot under metal strip.

Metal tongues as shown at Nos. 2 and 11, when entered into grooves 5 and 9, form a perfect contact, preventing the cold winds, dust and soot entering the building; also preventing the sash from rattling and acting as a deadener of outside noises.



The above cut represents a window-frame and sash after being cut through the centre and a half removed, so as to show a sectional view.

ADVANTAGES. The advantages resulting from the use of our Weather Strip may be summed up as follows:

It prevents the entrance of cold winds, dust, soot, etc., and effects a saving in fuel bills of from fifteen to twenty-five per cent. It does away with the rattling of loose windows and makes hard and sticky windows easy to raise and lower. It is an extremely satisfactory substitute for storm sash and doors at about one-half of the cost. Owing to the superior workmanship, it is rendered strong and durable, and will last a lifetime.

INFORMATION AND BOOKLETS. We shall be pleased to send information, booklets, etc., regarding this Weather Strip upon receipt of a card from anyone interested, and solicit enquiries from architects, builders, etc. References and estimates furnished.

The 20th Century Substitute for Storm Sash and Doors. Most complete and effective of all Metal Weather Strips. Our Motto: "Acme." Work Guaranteed.

THE CANADIAN OFFICE & SCHOOL FURNITURE CO., LIMITED

PRESTON, ONT.

MANUFACTURERS OF

ASSEMBLY ROOM FURNITURE. We are prepared to supply at short notice portable folding chairs entirely of wood in different grades and designs.

BANK AND OFFICE FIXTURES. We have made a specialty of the manufacture of bank and office equipments, including counters, partitions, metal railings and marble work, and of all fixed and loose furniture pertaining thereto.

Of the twenty-eight hundred banking offices in the Dominion of Canada, we have fitted up no less a number than two thousand.

CHURCH FURNITURE. We will be pleased to quote attractive prices on church work, including pews, altars and platform furniture generally.

COURT HOUSE AND CITY HALL FURNITURE. We contract for the complete equipment of this class of building, covering desks, chairs, counters, vault fittings—in fact, complete outfits. The Court Houses at Woodstock, Ont., and St. Thomas, Ont., show the class of work we do, as also the Regina City Hall, lately finished.

HOTEL AND CLUB FURNITURE. As a specimen of our work in this line we may point to the bar in the King Edward Hotel, Toronto, which was made by us.

INTERIOR HARD-WOOD TRIM. We will be pleased to quote figures for all hardwood work of the higher grades for the better class of residences and public buildings.

LODGE FURNITURE. We have done a large amount of work in this line, and are at present preparing a new and elaborate catalogue showing graduated designs from the least expensive to the most elaborate.

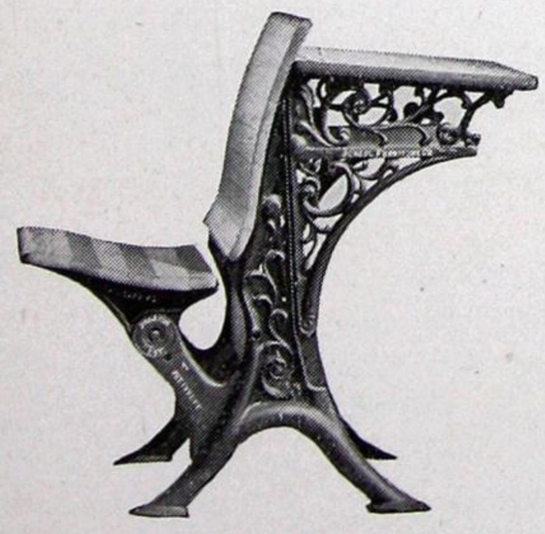
OPERA CHAIRS. A large majority of the Opera Houses in Canada are seated with our chairs. Our list includes the Royal Alexandra, Toronto, chairs for which were made from special designs. In addition to the better class of seating, we manufacture a line of cheaper chairs which are being largely used for picture shows.

OFFICE DESKS AND COMMERCIAL FURNITURE. We were the pioneers in this line and carry a full stock of standard goods, including roll-top desks, flat-top desks, typewriter desks, standing desks, wardrobes, telephone boxes, chairs and settees, in all woods and finishes.

STORE FITTINGS AND FURNITURE. We solicit the privilege of figuring on requirements in this line. We can supply counters, wall cases, show cases and all loose furniture.

SUNDAY SCHOOL SEATING. We can furnish everything necessary for a complete equipment and can especially recommend our settee seating.

SCHOOL FURNITURE. This is one of our largest lines, and the fact that we hold contracts for the supply of our furniture for most of the cities in Canada speaks for itself. We also fit up laboratories and science departments.



SCHOOL DESK (ADJUSTABLE).

We issue separate catalogues for Church Furniture, Lodge Furniture, Opera Chairs, Office Desks, Sunday School Seating and School Furniture, which we will be pleased to submit on application.

Our great and varied experience in above lines permits us to intelligently and faithfully interpret Architects' ideas and rough suggestions, and it is our aim to carry out orders with which we are entrusted in the best and most up-to-date manner.



OPERA CHAIR.

RHODES, CURRY COMPANY, LIMITED

CONTRACTORS AND MANUFACTURERS OF BUILDING MATERIALS,

AMHERST, N.S.

BRANCHES AT
HALIFAX, SYDNEY, AND
NEW GLASGOW.

PRODUCTS.

BANK, CHURCH, STORE AND OFFICE FITTINGS; DOORS, SASHES, DIMENSION TIMBER, DRESSED LUMBER, LATHS, SHINGLES, CLAPBOARDS, HARDWOOD FLOORING, WAINSCOTING, STAIR WORK; CEMENT, LIME, PLASTER, BRICKS; CAST-IRON COLUMNS, SASH WEIGHTS, CRESTING, etc., and building materials generally.

FOREIGN AND DOMESTIC WOODS.

From 4,000,000 to 8,000,000 feet carried in stock, including all varieties.

DRYING CAPACITY.

Four large dry-houses built on latest scientific plans. Capacity 50,000 feet per day.

MANUFACTURING PLANTS AT AMHERST, SYDNEY, AND NEW GLASGOW.

Amherst plant employs 160 hands. Largest capacity in the Maritime Provinces. Expert workmen. Prompt shipment. Thirty-seven years' experience supplying above materials to all leading Banks, Railways, Government Works, Churches, etc.

Sydney plant employs 50 hands, manufacturing same lines as above.

BUILDING DEPARTMENT.

During thirty-seven years' experience in contracting and building have erected many of the most important buildings in the Maritime Provinces.

STRUCTURAL STEEL PLANT.

To facilitate our Building Construction Department, we found the necessity of adding this Plant to our Works in year 1913, and now fabricate our own Structural Steel, and are open for enquiries in this line of business.

THE BERLIN INTERIOR HARDWOOD CO., LIMITED

HEAD OFFICE AND FACTORY:

BERLIN, ONT.

PRODUCTS. We manufacture and contract for the complete equipment of BANK AND OFFICE FITTINGS, including MARBLE AND METAL WORK, DESKS AND FILING DEVICES, WARDROBES, TELEPHONE BOOTHS, COUNTERS, ETC.

FURNITURE AND FITTINGS for court houses, city halls, and all public buildings requiring high-grade INTERIOR HARDWOOD FITTINGS.



OPERA CHAIR.



ASSEMBLY CHAIRS.



CHURCH INTERIORS.

CHURCH SEATING.—Both straight and circular, solid and built-up. Altars, pulpits, etc.

ASSEMBLY FOLDING CHAIRS.—For Sunday school, assembly hall and banquet hall seating. Made either single or in sections.

OPERA CHAIRS.—Made of both steel and cast iron, upholstered, or built-up seats and backs.

LODGE FURNITURE.—We have a wide range of designs to choose from—the least expensive to the most elaborate.

REVOLVING DOORS.—We manufacture the American Standard Revolving Doors. If interested, write for catalogue illustrating the various designs and giving full information as to their construction.

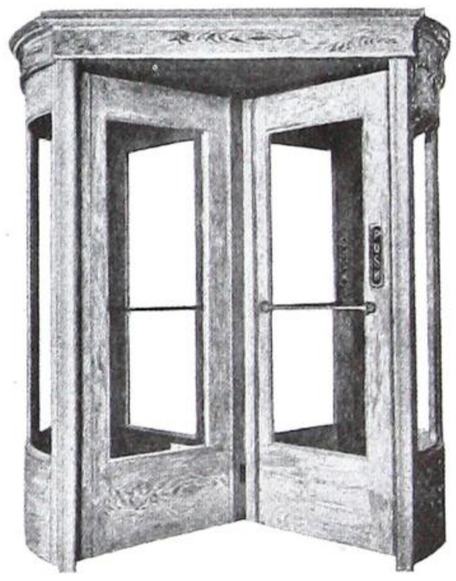
HOTEL AND CLUB FURNITURE.—Bar fittings, counters, etc.

SCHOOL FURNITURE.—Teachers' desks, laboratory equipment, science department and manual training benches, domestic science furniture, etc.

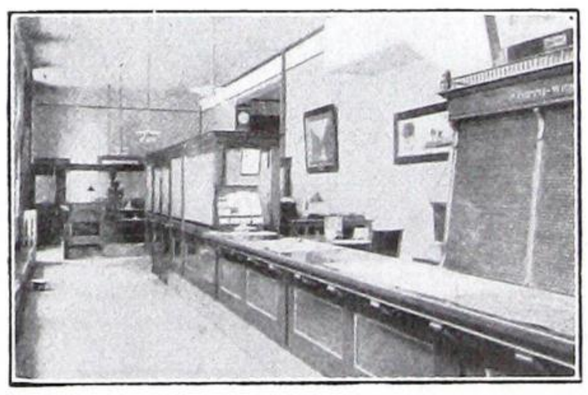
STORE FITTINGS.—We manufacture fittings for drug, jewelry, dry goods, grocery, and all kinds of store requirements, such as counters, show cases, silent salesmen, shelving, store fronts, etc.



OFFICE DESKS.



REVOLVING DOORS.



OFFICE INTERIORS.

GUARANTEE. We guarantee our work to be right in construction and material, and carry on hand at all times all foreign and domestic kiln-dried materials usually required in our line. We occupy over 100,000 square feet of floor space, with all modern and many special machines. We are located in the banner furniture town of Canada, where experienced and competent help is employed, and are therefore in a position to give satisfaction and prompt delivery.

THE KNIGHT BROTHERS COMPANY, LIMITED

REPRESENTATIVES:

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VANCOUVER, B.C.

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SASKATOON, SASK.

P. W. T. ROSS,
TORONTO, ONT.

HEAD OFFICE AND FACTORY:
BURKS FALLS, - - ONTARIO.

WAREHOUSE: COCHRANE, ONT.
" COBALT, ONT.

MILLS:

BURKS FALLS.

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STIRLING FALLS.

ECLIPSE BRAND
TRADE REGISTERED MARK

"ECLIPSE BRAND" VENEERED DOORS. We have made a special study of VENEERED DOORS, and recognize no peers and few equals to the "Eclipse Brand." Furnished in mahogany, walnut, quartered oak, selected birch, red birch, white birch, etc., in stock patterns or to architect's designs.

"ECLIPSE BRAND" STAIRS. Our facilities for handling all classes of high-grade stair work are up-to-date in every respect and backed by 25 years' experience. All materials used go through our dry kilns, which have a capacity of 120,000 feet. Our special expert workmen will lay out stairs complete from architect's details or from plans and measurements, and send all work framed and fitted ready to set in place.

"ECLIPSE BRAND" TURNED COLUMNS. After years of study and experience, we find that the columns which give the best results are built up of 6, 8, or 10 staves, glued together with our special lock joint, with bases and capitals in turned, carved or compo work, as required.

"ECLIPSE BRAND" HARDWOOD TRIM. When the specification calls for hardwood trim, it naturally follows that a little extra quality is desired, and this is just what gives the style and class so much sought after in the better grade of buildings, whether large or small. This extra quality of finish and machine work is always assured by specifying "Eclipse Brand." We are prepared to supply trim for any building throughout in any of the better grades of wood, including quarter-cut oak, curly birch, mahogany, walnut, red birch, white birch, bird's-eye maple, ash, whitewood, or Georgia pine. Buildings recently supplied by us include:—

The Royal Bank, Calgary, Alta.
The Royal Bank, Medicine Hat, Alta.
The Royal Bank, Lacombe, Alta.
The Rogers Building, Vancouver, B.C.
The Spencer Building, Vancouver, B.C.
The Bower Building, Vancouver, B.C.
The Royal Bank, Edmonton, Alta.
The Ramsay School, Calgary, Alta.
The Y.M.C.A. Building, Saskatoon, Sask.
The Cairns Building, Saskatoon, Sask.
Residence of Wm. Hopkins, Saskatoon, Sask.
The Royal Bank, Swift Current, Sask.
The Royal Bank, North Battleford, Sask.
The Royal Bank, Moose Jaw, Sask.
The Sparling Methodist Church, Winnipeg, Man.
Residence of V. C. Brown, Esq., Winnipeg, Man.
Residence of Henry Taylor, St. Catharines, Ont.
Residence of Wm. Chaplin, St. Catharines, Ont.
Security Loan and Savings Buildings, St. Catharines, Ont.
The High School, North Bay, Ont.
The High School, St. Thomas, Ont.
Residence of Col. F. D. Mercer, Toronto, Ont.

"ECLIPSE BRAND" PANELLED DADOES AND WAINSCOTING. To stand the varying strains and atmospheric conditions to which this class of work is exposed, it requires the highest grade of materials and best of workmanship. We have the best-equipped machinery for doing all kinds of fine work on glued-up cores; together with solid, three-ply, or five-ply panels.

"ECLIPSE BRAND" OFFICE FITTINGS AND CABINET WORK. We manufacture Store Fittings, Silent Salesmen, Hotel Furniture, Bank Fittings, Mantels, Wardrobes, China Closets, Buffets, and High-Class Cabinet Work of all descriptions, from architect's blueprints and details.

"ECLIPSE BRAND" HARDWOOD FLOORING. These goods come in the regular woods, maple, birch and oak, and can be made to order in any of the finer woods on short notice. "Eclipse Brand" represents all that is good in Hardwood Flooring, and comes in all the standard widths, thicknesses and grades adopted by the Hardwood Flooring Association.

PRIMING AND GLAZING. We make a specialty of priming and glazing sash and doors, and supply plain, stained, leaded, and plate glass to order.

FILLING AND STAINING. In order to insure to the architect, contractor, and owner a better finish to all classes of hardwood and veneered work, we have established an up-to-date staining and filling plant. All woods are more or less affected by atmospheric conditions, and unless given a first or priming coat at the same temperature as the shop in which it is worked, the best results cannot be obtained. We strongly recommend that all mill work have one coat of finish before leaving the works.

ESTIMATES FURNISHED. Send us your Plans, Specifications and Bills of Quantities, and we will promptly furnish estimate of material F.O.B. your station.

CUSHING BROTHERS COMPANY, LIMITED

HEAD OFFICE:

702-702A 4TH ST. WEST,

CALGARY, ALBERTA.

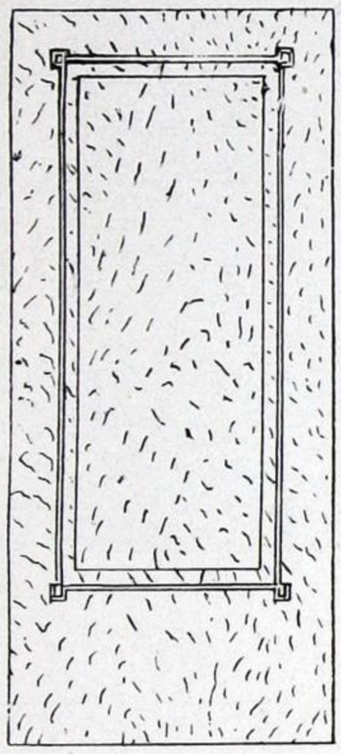
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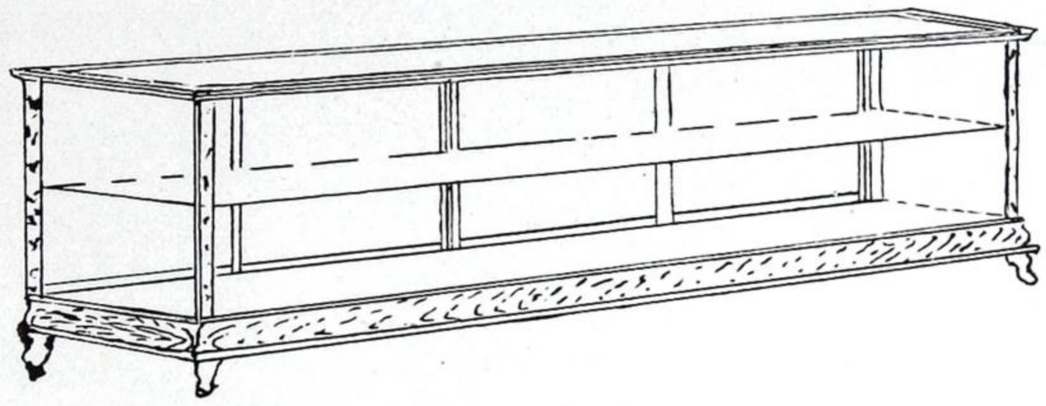
CALGARY, ALBERTA. EDMONTON, ALBERTA.
REGINA, SASK. SASKATOON, SASK.

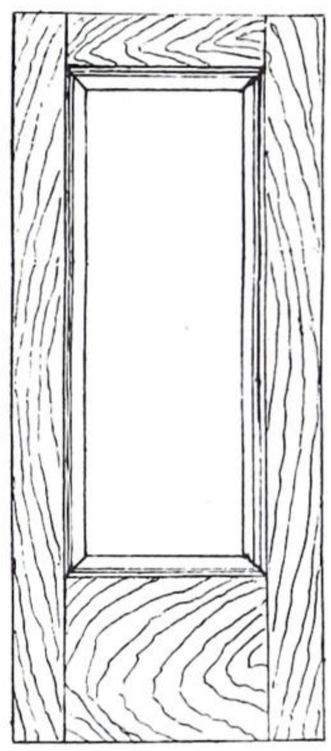
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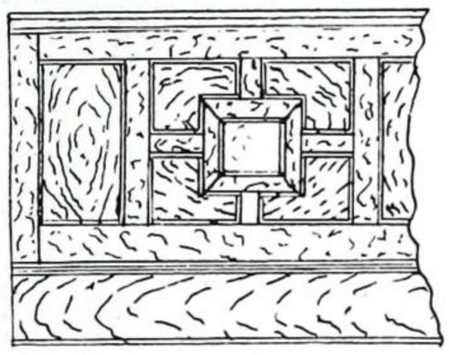
RED DEER AND FT. SASKATCHEWAN.

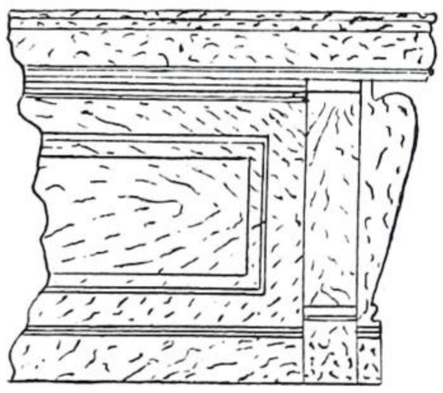
PRODUCTS. EVERYTHING IN MILL WORK, ART GLASS, MIRRORS, BEVEL PLATES, FANCY SHEET and PLATE GLASS.



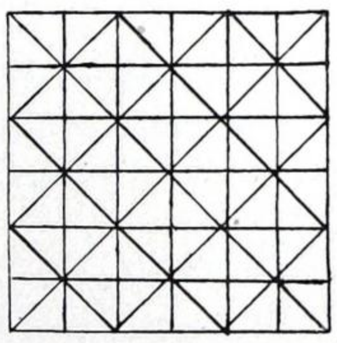


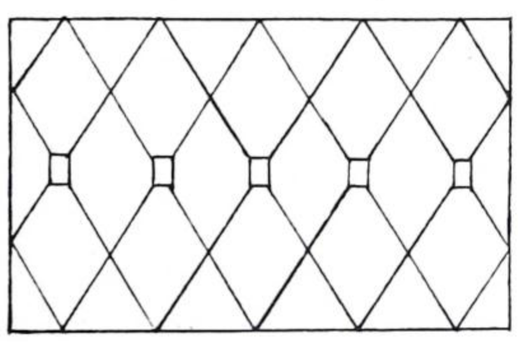


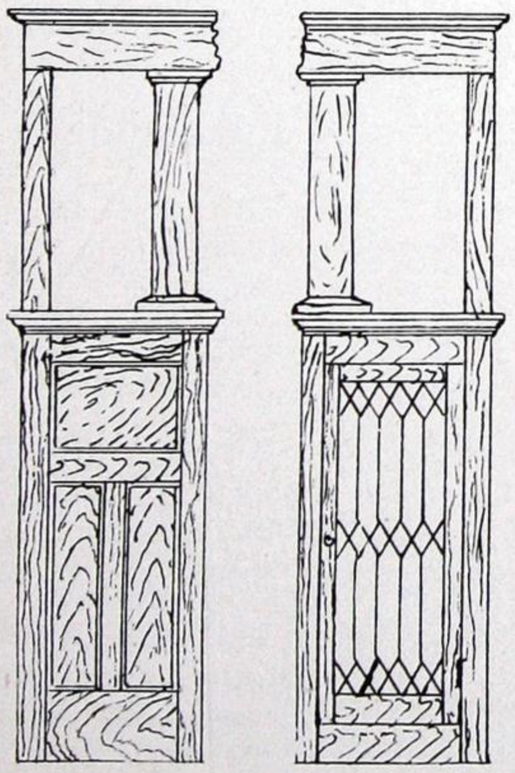


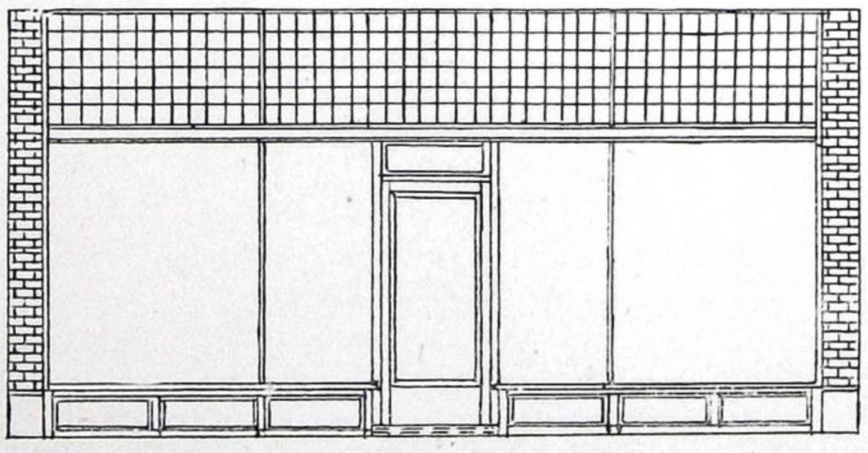


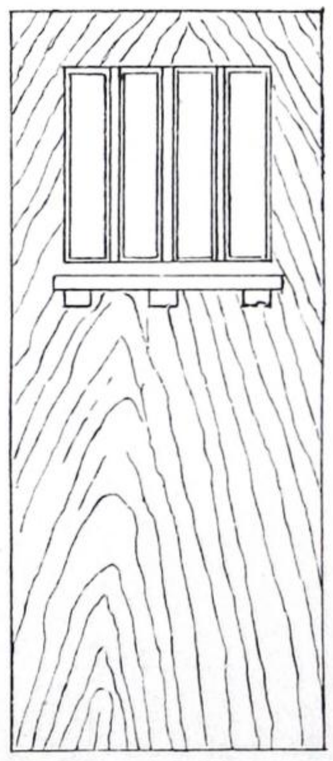








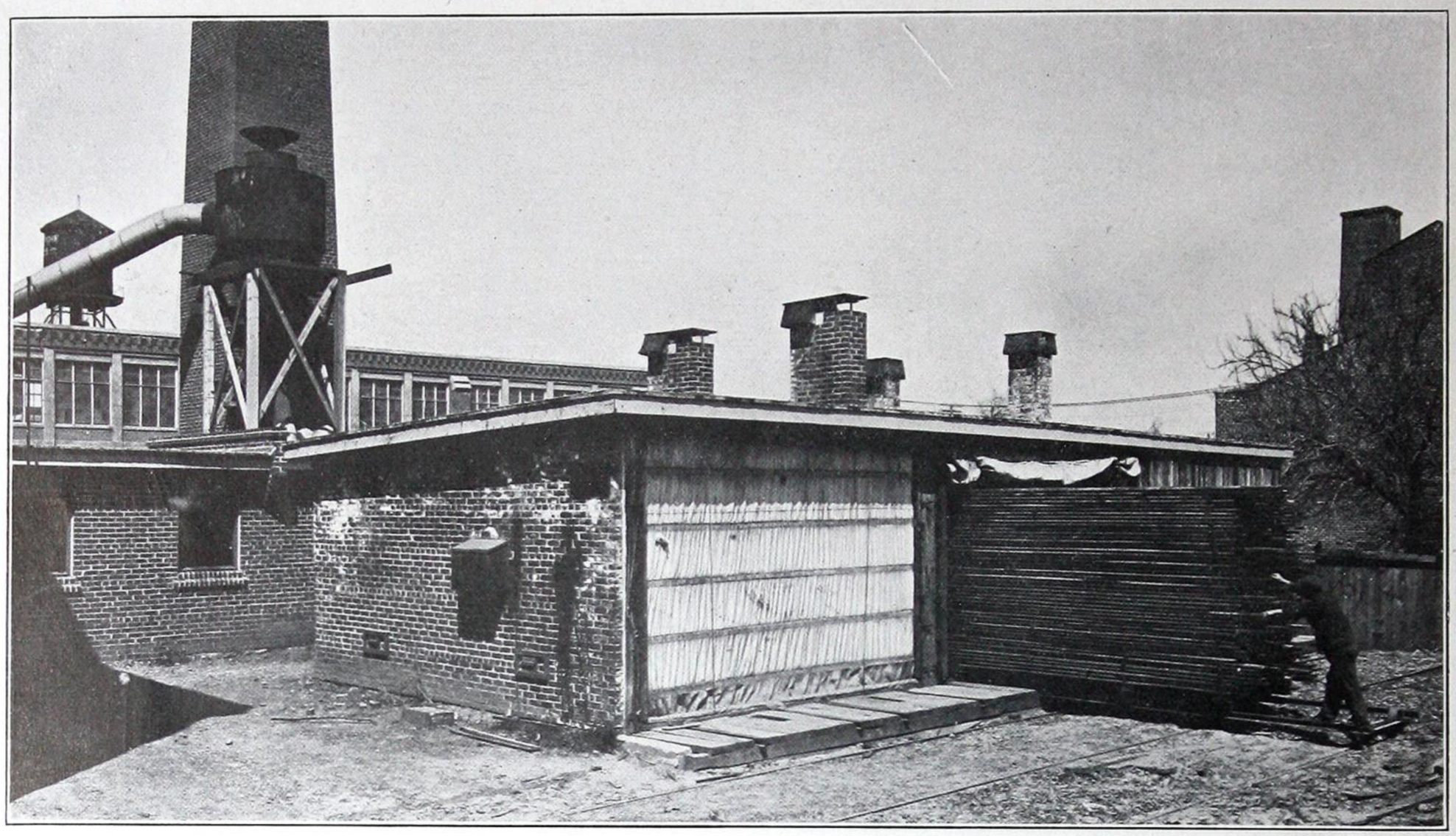




INFORMATION. Call on us or write us when you are needing anything in the building line.

THE BURTON & BALDWIN MFG. CO., LIMITED

HAMILTON, ONT.



A Car of Lumber Entering Dry-Kiln.

PRODUCTS. CABINET WORK of all kinds, BANK AND STORE FIXTURES, SHOWCASES, INTERIOR HARDWOOD TRIM AND FINISH for Public Buildings, Residences, etc.

PLANT. We have a modern plant and the best of facilities, including up-to-date Dry Kiln scientifically operated.

TRIAL ORDERS SOLICITED. If You have had trouble with work installed not properly seasoned, give us a trial.

NOTE. We make no goods for stock, all our resources being devoted to executing Your work exactly according to Your plans and specifications.

Your interests are our interests. We want to please You. With us the Service we will give you is quite as important as the job itself.

We have the facilities, the plant, the organization, the experience and the determination to deliver your orders on time and to your entire satisfaction.

DELIVERY. Before we submit figures on a job, we want to know what delivery will be required. If we cannot m et hat delivery, we will tell you so frankly.

REFERENCES.

BANKS.	*Architects.*
Bank of Hamilton, Hamilton	Mills & Hutton.
Metropolitan Bank, Hamilton	Watt & Blackwell.
Bank of Montreal, Hull, Que	Peden & McLaren, Montreal, Que.
DEPT. STORE.	
Stanley Mills & Co., Ltd., Hamilton	Mills and Hutton.
HOTELS.	
King George Hotel, Hamilton	
Revere House, Hamilton	
Armory Hotel, Hamilton	
TERMINAL STATION.	
Dom. Power and Transmission Co., Hamilton	Mills and Hutton.

OFFICE BUILDINGS.	*Architects.*
International Harvester Co., Hamilton	
Goodyear Tire and Rubber Co., Toronto	Hewen & Halstrick, Chicago, Ill.
J. R. Moodie & Sons, Hamilton	Stewart & Witton.
RESIDENCES.	
J. R. Moodie, Hamilton	Mills and Hutton.
H. B. Witton, Hamilton	Stewart & Witton.
W. J. Verity, Brantford	Stewart & Witton.
TECHNICAL SCHOOLS.	
Board of Education, Hamilton	A. W. Peene.
Public School Board, Winnipeg	

CANADIAN "PYROFUGONT" FLOORING CO., LIMITED

BERLIN, ONTARIO.

MUNICH, GERMANY; LONDON, ENGLAND;
BASLE, SWITZERLAND; BRUSSELS, BELGIUM;
MOSKAU, RUSSIA.



Prize of Honour (Highest Award):
World's Exhibition, Brussels, 1910.



Gold Medal (Highest Award):
Exhibition for Hygiene, Dresden, 1911.

PRODUCT. We are manufacturers of "PYROFUGONT," the only FLOOR containing asbestos fibre.

SPECIFICATIONS. "Pyrofugont" Floors are laid in two layers—a sub-floor ⅜ in. thick and a top floor ⅜ in. thick.

"Pyrofugont" if laid on concrete: Concrete must be laid level with rough surface, ¾ in. below finished floor level.

"Pyrofugont" if laid on wood: Rough Board flooring must be well nailed, need not be tongued and grooved, but boards are best to be spaced ⅛ in.

"Pyrofugont" Base, with sanitary cove supplied to any height. Plaster must be left off to height of base.

"Pyrofugont" Wainscoting: Condition same as base.

ADAPTABILITY. "Pyrofugont" can be laid in any plain colour, as well as in any combination of colours.

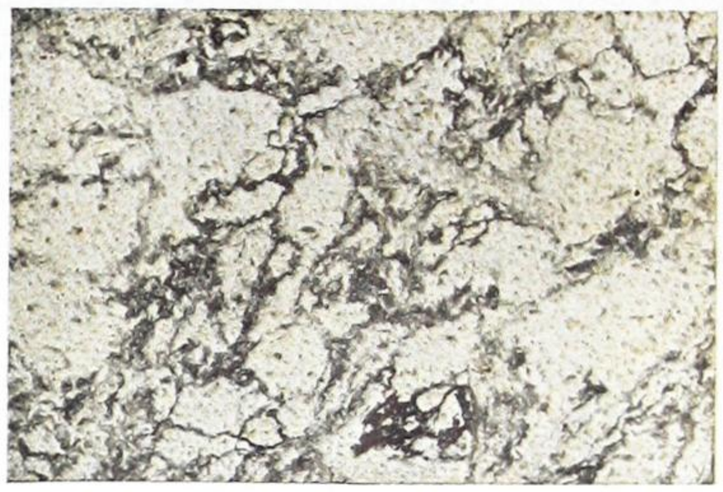
It is supplied in three grades: Factory Floor, School Floor, Office or Residence Floor.

Factory and School Floors are trowel finished and waxed; Residence and all Mottled Floors, hand scraped and waxed.

FIREPROOFING QUALITIES. "Pyrofugont" Flooring and Wainscoting perfectly withstood the fire in the recent Toronto Woodbine Hotel disaster. Write for photographs.

CONTRACTS EXECUTED AND AWARDED.

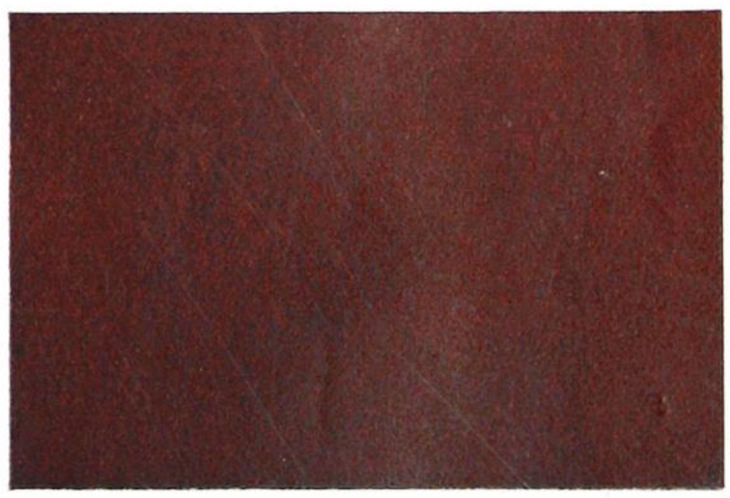
BUILDING.	ARCHITECT.
St. Augustine Seminary	Arthur W. Holmes.
Toronto Western Hospital	E. J. Lennox.
Queen Alexandra Sanitarium, London, Ont.	
Court House, London	McBride & Gilbert.
Loretto Academy	Neil G. Beggs.
Post Offices, Preston and Elmira	D. Ewart.
Merchants Bank, Preston	
Y.W.C.A., Hamilton	Mills & Hutton.
Bank of Ottawa, Ottawa	
Woodbine Hotel	F. H. Herbert.



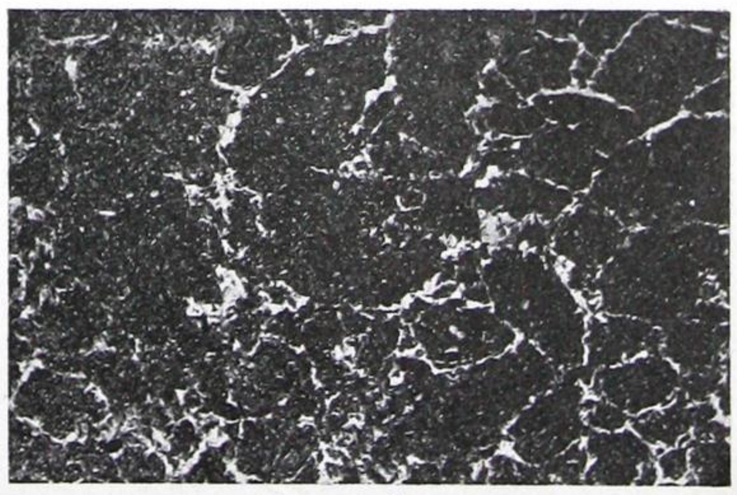
MOTTLED FLOORING.



SPECIAL SCHOOL FLOORING.



RESIDENCE FLOORING.



MOTTLED FLOORING.

THE MASTER BUILDERS COMPANY

CONCRETE FLOOR HARDNER.

MAIN OFFICE AND WORKS:
CLEVELAND, OHIO.

CANADIAN OFFICES AND WAREHOUSES:
MONTREAL, - TORONTO, - WINNIPEG.

REPRESENTATIVES:

HALIFAX, N.S.....The General Contractors Supply Co., Ltd.
ST. JOHN, N.B.....Estey & Co.
OTTAWA, ONT.....T. S. Kirby Co., Ltd.
FORT WILLIAM & PORT ARTHUR.....The Twin City Sand Co., Ltd.
REGINA, SASK.....Brown & Chapman.
MOOSE JAW, SASK.....Sask. Glass & Supply Co., Ltd.
SASKATOON, SASK.....Mackenzie & Thayer, Ltd.
PRINCE ALBERT, SASK...Bowman Supply Co., Ltd.
EDMONTON, ALTA.....W. B. Poucher.
CALGARY, ALTA.....Imperial Supply Co., Ltd.
VANCOUVER & VICTORIA..Wm. N. O'Neil & Co., Ltd.
QUEBEC .....Pruneau & Co., Ltd.
SAULT STE. MARIE .....T. H. MacGillivray.

Master Builders Method

AMERICAN PATENT DEC. 26TH 1911 TRADE MARK REG. U.S. PAT. OFFICE CANADIAN PATENT APRIL 23RD 1912

PRODUCT AND SERVICE. MASTER BUILDERS CONCRETE HARDNER, used in accordance with Master Builders Method for making wearproof, dustproof and waterproof concrete floors.

PATENTS. Master Builders Method Patents granted as follows: American Patent, Dec. 26, 1911; Canadian Patent, April 23, 1912; English Patent, Oct. 10, 1912.

ADVANTAGES. To have concrete floors that will not dust, crumble nor disintegrate, the worst fault of concrete—its porosity—must first be overcome. Porosity makes concrete floors fragile and dusty, shortens their useful life, and leads to patching and renewals. To eliminate this porosity in concrete floors, they must be made right and laid right. Master Builders Method has proved, under many varying conditions, that it best performs this vital work.

Master Builders Method provides for the use of Master Builders Concrete Hardner, a finely-divided mineral substance, which, when properly incorporated in concrete floor topping, gives that floor high tensile and compressive strength, and enables it to withstand abrasion to an exceptional degree. Master Builders Concrete Hardner not only treats the surface, but is mixed right into the topping of the floor, binding, hardening and strengthening it, and making it exceptionally durable.

SERVICE. Master Builders Method also includes, when requested, the personal presence of a Master Builders Service Man on the job, when the work starts. This Service Man's duty is to instruct the contractor just how our "Standard Specifications" are carried out. He remains with the contractor until the latter is thoroughly familiar with Master Builders Method and can proceed without further assistance.

Master Builders Method is the original and standard method for making concrete floors that will not dust nor absorb moisture, and that will resist the hardest kind of wear. Master Builders Method is scientific; it is the result of years of careful experimenting by men who are experts in concrete floor work. Wherever a concrete floor can be used, Master Builders Method Concrete Floors will best answer all requirements. They are giving ideal service to-day in hundreds of important buildings of every type and description, throughout Canada, the United States and Europe.

INSTALLATIONS.

HALIFAX:
Nova Scotia Technical College.
Moirs Limited, Stables.
Science Building, Dalhousie University.
Western Union Cable Station.

ST. JOHN, N.B.:
Atlantic Sugar Refinery Co.
Bank of British North America.
Maritime Motor Co.

QUEBEC, QUE.:
Holt, Renfrew & Co.
Dominion Fish & Fruit Co.

MONTREAL, QUE.:
Dominion Textile Co., Colonial Branch.
Molson's Brewery and Stables.
Canada Bread Co.

MONTREAL, QUE.—Con.
Alexander Pier Bridge.
Imperial Tobacco Co., Ltd.

TORONTO, ONT.:
The City Dairy Co., Ltd.
The Canada Bread Co., Ltd.
The Consumers' Gas Co.
The Cowan Co.
National Drug & Chemical Co.
The T. Eaton Co.

WINNIPEG, MAN.:
The Smart-Woods Building.
Fort Garry Hotel Driveways.

REGINA, SASK.:
The Canada Life Building.
The Telephone Exchange.

MOOSE JAW, SASK.:
City Electrical Power Plant.
The Hughes Building.
Sask. Creamery Building.

CALGARY, ALTA.:
C.P.R. Hotel Palliser.
Hudsons Bay Co., Building.
Calgary Brewing Co.

VANCOUVER, B.C.:
The C.P.R. Hotel, Vancouver.
Canadian Fairbanks-Morse, Warehouse.
B.C. Electric Railway Co.'s Power House.

VICTORIA, B.C.
C.P.R. Hotel Empress.
Scott & Peden, Warehouse.

CONTINUED ON NEXT PAGE

STANDARD SPECIFICATIONS FOR MAKING MASTER BUILDERS METHOD WEARPROOF, DUSTPROOF AND WATERPROOF CONCRETE FLOORS.

Master Builders Method is a formula for making concrete floors Wearproof, Dustproof and Waterproof. Its adoption by leading Railroads, Packing Houses, Breweries, Printing Plants, Bakeries, etc., and installations by them under many varying conditions, has proven its efficiency and correctness.

Master Builders Concrete Hardner, the material used in connection with Master Builders Method, is a mineral substance, manufactured uniformly at all times. There is absolutely nothing about Master Builders Concrete Hardner that in any way changes the nature of concrete. It is a hardner, binder and filler.

The Master Builders Company assumes no responsibility whatsoever for any structural defects in concrete floors, cracks, poor workmanship, poor materials or damage of any kind caused by weather conditions, abuse or premature use, in Master Builders Method Floors.

The Master Builders Company maintains a Service Department, including a staff of trained Service Men, who, upon written request, will explain and demonstrate how our Method should be carried out. No charge whatsoever is made for this service.

SPECIFICATION "A"—Recommended only for Making Dustproof Concrete Floors in Hospitals, Power Houses, Office Buildings, Public Buildings, etc.

BONDING. If Master Builders Binder is specified, see specification for bonding below.

APPLICATION OF TOPPING. The topping (thickness at least full ¾-in.), which shall consist of a one part tested Portland Cement to two parts coarse, gritty, clean sand, mix (1 : 2), shall at no time be made sloppy. Lay and straight-edge the topping to a true and even surface. The topping shall then be well floated with wooden floats, to close all voids and hollows.

THE FINISH. Then a dry mixture of one (1) part Master Builders Concrete Hardner and one (1) part tested Portland Cement (by weight), mixed to an even colour, shall be sprinkled evenly over the surface. This shall be floated in thoroughly and troweled.

A second troweling shall be given the surface when it has set sufficiently to finish hard and smooth.

Under no circumstances shall the Finish be applied when there is any sign of surplus water on the floated surface.

SAFEGUARDING THE FLOOR. After the topping has set up, the contractor shall cover it with a uniform layer of soft wood sawdust, shavings, or other suitable covering. This covering must not be applied until experiment shows surface hard enough to prevent covering from scratching or injuring the finish. Surface shall be kept wet for at least five days. Floors, if protected as above, will be ready for light traffic in a week, and for heavy traffic in three weeks, under favourable weather conditions.

MATERIAL REQUIRED. Specification "A" requires approximately 15 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *without Binder.*

Specification "B" requires approximately 20 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *with Binder.*

SPECIFICATION "B"—Recommended for Making Wearproof, Dustproof and Waterproof Concrete Floors Subjected to Heavy Service.

THICKNESS OF TOPPING. The Topping shall be at least a full three-quarters (¾ in.) of an inch in thickness. If floor is very uneven, the contractor shall bring the floor slab to the necessary level to take a uniform ¾-in. topping, installed as follows:—

BONDING. If Master Builders Binder is specified, see specification for bonding below.

TOPPING. (MEASURE BY VOLUME.)

1 part tested Portland Cement.
2 parts clean, coarse, gritty Sand.
5 lbs. Master Builders Concrete Hardner to every bag of Cement.

OR

1 part tested Portland Cement.
1 part ⅜-in. crushed Granite, free from dust.
1 part clean, coarse, gritty Sand.
5 lbs. Master Builders Concrete Hardner to every bag of Cement.

Thoroughly mix until uniform in colour, showing no streaks or patches of the constituents. Add sufficient water to saturate the mixture.

APPLICATION OF TOPPING. Lay and straight-edge the topping to a true and even surface. The topping shall then be well floated with wooden floats to close all voids and hollows.

THE FINISH. Then a dry mixture of one (1) part Master Builders Concrete Hardner and one (1) part of tested Portland Cement (by weight), mixed to an even colour, shall be sprinkled evenly over the surface. This shall be floated in thoroughly and troweled. A second troweling shall be given the surface when it has set sufficiently to finish hard and smooth.

Under no circumstances shall the Finish be applied when there is any sign of surplus water on the floated surface.

SAFEGUARDING THE FLOOR. After the topping has set up, the contractor shall cover it with a uniform layer of soft wood sawdust, shavings or other suitable covering. This covering must not be applied until experiment shows surface hard enough to prevent covering from scratching or injuring the finish. Surface shall be kept wet for at least five days. Floors, if protected as above, will be ready for light traffic in a week and for heavy traffic in three weeks, under favourable weather conditions.

MATERIAL REQUIRED. Specification "B" requires approximately 30 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *without Binder.*

Specification "B" requires approximately 35 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *with Binder.*

BONDING. (If Master Builders Binder is specified.)

We recommend that before the floor slab concrete is thoroughly set, the surface be thoroughly roughened by the use of a steel rake or stiff fibre broom.

Under no circumstances shall topping be laid over concrete surface covered with a coating of scale or other foreign substance. Contractor shall remove all scale, loose particles and foreign substances.

When base is smooth or does not present a sufficiently rough surface on which to bond, it shall be chipped and roughened. If floor is picked, pick marks must not be more than three (3) inches apart in any direction.

Grease or oil must be removed by scrubbing surface, day before topping is laid, with Muriatic Acid and Water, proportioned one to two (1 : 2). Acid to be removed by washing with fresh water after all action has ceased.

Two hours before operations begin, the surface shall be soaked with fresh water.

Then the surface shall be slushed with a Bonding Coat, consisting of one (1) part Master Builders Concrete Hardner and one and one-half (1½) parts tested Portland Cement (by weight), which has been thoroughly mixed to a uniform colour. This shall be thoroughly spread on to the surface and the abutting edges of the old concrete.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

WATERPROOFING AND MASTIC MATERIALS.

PRODUCTS AND SERVICES.

J-M ASPHALT WATERPROOFING CEMENT; J-M ASPHALT SATURATED FABRIC; J-M WATERPROOFING ASBESTOS FELT AND J-M ASPHALT MASTIC.

Also, J-M LIQUID WATERPROOF COATING; J-M CONCRETE PRIMER; J-M CUT STONE BACKING; J-M PLASTER BOND; J-M ASPHALT FLUX, MINERAL AGGREGATE, Etc.

For complete list of J-M Building Materials, see our catalogue in Roofing Section.

We are in position to contract for furnishing and applying materials for all kinds of waterproofing and mastic work.

We have a thoroughly equipped and well-organized Engineering Department at each branch, all under the direction of our chief engineer and his staff, which will be glad to co-operate with you or your engineers in handling waterproofing work of every nature.

J-M WATERPROOFING MATERIALS.

Our waterproofing products have as a basis Gilsonite, a mineral rubber found in extensive deposits in Utah, and the purest form of asphalt. By our method of making combinations and by our process of conversion, it is rendered very ductile and wonderfully adhesive, and its cementitious qualities and other general characteristics make it perfectly adaptable to withstand peculiar conditions of service to which it becomes subjected.

J-M Asphalt Waterproofing Cement.—A bituminous preparation, 99.5 per cent. pure, containing no organic, vegetable, or other matter that will disintegrate or decay. Is superior to ordinary asphaltic compounds, because of the raw material used, the method of preparation, and its great purity, proof against the action of acid, alkali, brine and water; and also due to its being but slightly affected by a wide range of temperature.

Between melting and brittle points it has a range of 200 deg. Fahr., as compared with 40 degrees for coal-tar products and 80 degrees for ordinary asphalts. The material is heated in suitable boilers to a temperature of 400 deg. Fahr., and mopped on while hot. For estimating, figure that one ton of the Waterproofing Cement will cover 3,000 square feet of surface, 1/8-inch thick.

J-M Asphalt Saturated Fabric.—Composed of an especially strong, loosely woven fabric, thoroughly impregnated with our Waterproofing Cement, and used in building up a waterproof membrane in as many plies as are required to meet conditions. Being an open-mesh material, the Waterproofing Cement, which is mopped on hot, thoroughly saturates, cements and bonds together the plies of reinforcements, making a waterproof membrane of such great strength and elasticity that it will remain intact and bridge over any ordinary cracks or openings which may develop in concrete or other construction. The advantage of this method over a material which is introduced into the concrete is plainly seen, as the incorporated material naturally becomes part of the mass and fails with it.

J-M Waterproofing Asbestos Felt.—Made of pure asbestos fibre, thoroughly impregnated with pure asphalt. Contains nothing to decay or deteriorate, consequently will last indefinitely. It forms a plastic, bituminized stone sheet, and is the only all-mineral felt made; therefore, the only one which is forever acid, mould, decay and water proof. Used in same manner as saturated fabric, in connection with J-M Waterproofing Cement.

J-M ASPHALT MASTIC FLOORING.

Unlike our waterproofing products, the base of all J-M Mastic is genuine Trinidad Lake Asphalt. By reason of its remarkable ductility, toughness, strength and enduring qualities, this substance is peculiarly adapted for the work it is called upon to perform in floor use under various conditions.

J-M Asphalt Mastic Flooring provides a surface that is waterproof and at the same time practically wearproof under ordinary service conditions. Also, unaffected by acids, alkali and brine.

Absolutely sanitary, as it can be quickly and thoroughly cleaned by simple process of flushing, after which it dries out immediately.

Will not originate dust, a point of vital importance in establishments where it is imperative to keep machinery and goods free from dust.

The flooring is unequalled for factory and warehouse use, even under the heaviest trucking conditions; and, on account of its noiseless character, is a boon in plants where there is considerable trucking. Another feature in its favour is its peculiar holding quality, which prevents slipping.

J-M Asphalt Mastic Flooring can be made in any consistency between extreme hardness and softness, and, while always dense, possesses a certain amount of resiliency. As it does not cause footsoreness and fatigue, like concrete and other non-yielding floor surfaces, it adds greatly to efficiency as well as to comfort of employees of machine shops, factories and other industries, who are compelled to stand while at work. Furthermore, being damp-proof, it is an efficient protection against rheumatism and other ailments common to damp conditions.

J-M Asphalt Mastic Flooring is easily laid and easily repaired, if changes in the floor surface are made necessary at any time. It adds very little to the dead load, as the standard thickness of 1½ inches weighs only 18 lbs. to the square foot, in place. This thickness is sufficient for ordinary trucking requirements, but can be varied to meet conditions, ranging from 1 inch for laboratories, where the requirements are very light, to 3 inches in thickness for loading docks, where the requirements are correspondingly severe.

Can be laid over any foundation which is firm and stable, and can be applied over wood, brick, concrete or tile already in place.

ADAPTABILITY.

J-M Asphalt Mastic Flooring is perfectly adapted for use in nearly all classes of construction. In fact, its scope is almost without limit. It is superior to wood, concrete, brick, tile, slate or composition floors, and may be substituted for floors of those materials to excellent advantage.

CONTINUED ON NEXT PAGE

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

CORK TILE AND AKOUSTIKOS FELT.

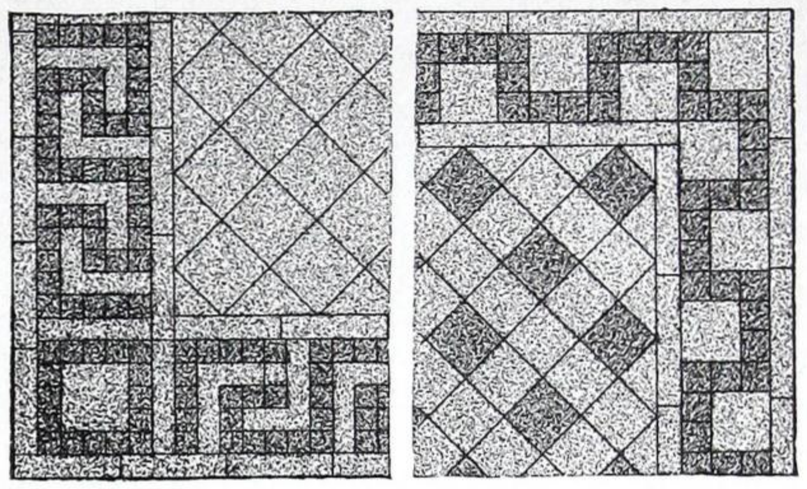
PRODUCTS AND SERVICES.

J-M PURE CORK FLOOR TILE, J-M AKOUSTIKOS FELT for Correction of Acoustics, Defective Acoustical Conditions Corrected.

For complete list of J-M Building Materials, see our catalogue in Roofing Section.

J-M PURE CORK FLOOR TILE.

An ideal flooring for banks, libraries, hospitals, churches, schools, clubs, residences, and many other types of buildings. It is also used on stairways, ramps, decks and saloon floors of yachts and steamers, and in restaurants and other places where it is essential to have a flooring that is not slippery.



J-M PURE CORK FLOOR TILE.

The wearing surface of J-M Pure Cork Tile is made of clear, selected cork shavings, while the body is of a coarser granulation of same material. Cork for each individual tile is placed in a closed steel mould and compressed to a small fraction of its original volume under tremendous hydraulic pressure. During this process the cork is heated to a temperature that liquefies the natural gum and binds the particles into a homogeneous mass. The result is a solid block of cork, containing nothing but its natural constituents. No cement or foreign substance is used.

How Applied.—J-M Pure Cork Tile is set in special waterproof cement that holds equally well on a wood, metal or cement backing. It is customary to leave the tile without artificial finish, but, if desired, very attractive finishes can be obtained by applying any standard floor wax.

Advantages.—J-M Pure Cork Tile outwears all other floor coverings. Will even outwear a hardwood floor. Our method of compressing and baking each tile separately gives it a harder and more uniform surface than is possible by manufacturing tile two or more at a time and afterwards cutting them apart.

It is as noiseless to the tread as a heavy carpet, and its resilience minimizes footsoreness and fatigue.

J-M Pure Cork Tile is highly fire-resisting. It will retard the spread of flames from one floor or room to another.

Because of its efficiency as an insulator, it helps to keep rooms cooler in summer and warmer in winter.

Being a non-conductor of electricity, it makes a valuable flooring around switchboards or wherever electrical apparatus is in use.

The method of laying this flooring hermetically seals all joints and renders it impossible for germs or filth of any kind to get into cracks or under tiling. Grease and liquids do not stain it. It can be washed with warm water or a diluted disinfectant without injury, and, being non-absorbent, is clean and sanitary.

Decorative Application.—J-M Pure Cork Tile produces an especially rich and warm effect to all interior decorations. It can be used successfully in any decorative scheme, as there is no limit to the variety of patterns and shapes that can be produced. A large number of designs used in parquetry are available in this tiling.

The surface of J-M Pure Cork Tile is totally different from graining effect found in the various woods used for interior decoration. Yet it harmonizes perfectly with any of them. When used for wainscoting, particularly artistic effects are obtainable as tiling takes a varnish finish of any desired tone.

Colours.—J-M Pure Cork Tile is supplied in light, medium and dark colours. The dark tiling approximates Italian Walnut, while the light is similar to Syrian Olive. These different colours are obtained by simply changing the temperatures of the baking ovens. No artificial colouring is used.

The slight variation in the colouring of these tiles, in conjunction with their veined and mottled appearance, gives a delicately shaded effect that is much more pleasing than the sharp alternation of colour found in ordinary tiling.

Sizes.—J-M Pure Cork Tile is furnished in the following standard sizes:

Border strips, random lengths, 12 in., 6 in., 4 in., 3 in. and 2 in. wide.
Fields, squares, 12 in. x 12 in., 6 in. x 6 in., 4 in. x 4 in., and 3 in. x 3 in.
Blocks, 12 in. x 6 in., 12 in. x 4 in., and 12 in. x 3 in.
Special sizes furnished if desired.

J-M AKOUSTIKOS FELT FOR CORRECTION OF ACOUSTICS.

We are prepared to execute contracts for the correction of defective acoustical conditions in all types of public and municipal buildings: churches, theatres, court houses, schools, colleges, hotels, offices, etc. In handling such contracts we are rarely compelled to make any radical changes in general architectural details. Where it has been found necessary to make slight modifications, this has been done in such a manner as not to impair the general appearance of the interiors.

Our method of treatment consists of applying J-M Akoustikos Felt of a proper thickness to such portions of interior surfaces as is found necessary to reduce excessive reverberation to a degree consistent with distinct hearing and yet preserve sufficient intensity of sound. This felt is covered and protected with a membrane which can be decorated in any desired manner so as to reproduce the original appearance of the surfaces treated.

Our Acoustical Department is in charge of experts who have made a scientific study of architectural acoustics, and their knowledge is supplemented by the practical experience gained in the technic of applying the necessary corrective materials.

SIEMON BROS., LIMITED

AGENCIES:
C. A. SPENCER,
Eastern Townships Bank Building,
MONTREAL, QUE.

MUSGRAVE & CO.,
HALIFAX, N.S.

HEAD OFFICE AND FACTORY,
WIARTON, ONT.

TORONTO OFFICE,
309-311 Confederation Life Building.

W. T. EAGEN,
204 McKinnon Building, TORONTO.
Travelling Salesman for Ontario.

AGENCIES:
W. K. CHANDLER,
424 Union Bank Building,
WINNIPEG, MAN.

D. E. CARMAN,
37 Alexandria Street,
VANCOUVER, B.C.

PRODUCTS. We are manufacturers of "DIAMOND" BRAND HARDWOOD FLOORING, which is made from selected Maple, Birch, Beech, and Oak (quarter-cut and plain).

FACILITIES. We are excellently situated as regards a supply of raw material, having an almost unlimited supply at our door, with shipping facilities unsurpassed.

DRY KILNS. The capacity of our Dry Kilns is 40,000 feet per day, and these Kilns are equipped with the latest devices for drying lumber artificially. We have a staff of skilled workmen well trained in securing the best results by avoiding "cooking" the stock and thus destroying its fibre, on the one hand, or under-drying it on the other. This is very important, as the life of the floor as well as its appearance largely depends on the material being properly kiln dried. Factories not properly equipped cannot be depended upon to turn out a product which will give entire satisfaction for years after the floor is laid.

FACTORY. Our machining department has a capacity of 20,000 feet per day. It is equipped with specially built machines for planing, tonguing and grooving, hollow backing, boring (for blind nailing), polishing and end matching.

We engage only skilled workmen who have spent years in learning to operate and care for this machinery, who are capable, with our equipment, of turning out a product unequalled by the ordinary "planing mill."

"DIAMOND BRAND" flooring is all polished before it is tongued and grooved, therefore guaranteeing a sure fit and even surface; all other brands are tongued and grooved first and then polished, which means that the face of board is scraped after the fit had been made, therefore there are always the chances of an imperfect floor on account of scraping, cutting heavier at one place than another, which is absolutely impossible with "Diamond Brand" flooring.

STOCKS CARRIED. In order to take care of the requirements of our customers and fill rush orders promptly, we have enlarged our warerooms to a capacity of 2,000,000 feet and always carry a stock of 600,000 feet of various grades. We also carry a large stock at our principal agencies.

CONTRACTS EXECUTED. Below we give the names of some prominent buildings where our flooring has been used exclusively:—

New Public Library	Toronto.	Hedley-Shaw Milling Co	Port Colborne.	Spencer Building (Department Store), 8-storey	Vancouver.
Convocation Hall	Toronto.	Bell Telephone Building	Toronto.	Somerset Block	Winnipeg.
Physics Building	Toronto.	Lethbridge Y.M.C.A. Building.	Lethbridge.	Devon Court	Winnipeg.
University Addition	Toronto.	Fleetwood School	Fleetwood.	Warwick Apartment	Winnipeg.
Bank of Hamilton	Toronto.	St. Michael's Hospital	Toronto.	Cecil Rhodes School	Winnipeg.
Canadian General Electric Co.	Toronto.	M. & L. Samuel, Benjamin & Co., New Offices and Warehouse.	Toronto.	Nanton Building	Winnipeg.
King Radiator Co. Building	Toronto.	Clummice & Groove Stopper Co., Warehouse	Toronto.	Moxam Court	Winnipeg.
Somerville, Ltd	Toronto.	Frank H. Fleer & Co. (Chiclets) Factory	Toronto.	Cuthbertson Building	Fort William.
Otto-Higel Co	Toronto.	Otto-Higel Co. (Piano Action Factory), large addition	Toronto.	Willis Building	Montreal.
T. Eaton Co	Toronto.	General Leather Goods Co	Toronto.	McDonald College	Montreal.
T. Eaton Co	Winnipeg.	Somerville Brass Co., Ltd	Toronto.	Yorkshire Ins. Building	Montreal.
Post Office	Winnipeg.	King Radiator Co., Factory Building, Head Office	Toronto.	American Tobacco Co., Warehouse	Montreal.
Post Office	Regina.	Thos. Ogilvie & Sons, Ltd., 8-storey Warehouse	Toronto.	Landed Banking & Loan Co	Hamilton.
Normal School	Peterboro.	Sunbeam Incandescent Lamp Co	Toronto.	E. D. Smith (Residence)	Winona.
Normal School	Stratford.	High School and Collegiate	Picton.	Hamilton Cotton Co	Hamilton.
Normal School	North Bay.	St. Joseph's Hospital	Victoria.	London Printing & Litho Co.	London.
High School	Picton.			Coppley, Noyes & Randall	Hamilton.
Public School	West Toronto.			T. W. Watkins, Dry Goods House	Hamilton.
Roller Rink	Oshawa.			Collegiate Institute	Moose Jaw.
Roller Rink	Welland.			And many others.	
Roller Rink	Grimsby.				
Roller Rink	Toronto.				
Roller Rink	Hamilton.				
Morris Piano Co	Listowel.				

HOIDGE & SONS

34 PRICE STREET,
TORONTO, - ONT.

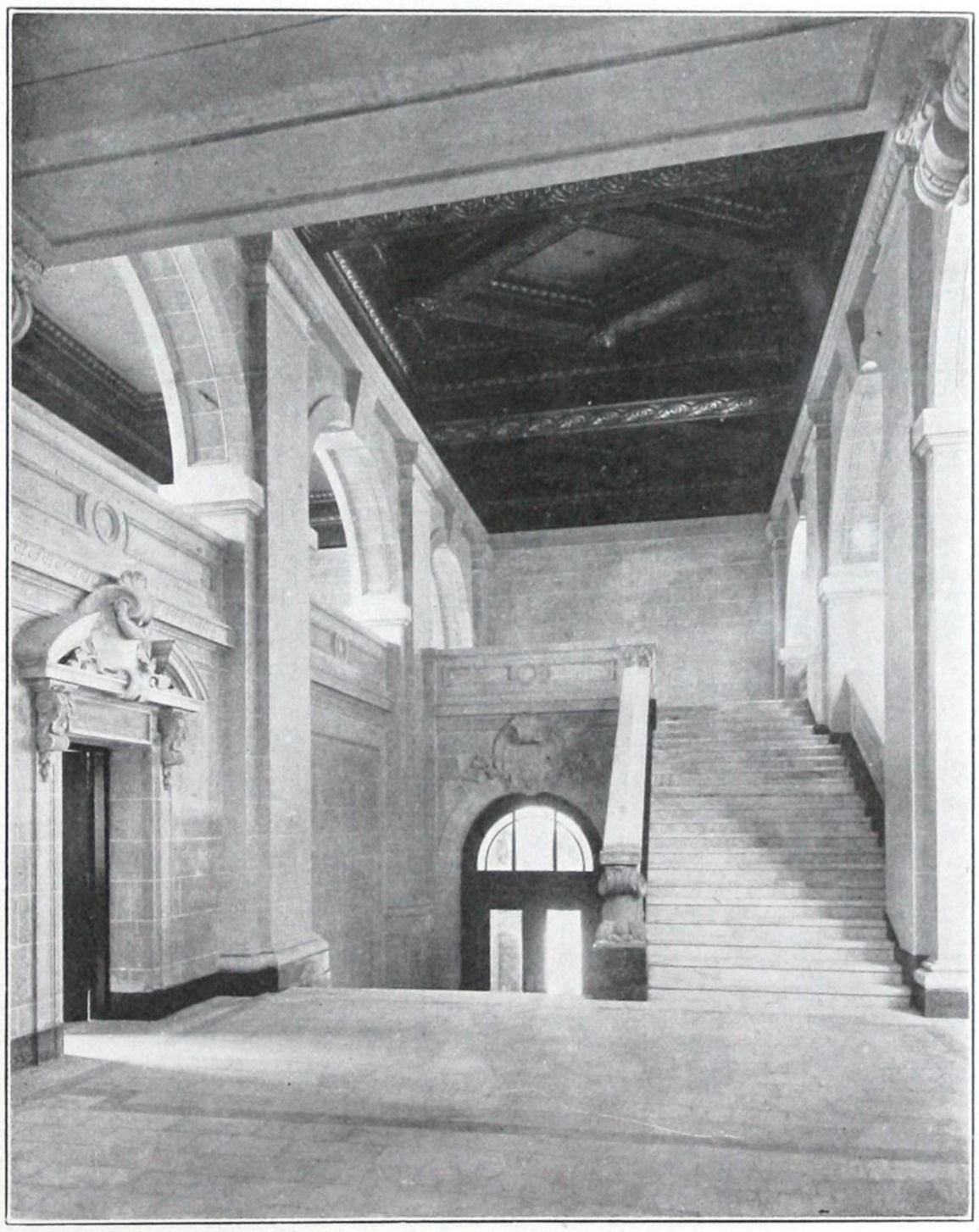
GENERAL. We are equipped to undertake any size contract for PLASTER WORK of any description.

STAFF. Architects who are familiar with Staff invariably specify this material when it is necessary to complete work in as short a time as possible. All moulded Cornices, Beams and Enrichments are cast in the shop and applied in position on the job. The most elaborate work can be carried out in this way, and in two days after completion is sufficiently dry to receive decoration, thus effecting a great saving of time.

CAEN STONE PLASTER. Caen Stone Plaster is coming into use more and more every day. It is the most durable of all plasters, and requires no decoration or tinting. Some of the largest buildings in Canada and the United States have been finished in this material. We are in a position to carry out this work perfectly.

The base coats require special preparation and care, and the finish coat is capable of a variety of treatments, such as tooling, dragging, etc., which can only be done by experienced workmen. (Note the wall treatment and ornament in cut.)

CEMENT EXTERIORS. The old fallacy of our climate being too rigorous for cement exteriors is being slowly but surely exploded. This fact, in view of the phenomenal growth of reinforced construction, opens up another avenue for the progressive architect. This work to be successful, however, must be well studied and in the hands of only first-class men.



NEW PUBLIC LIBRARY, COLLEGE STREET, TORONTO.
Caen Stone and Plaster Work executed by us.

ESTIMATES. We are prepared to submit tenders on all kinds of Plaster Work, and will be glad to advise in regard to the best treatment of any class of work.

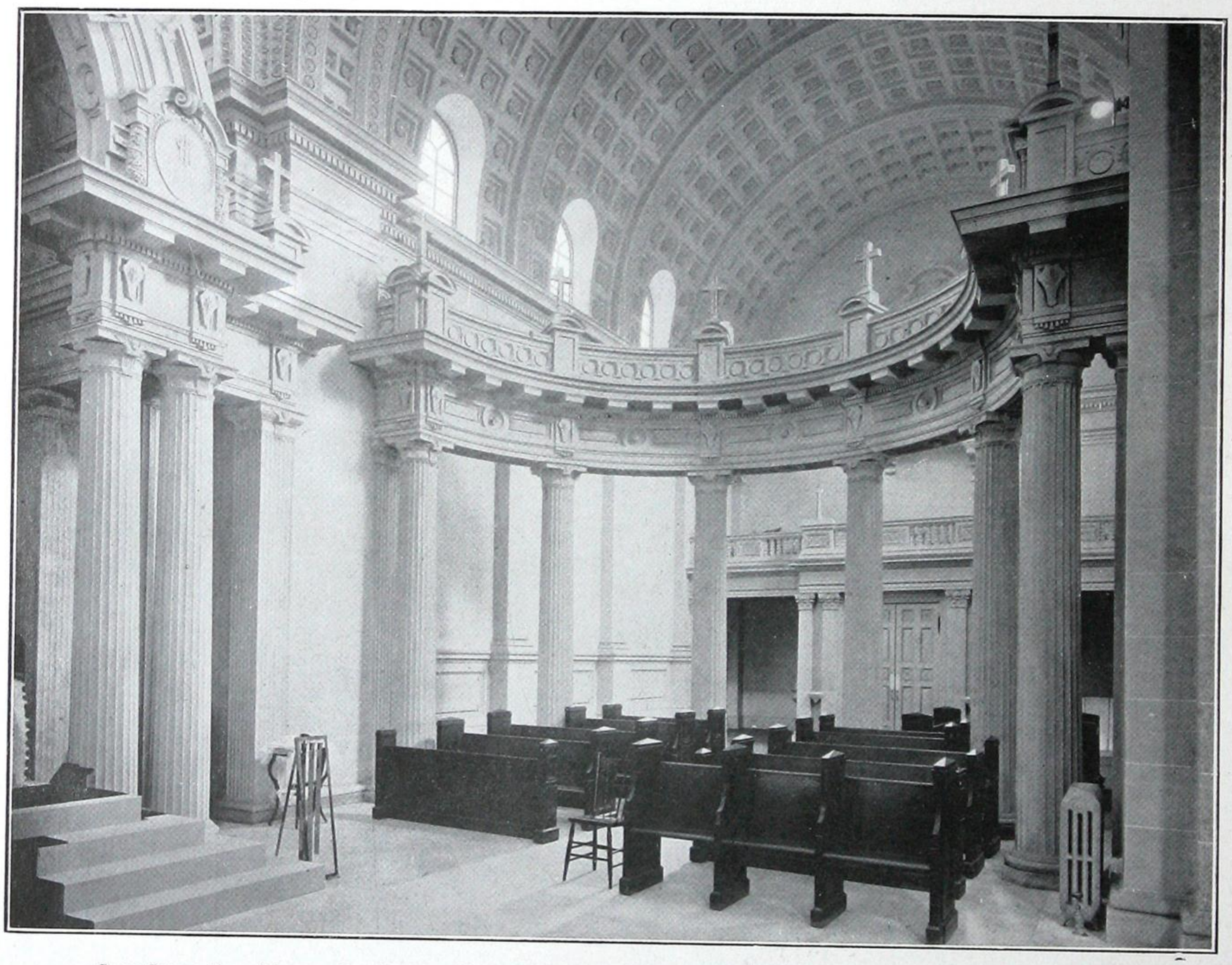
W. J. HYNES, LIMITED

720 DUPONT STREET, TORONTO, ONT.



PRODUCTS. ARCHITECTURAL ORNAMENTS IN STAFF, PLASTER, EXTERIOR COMPO, INTERIOR COMPO, CAEN-STONE CEMENT, KEENES CEMENT, AND PORTLAND CEMENT. INDIRECT AND SEMI-INDIRECT LIGHTING FIXTURES in stock and made to Special Designs. ELECTRIC LIGHT STANDARDS, SCALE MODELS OF BUILDINGS, RELIEF MAPS, etc.

Sketches and estimates furnished. Send for catalogue.



CAEN-STONE CAST WORK.—OUR LADY OF LOURDES CHURCH, SHERBOURNE STREET, TORONTO,—J. P. HYNES, ARCHITECT.

REFERENCES. Below find partial list of buildings for which we have furnished the ornament.

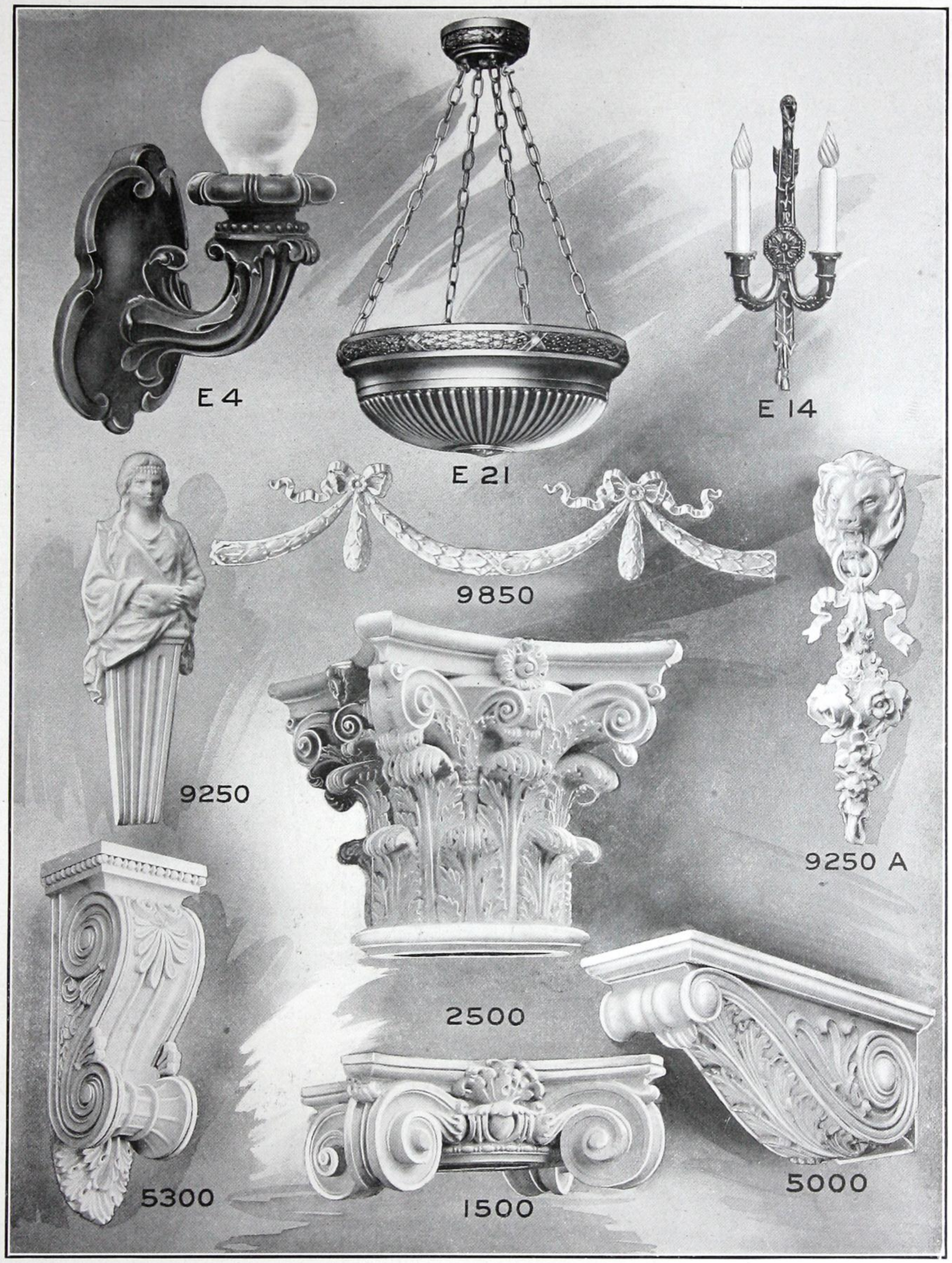
New Griffin Theatre	Hamilton, Ont.	N. G. Beggs, Architect.
Lyric Theatre	Hamilton, Ont.	Leon H. Lempert, Architect.
Kilbourne Theatre	Owen Sound, Ont.	N. G. Beggs, Architect.
New Episcopal Residence	Charlottetown, P.E.I.	
I.O.O.F. Hall, College St.	Toronto, Ont.	Mr. Paul, Architect.
Union Bank	Prince Albert, Sask.	
York Theatre	812 Yonge Street	C. J. Read, Architect.
R.C. Church	La Salette, Ont.	Peter Dedericks, Architect.
New Theatre	Brantford, Ont.	J. K. White, Architect.
Beaver Theatre	Dundas St., West Toronto.	N. G. Beggs, Architect.
Hotel Healy	Calgary, Alta.	
Toronto Stock Exchange	Toronto	J. M. Lyle, Architect.
New Library Building	Owen Sound, Ont.	Forster & Clark, Architects.
Royal Bank	Owen Sound, Ont.	Forster & Clark, Architects.
Ryrie Building	Toronto, Ont.	Burke, Horwood & White, Architects.
Rex Theatre	Fort William, Ont.	Carson & Smithly, Architects
Grain Exchange Building	Fort William, Ont.	Carl Wirth & Smithly, Architects.
Graphic Arts Building	Toronto, Ont.	
Canadian Bk. of Commerce	Winnipeg, Man.	Darling & Pearson, Architects.
Moving Picture Theatre	Dundas and Mavety Sts., Toronto	
Bank of Toronto	Toronto	Carrere & Hastings, Architects.
Empress Theatre	Moncton, N.B.	
Columbus Club Building	Toronto	C. J. Read, Architect.
Garland Theatre	Edmonton, Alta.	Mallory & Thatcher, Architects.
Flanagan Hotel	Saskatoon, Sask.	W. W. LaChance, Architect.
West. Can. Bible Society	College Street, Toronto	Gordon & Helliwell, Architects.
New Opera House	Brockville, Ont.	A. Stuart Allaster, Architect.
Mason & Risch Building	Toronto, Ont.	Bond & Smith, Architects.
Imperial Bank	Ingersoll, Ont.	J. M. Lyle, Architect.

THE PLASTIC RELIEF MFG. CO.

DISTRIBUTORS: WM. N. O'NEIL CO., LIMITED, VANCOUVER, B.C. VICTORIA, B.C.

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PRODUCTS. Architectural Decorations in Plaster, Cement, Composition and Wood.



E 4 Compo Electric Light Fixture.
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9850 Festoon, sizes ranging from 8 in. to 14 in. in width.
2500 Capital, exterior compo or interior plaster. Sizes ranging from 3 in. to 26 in. round or square.
Interior to match any wood. Sizes ranging from 1 in. to 10 in. round or square.
1500 Capital, exterior compo or interior plaster. Sizes ranging from 3 in. to 26 in. round or square.
Interior to match any wood. Sizes ranging from 1 in. to 14 in. round or square.
5300 Bracket, exterior compo or interior plaster. Sizes ranging from 2 in. to 11 in. face width.
Interior to match any wood. Sizes ranging from 2 in. to 4 in. face width.
5000 Bracket, exterior compo or interior plaster. Sizes ranging from 2 in. to 10 in. face width.
Interior to match any wood. Sizes ranging from 1 in. to 6 in. face width.

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EXPANDED METAL LATH.

Furnished in 26, 24 and 23 gauge, painted, 18½ in. wide.

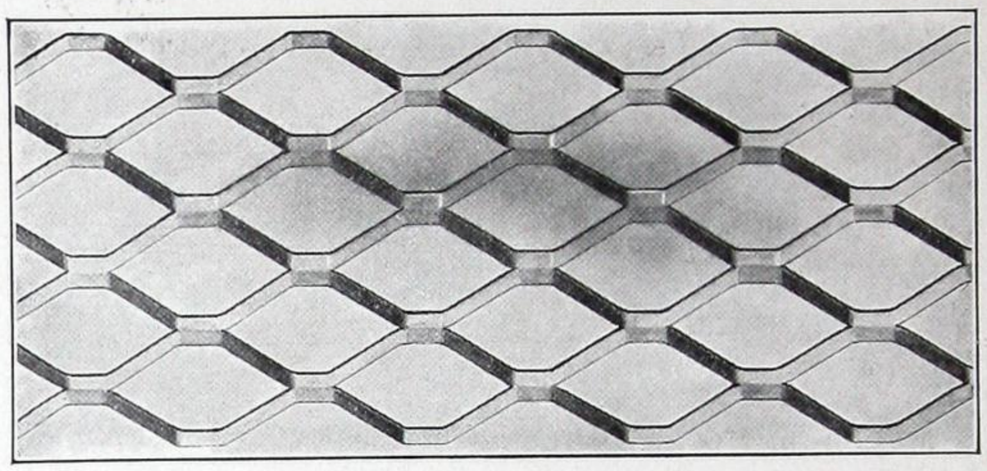
Furnished in 24 and 23 gauge, galvanized, 18½ in. wide.

Furnished in 26 and 24 gauge, painted, 24 in. wide.

Furnished in 24 gauge, galvanized, 24 in. wide.

The actual length of sheet, 97 in.; length charged for, 96 in.

Pedlar's "Perfect" Expanded Metal Lath has a neat, small mesh, the narrow strands of which furnish a superior bonding surface by allowing the mortar to completely embed the lath on both sides, the clinch bonding on the back. This lath has been used on nearly all the large and prominent buildings erected in Canada in the past five years.

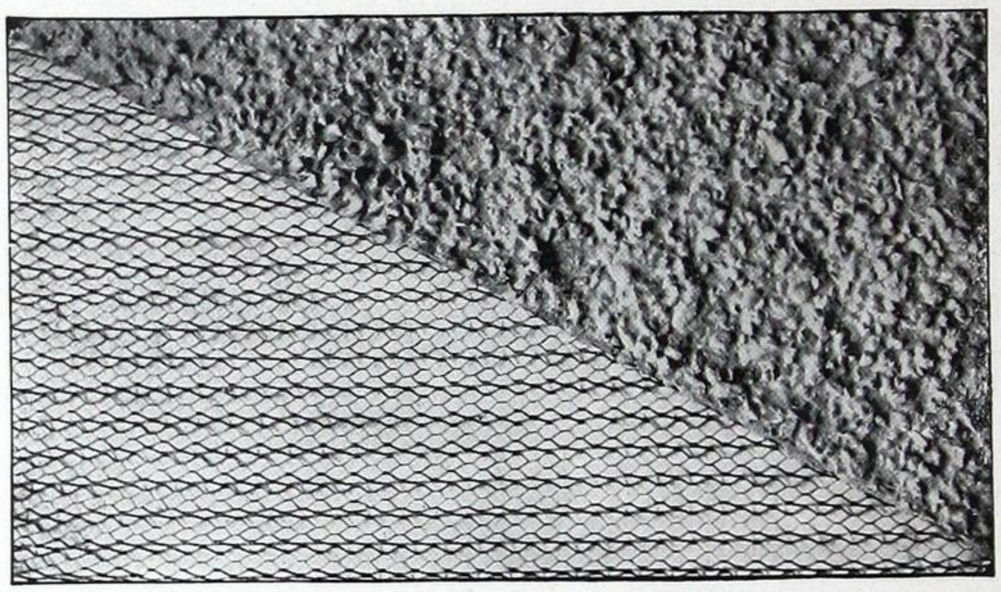


"PERFECT" EXPANDED METAL LATH.

TRUSS FABRIC (FOR STUCCO WORK).

Pedlar's "Perfect" Truss Fabric is the "Perfect" Metal Lath corrugated after being expanded. By corrugating the lath, an absolute key is secured behind the face of the fabric, and the slab becomes reinforced, rendering cracking and disintegration impossible; an incomparable medium for the renovation and reconstruction of old houses.

Standard sizes of sheets, 17 in. x 96 in.: furnished either painted or galvanized; applied with metal lath staples or our special flat-headed nails. Full directions for stucco work on application.



TRUSS FABRIC.

WALL TIES.

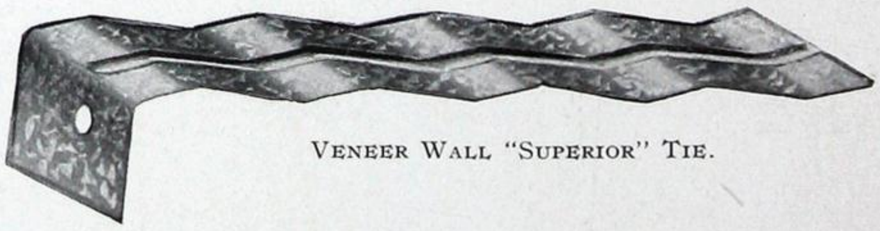
The "Superior" Corrugated Wall Tie, for either solid or veneer brick walls, is 1 in. wide, 8 in. long (solid style), 4½ in. (veneer style), galvanized only. A very strong, rigid tie.

The "Universal" Wall Tie is 1 in. wide, 8 in. long, and made of very heavy gauge, and furnished either painted or galvanized.

The "Perfect" Wall Tie is 2½ in. wide, 8 in. long, and made from Expanded Metal lath, furnished either painted or galvanized.



SOLID WALL "SUPERIOR" TIE.



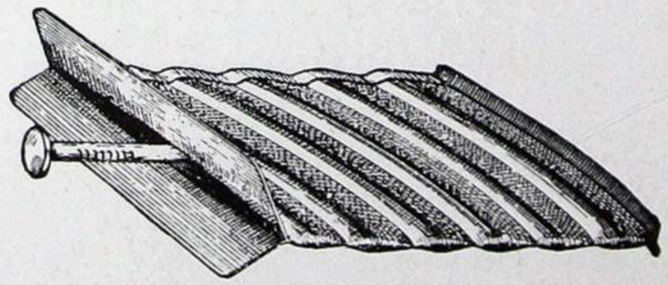
VENEER WALL "SUPERIOR" TIE.



SOLID WALL "UNIVERSAL" TIE.

WALL PLUGS.

The "Perfect" Wall Plug, furnished either painted or galvanized, makes an ideal nailing base for interior finish in brick and concrete construction. They are used in all modern and fire-proof buildings, and have displaced wooden plugs and similar methods entirely.

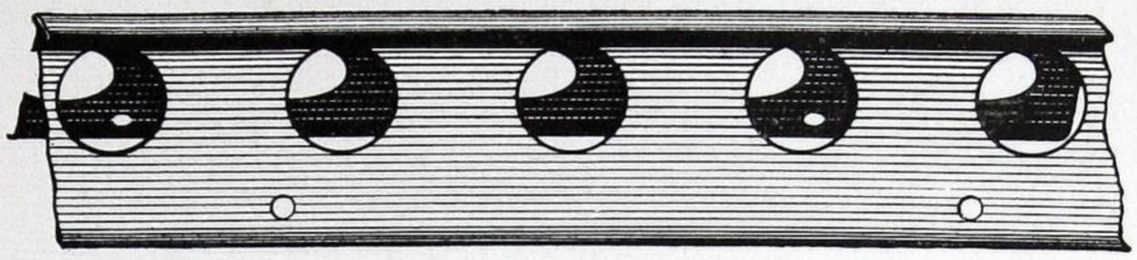


"PERFECT" WALL PLUG.

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METAL CORNER BEADS.

We have the largest production in the world and make all the various modern styles of Corner Beads. The slight cost of Corner Beads and the perfect results secured make them indispensable in connection with all public buildings, large or small. Used on Canada's biggest and best buildings.



"PERFECT" CORNER BEAD.

Pedlar's "Perfect" Corner Beads are furnished galvanized in lengths 4, 5, 6, 7, 8, 9 and 10 ft., and can be easily notched with tinner's snips and curved to fit any arch.

Our "Universal" Bead is galvanized and in 6, 8 and 10 ft. lengths.

Our "National" Solid Rail Corner Bead is galvanized and furnished in 6, 7, 8, 9 and 10 ft. lengths.

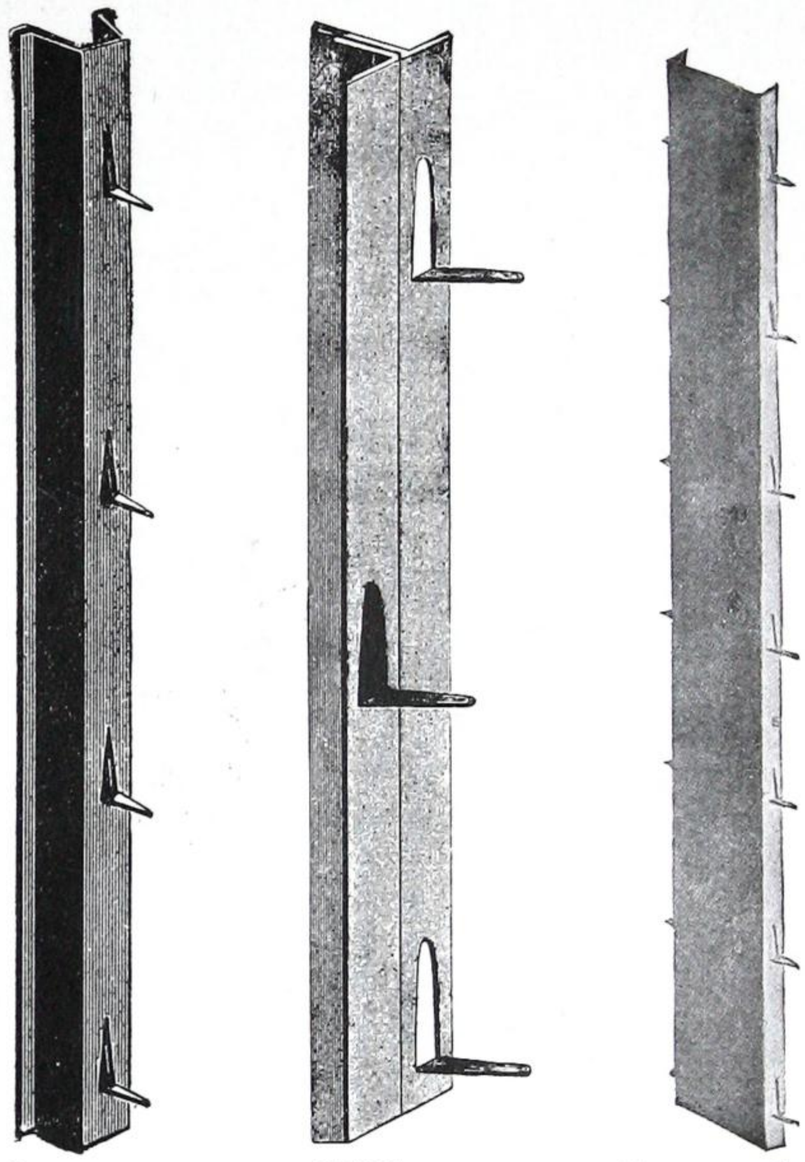
STEEL STUDS AND FURRING.

We make Sheet Metal "T" Studs and Channel Studs and Furring, and furnish same either painted or galvanized. These are made regularly of No. 18 gauge high carbon steel. The studs and furring have prongs pressed out of the metal, to which may be applied metal lath and requiring no other fasteners. Make solid fire-proof walls at low cost.

Pipes and wire may be run between the walls where channel studs are used. "T" studs make a solid wall. Furring is for any style of wall or ceiling.

Furnished in any length up to 10 ft. Approved for use everywhere.

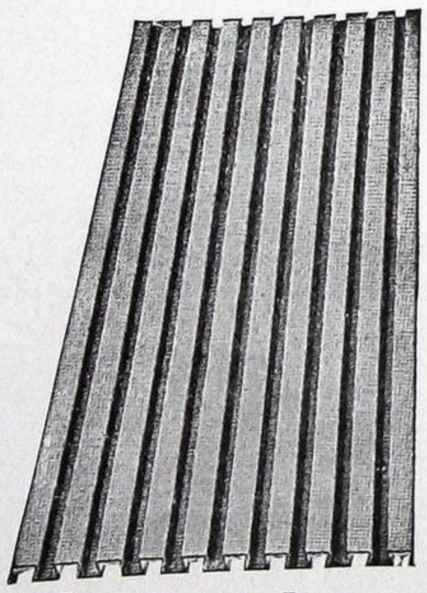
Top and bottom sockets supplied.



FURRING. "T" STUD. CHANNEL STUD.

FERRO-DOVETAIL PLATES.

These make an ideal roof for permanent buildings, where absolute protection and no expense for up-keep is desired. Furnished painted or galvanized, in any gauge. Makes a very strong, self-centering floor.



FERRO-DOVETAIL PLATE.

TABLE OF SAFE LOADS FOR FERRO-DOVETAIL PLATES.

(Factor of Safety of 4.) Straight Sheets, 24 gauge. Depth of Corrugations, ½ inch.

Depth of Concrete above Corrugation	Dead Load per Sq. Foot	Live Load per Square Foot							
		Span 3′	4′	5′	6′	7′	8′	9′	10′
½ inch	16 lbs.	84	52	32	16	...	...	...	...
1 "	24 "	206	110	61	35	16	7	...	...
1½ "	30 "	355	191	110	66	39	22	10	...
2 "	36 "	584	296	252	129	88	58	34	21
2½ "	42 "	830	461	277	197	128	83	58	38
3 "	48 "	1174	634	422	274	152	112	72	52
3½ "	54 "	1506	726	506	343	228	157	113	81
4 "	60 "	1658	880	549	359	244	176	124	91
4½ "	66 "	1758	944	584	385	263	186	126	103
5 "	72 "	1868	1066	646	446	288	220	149	109

CLARENCE W. NOBLE

117 Home Life Building,

TORONTO, ONT.

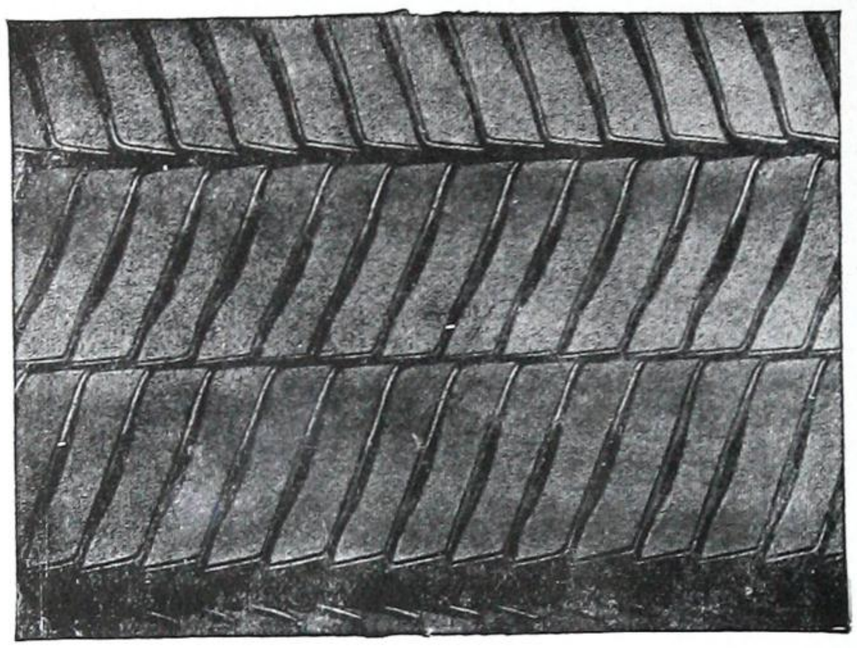
417 New Birks Building,
Montreal.

905 Electric Railway Chambers
Winnipeg.

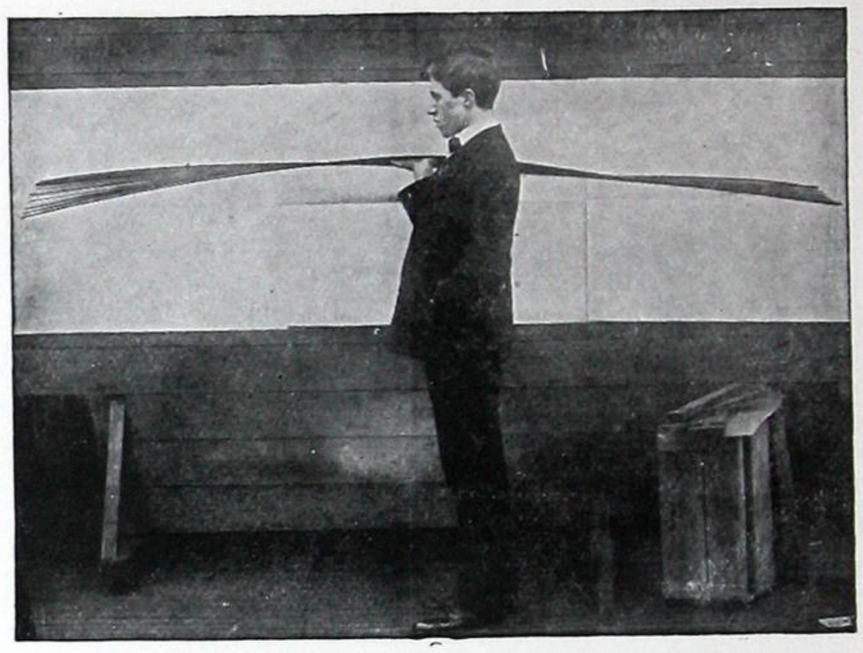
General Sales Agent:
HERRINGBONE METAL LATH.

LOCAL SALES AGENTS:

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EDMONTON	W. B. Poucher.
FORT WILLIAM	Twin City Sand Co.
HAMILTON	W. A. Freeman Co.
HALIFAX	F. A. Gillis & Co.
LETHBRIDGE	Western Supply & Equipment Co.
MONTREAL	C. W. Noble, New Birks Building.
MOOSE JAW	Saskatchewan Glass & Supply Co
NORTH BATTLEFORD	Cookson Brothers.
NORTH BAY	John Bourke & Son.
OTTAWA	Ottawa Fireproof Supply Co.
PORT ARTHUR	Twin City Sand Co.
PRINCE ALBERT	Manville Hardware Co.
QUEBEC	A. D. Masson.
REGINA	H. S. Abbott Supply Co.
SASKATOON	MacKenzie & Thayer.
SWIFT CURRENT	The Beaver Lumber Co.
SAULT STE. MARIE	T. H. McGillivray.
SARNIA	Sarnia Builders' Supply Co.
TORONTO	C. W. Noble
VANCOUVER	Wm. N. O'Neil & Co.
VICTORIA	Wm. N. O'Neil & Co.
WINNIPEG	W. T. Grose.



The Cause—Herringbone Ribs.



The Effect—Superior Stiffness.

DISTINGUISHING FEATURES. The selvage edge, the stiffening ribs, the increased length, the twisted filament, the superior coating—each one of these features afford advantages not found in any other type of metal lath.

THE SELVAGE EDGE. A device to secure a perfect connection between adjacent sheets without lapping. It enables the sheets to spread over their entire area, thus covering with a given amount of lath, about ten per cent. more surface than when ordinary metal lath is used. The selvage edges rest so closely together that there is no danger of plaster working between them and spreading them apart. Wiring the edges of the sheets together, a device which is used with ordinary metal lath to prevent bulging, is thus entirely unnecessary with Herringbone. These selvages are always perfectly true and parallel. They cannot be manufactured otherwise. The inconvenience and waste resulting from irregularly shaped sheets is thus entirely avoided.



Large Lap Required.
Excessive Waste.

THE RIBS. These give Herringbone Lath its superior stiffness. Twenty-seven gauge Herringbone Lath for walls, on wood studs sixteen inches apart, or twenty-four gauge on ceiling joists, sixteen inches apart, will be found entirely satisfactory. With ordinary metal lath the maximum span is twelve inches. In order to attain the maximum economy from the use of Herringbone Lath, the carpenter specification should, therefore, be written with this lath in view.

These ribs also act as miniature brackets to sustain the wet clinch of the mortar before it has set up. A mortar which is too wet, or insufficiently haired, will thus make a good job with Herringbone Lath, while a good mortar will make a perfect job. Mortar which drops off the back of the lath does not form the key. It is only the mortar that sticks that is effective. In this respect Herringbone Lath, the only ribbed lath, is in a class by itself.

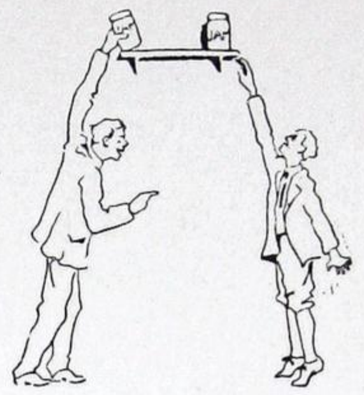


Contractors who have worked with baggy metal lath realize that it is an unprofitable job. To be constantly filling up hollows with mortar only to have these hollows change to bumps when the trowel is applied on the other side of the stud is most discouraging. Men who have had this experience, appreciate Herringbone stiffness. Architects who appreciate plaster of uniform thickness will use Herringbone.

CONTINUED ON NEXT PAGE

THE INCREASED LENGTH.

Most metal lath is delivered in sheets eight feet long. Herringbone sheets are eight feet one and one-half inches long. There is thus a lap of one and one-half inches on the end stud and one row of nails will fasten the ends of both sheets. Rough carpenter work is all that the name implies. If the end stud is out one inch the end joining line with ordinary lath sheets will fall off the stud entirely. As the ends of both sheets must be rigidly attached, it is necessary to lap over a foot to the next stud. If Herringbone Lath is used, the end stud may be two and one-half inches out of place before this waste becomes necessary.



EXTRA LENGTH HAS ADVANTAGES.

THE TWISTED FILAMENT.

The filaments between the ribs run in a direction closely parallel to the stroke of the plasterer's trowel. As the trowel passes upward, the edge of the filament is first presented, and plaster is permitted to pass through to form a clinch. This action is checked almost immediately by the twist in the filament, which then presents its flat side to the trowel, and is cut off entirely by the next rib, which, acting as a baffle, throws the excess plaster back on the trowel. The heaviest clinch is thus deposited at the bottom of the filament and rests directly on the rib below. The support of the wet mortar in this manner is the reason for the superior Herringbone clinch. No other brand of metal lath has this feature.

HERRINGBONE COATING.

The corrosion of unprotected metal lath in hard wall plaster has been found to be the result of electrolysis. Plaster of Paris, the basis of the patent plasters, generates slight electric currents while the molecules are re-arranging themselves during the process of hardening. It is these currents that do the mischief. The correct protection for metal lath, therefore, is not a paint, but an electrical insulator. Our cold japanned coating fills this requirement. It is an asphaltum varnish with a chemical drier. It is a perfect non-conductor of electricity. As it contains no linseed or other vegetable oil, it is not subject to decay, nor is it attacked by acids in the plaster.

SHERARDIZED LATH.

For particular people, those who object to any coating which may become chipped off, we offer Sherardized Herringbone Metal Lath. Sherardizing is the latest improvement in galvanizing. The zinc reaches the steel in the form of vapour and deposits first as a zinc iron alloy. Above this alloy, the pure zinc is deposited. A given amount of zinc in this process has been shown by the acid test to be fifteen times more efficient than in the hot galvanizing process. Any Herringbone agent will make the test for you.

The subject of the protection of metal lath is so interesting that a booklet has been written about it. Ask for "Things Worth Knowing."

PACKING.

Herringbone sheets are twenty and three-eighths inches wide by eight feet and one-half inches long. They are billed as one and a half square yards each, although they are slightly more than that. They are bundled twenty sheets, or thirty yards to the bundle.

Herringbone Lath is only cut in twenty-four and twenty-seven gauges.

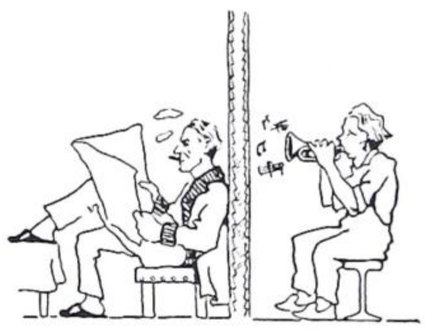
PRICE.

It costs to make Herringbone quality, and we charge you a cent or so per yard more than you would pay for the ordinary kind. Your saving, though, is several times the increased first cost of the lath. You have no waste of lath in side or end lap. No waste of labour in stretching the lath flat, nor wiring of the selvages, and no waste of plaster from dropping off the back or filling up the hollows.

Architects who appreciate a supported clinch and plaster of uniform thickness, may, therefore, feel assured that by specifying Herringbone Lath they secure these advantages, without increasing the cost of their building.

PARTITIONS.

The essential features of a partition in a modern building are, minimum weight combined with maximum stiffness, soundproofness, and its fire-retarding qualities. There are two general classes of partitions: those composed of burnt tile, plaster blocks and similar materials, and those made of cement plaster on a framework of metal lath and metal studs, or metal lath on wood studs.



A tile partition weighs about twenty-four pounds per square foot, and when plastered about thirty-eight. On the other hand, a metal lath and stud partition weighs, plaster included, eighteen pounds per square foot, thus effecting a saving of twenty pounds per square foot. For designing the steel frame, the partition is considered as uniformly distributed load over the entire floor; the twenty pounds would thus represent a saving of about twelve per cent. in the weight of frame required, and therefore a similar saving in the cost. The soundproofness of the lath and stud partition is entirely satisfactory whether constructed solid, *i.e.*, plastered on both sides of single layer of lath to a thickness of two inches; or hollow, this latter style having lath on both sides of a one-inch or two-inch metal stud, and having the advantage of affording space for piping and conduits.

The above advantages are enough to make the lighter partition preferable, but a still more important feature remains, *i.e.*, the fire-retarding qualities. When a fire occurs in a room, its danger and destructiveness is merely local so long as the partition remains intact, but once that gives away, the resulting current of air spreads the fire with great rapidity. In the ordinary fire, temperatures as high as 1900° F. occur. The expansion of a tile partition on the heated side, at this temperature, is so great that either one of two things must occur, the tile must crush and break off, leaving holes, or the partition must bulge out and fall entirely. In either case it has no salvage value. On the other hand, the lath and stud partition bulges but does not break, a small amount of plaster calcines and washes down and the repairing is only a matter of a few dollars.

The advantage of a two-inch partition over a six-inch one as a space saver, and, therefore, an increaser of rental values, is self-evident.

Why not use the lightest, cheapest and most fireproof partition and at the same time increase your revenue?

MANITOBA GYPSUM CO., LIMITED

MANUFACTURERS OF

HARDWALL PLASTERS AND OTHER GYPSUM PRODUCTS.

GENERAL OFFICE, SALES OFFICE AND MILL:

WINNIPEG, MAN.

QUARRIES: GYPSUMVILLE, MAN.

PRODUCTS. "EMPIRE" BRANDS OF WOOD FIBRE PLASTER, CEMENT PLASTER, PREPARED TROWEL FINISH—no lime required, PREPARED FLOAT FINISH—no lime required, "TROWEL" BRAND PLASTER OF PARIS, "GOLD DUST" BRAND COMMON FINISH, "GYPSEMENT" BRAND PREPARED HARDWALL PLASTER—no sand required, "GYPSTONE" BRAND PREPARED ROUGHCAST—for outside work, PLASTER BOARD—the fireproof lath.

SUPERIORITY OF GYPSUM PRODUCTS. Wall Plaster, manufactured from Gypsum has almost entirely taken the place of all other wall plaster.

Gypsum Plasters are fireproof and practically indestructible.

Gypsum Plasters are easily worked and have good setting and maturing qualities, thus enabling the plasterer to cover more space in a given time than with any other plastering material.

TESTS. All our products are thoroughly tested and are guaranteed to give good results, provided material is used in accordance with our specifications.

EXPERTS. We have a reliable staff of plaster experts, and their services and advice are at the disposal of all those who require reliable plaster information.

ARCHITECTS' SPECIFICATIONS FOR THE USE OF WOOD FIBRE, CEMENT WALL PLASTER, "EMPIRE" BRANDS AND GYPSEMENT.

GROUNDS:—

For Wood Lath: to be $\frac{5}{8}$ in. to $\frac{3}{4}$ in.—preferably $\frac{3}{4}$ in.

For Brick or Tile: to be $\frac{1}{2}$ in.

For Wire Lath or Expanded Metal: to be $\frac{3}{8}$ in. to $\frac{1}{2}$ in. over face of lath.

For Plaster Board: to be $\frac{1}{4}$ in. to $\frac{3}{8}$ in.

WOOD LATH:—

To be No. 1 White Pine or Spruce, free from knots, sap or bark. To be spaced $\frac{1}{4}$ in. apart and well nailed. If lath are dry, they should be liberally sprinkled with water three or four hours before the plaster is applied, so as to allow lath to swell and thus avoid buckling. Green or half green lath are preferable.

PLASTER:—

To be manufactured by the Manitoba Gypsum Co., Ltd., and to be mixed and applied according to their printed instructions.

SAND:—

"Empire" Wood Fibre Plaster can either be used neat or it can be mixed with clean, sharp sand in the proportion of one to one where used on plaster board, wood or metal lath; where used on brick or tile walls, two parts of clean, sharp sand can be added to one of wood fibre.

"Empire" Cement Wall Plaster, where used on plaster board, wood or metal lath, should be used in the proportion of one part plaster to two parts clean, sharp sand. Where used on brick or tile walls, three parts of clean, sharp sand can be added to one of cement wall plaster.

GYPSEMENT WALL PLASTER. Should be used neat—sand must not be added.

GYPSTONE. The plaster for outside roughcast effects.

Gypstone is waterproof and is supplied either natural or coloured.

PLASTER BOARD. The combination lath of felt and plaster. It takes the place of wood lath and economises time in construction. It is a sound deadener and is practically fireproof. Plaster Board requires a brown coat and a finish coat of plaster.

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"EMPIRE" KEENES CEMENT.

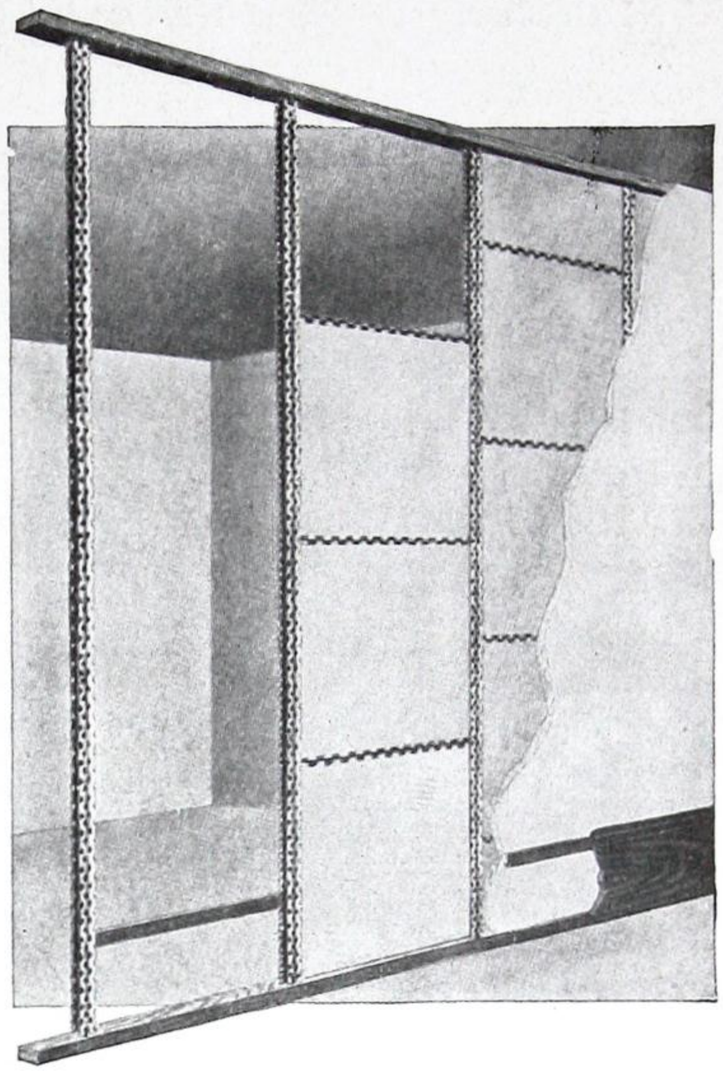
The "Empire" Keenes Cement is fast replacing the imported Keenes where high-class material is wanted for Base, Mouldings, Wainscoting, Castings, or where any work requires hardness, which can only be obtained by the use of high-grade Keenes Cements.

Write for Specifications.

"EMPIRE" ARTIFICIAL CAENSTONE CEMENT.

The natural decorative possibilities are unequal, but owing to its high cost, also the high cost of the different Foreign Artificial Caenstone, we have perfected the "Empire" Caenstone so that it is equal to any imported, and pronounced by some to be more uniform and superior to the imported article. Works smooth, and has no equal as a finish for Lobbies, Columns, Walls, Walls in Vestibules, Church Arches, Halls, Theatres, or any surface where an artistic effect, durability and hardness combined are desired.

Write for Specification Booklet.



"NATIONAL" STEEL STUDDING.

ADVANTAGES.

We have carried out a number of experiments with the "National" Steel Studding, and as a result of our belief in its possibilities we have purchased the patent rights for the Dominion of Canada.

"National" Steel Stud is cheap and simple to erect; it is light in weight and a great saver of floor space; and it ensures greater strength and durability.

The "National" is the only steel studding manufactured on which plaster board or wire lath can be used. It is manufactured for either hollow or solid plaster board walls.

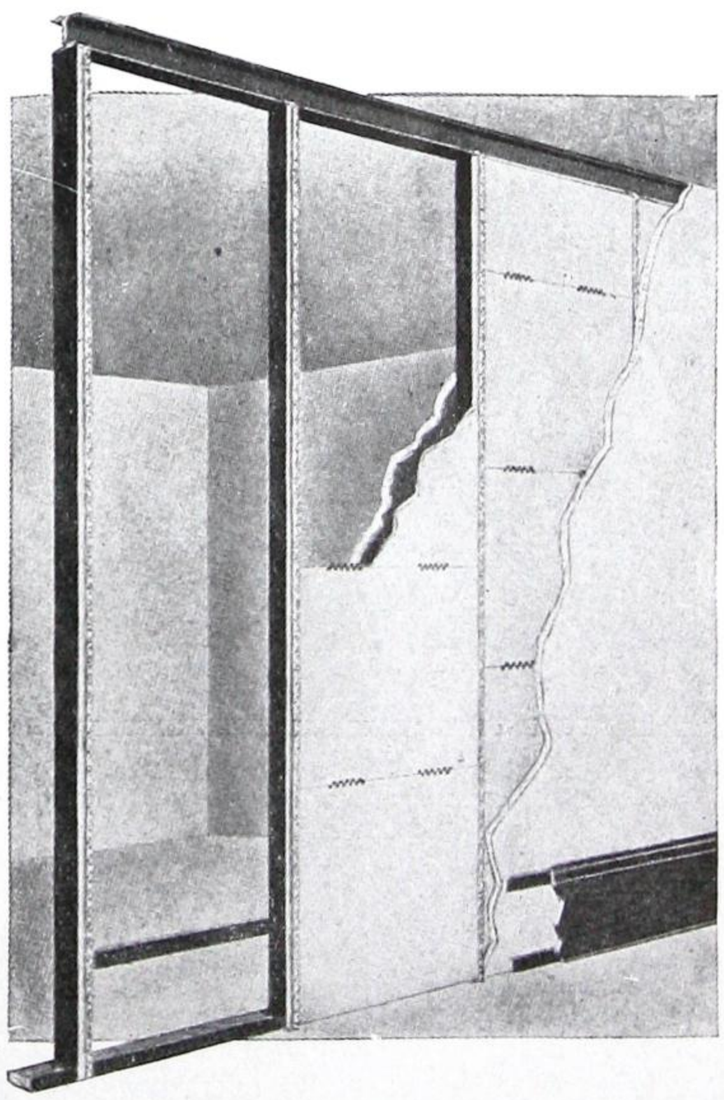
METHOD OF USING.

The studs are placed 32 inches on centre and held in place by means of top and bottom stringers, to which the stud is securely locked. The sections of plaster board are then braced together with clips, spaced $7\frac{1}{2}$ inches apart, thereby making a reinforced plaster wall. This form of construction is not only the most durable for partitions, but it is also the cheapest, lightest and simplest to erect. A partition of "National" Steel Stud and Plaster Board, plastered with either "Empire" Cement Plaster or "Empire" Wood Fibre Plaster is practically a reinforced slab.

ADAPTED TO ALL FIREPROOF PARTITION CONSTRUCTION.

"National" Steel Studding being securely fastened every 6 inches or 8 inches to the door bucks and wood framing at all openings—cracks, which are so conspicuous in other forms of partition construction, are practically eliminated.

"National" Steel Stud is adapted to all forms of fireproof partition construction—from a solid partition finishing, $1\frac{3}{4}$ inches, to a hollow partition finishing, 7 inches, with air space $5\frac{3}{4}$ inches. With the hollow form air spaces of from $\frac{7}{8}$ inches to $5\frac{3}{4}$ inches can be obtained, thus affording an opportunity to conceal all wires and pipes.



SPECIFICATION FOR HOLLOW PARTITIONS.

Studs to be spaced 32 inches on centre and fastened at floor and ceiling with clips furnished by the manufacturer for the various types of construction, such as wood, tile or concrete. The Plaster Board is then to be attached to the studs by means of nails spaced 4 inches apart in the Style "B" stud. The nails engage the edge of the Plaster Board and hold same securely in place. The sections of boards are then braced by means of double cross clips which are spaced $7\frac{1}{2}$ inches apart. Plaster with "Empire" Wood Fibre Plaster or "Empire" Cement Plaster, using sufficient mortar to cover the lip of the studding one-quarter inch before applying finish coat.

SPECIFICATION FOR SOLID PARTITIONS.

Studs to be spaced 32 inches on centres and fastened to the flooring and ceiling. The Plaster Board is first inserted in the deep slot in stud and then brought back to the shallow slot in opposite stud, thereby engaging both edges of the Plaster Boards in studs. The horizontal edges of the Plaster Board are then engaged by means of cross braces extending from stud to stud and constructed to allow $\frac{1}{2}$ inch space between Plaster Board edges, thereby insuring perfect key for mortar. Plaster both sides with "Empire" Wood Fibre Plaster or "Empire" Cement Plaster applied according to directions furnished by the Manitoba Gypsum Company, Limited, using sufficient mortar to fully cover the face of upright studding at least $\frac{1}{4}$ inch before applying finish coat.

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"EMPIRE" FIREPROOF TILE.

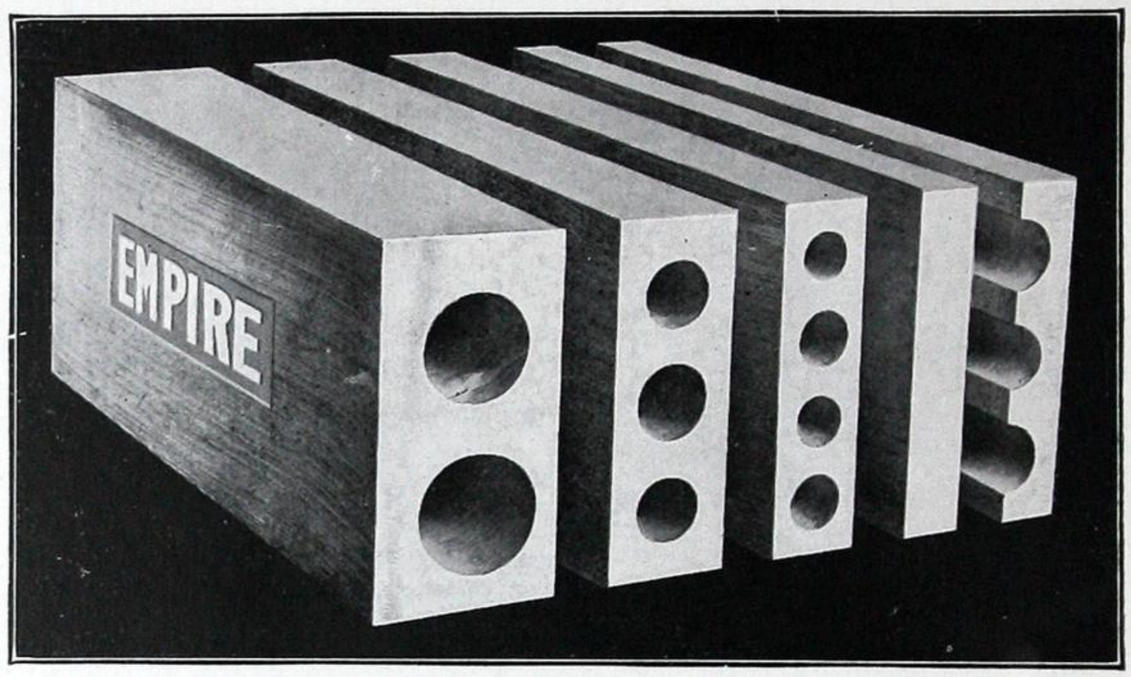
ADAPTABILITY. "EMPIRE" Fireproof Tile is a fireproof material composed of pure Manitoba Gypsum Hydrated Plaster, bonded with fibre and made into block form. It is used for fireproofing of structural steel, for wall furring, block tile, insulation from heat and cold, and for sound deadening.

A NON-CONDUCTOR OF HEAT. Pure Gypsum is one of the best non-conductors of heat known; further, pure gypsum has a co-efficient of expansion under heat of practically zero. The "EMPIRE" Fireproofing Tile being made of pure gypsum is, therefore, a non-conductor of heat and not subject to expansion under its action.

DOES NOT EXPAND. "EMPIRE" Tile does not expand under the action of heat, and is, therefore, stable when subject to fire. The action of the "EMPIRE" Fireproof Tile when subject to high temperature is similar to that of concrete. Quoting the report of Professor Norton, of the Massachusetts Institute of Technology: "When brick or terra cotta is heated, no chemical action occurs, but when concrete is carried to about 1,000 degrees Fahrenheit its surface becomes decomposed, dehydration occurs and water is driven off. This process takes a relatively great amount of heat—it requires about as much heat to drive the water out of the outer inch of concrete as it does to raise the next $\frac{1}{4}$ inch to 1,000 degrees Fahrenheit. Now, a second action begins; after dehydration, the concrete is much improved as a non-conductor, and yet, through this layer of non-conducting material must pass all the heat to dehydrate and raise the temperature of the layers below; a process that cannot proceed with great speed."

EASILY REPAIRED. A partition of "EMPIRE" Fireproof Tile subjected to fire would only require a light coat of plaster to place it in perfect condition.

NON-CONDUCTIVITY. The importance of non-conductivity in fireproofing may be realized when it is considered that a temperature of 800 degrees Fahrenheit weakens steel 10 per cent., and an increase in temperature to 1,700 degrees Fahrenheit weakens it 50 per cent.



RECORD OF TEST. At Cornell University in 1892, two chambers were formed, one being floored with a slab of plaster material, and the other with fireclay or terra cotta; a coke fire was maintained under them, and after three hours the heat in the upper chamber, formed of plaster material, was only 184 degrees, while in the adjoining chamber, floored with fire clay, it was 600 degrees. After five hours the temperature was 384 and 1,500 degrees respectively.

FIRE RETARDENT. In Europe, where Gypsum and Gypsum Tile are used to a considerable extent in fireproofing, it is a matter of record that fires are usually confined to the building, and often to the room in which they originated. European fire equipment is not to be compared for efficiency with our fire-fighting equipment, yet, notwithstanding this fact, our fire loss is $2.35, whereas in Europe it will not average 34c. per capita.

ADVANTAGES. Fireproof Tile being light in weight, a saving can be effected in foundations, and in the weight and cost of structural steel.

Fireproof Tile lays up smoothly and even. All the tile being of uniform size and light in weight, a greater number can be handled by the labourer, and a mason can lay more square feet in a given time than can be done with other material. As less plaster is required, the plasterer can cover more surface, making a saving in weight, cost, labour, and material.

LOW IN COST, HIGH IN QUALITY. "EMPIRE" Fireproof Tile is light in weight, low in cost, high in quality, fireproof, sound proof, an insulator, and quickly erected.

"EMPIRE" Fireproof Tile is an insulator of sound.

"EMPIRE" Fireproof Tile is absolutely straight and can be laid perfectly true and to a line.

"EMPIRE" Fireproof Tile is made from 2 to 6 inches in thickness.

SIZES AND WEIGHTS. Standard sizes and weights of "EMPIRE" Fireproof Tile:

2 inches x 12 inches x 30 inches weighs $9\frac{1}{4}$ lbs. per square foot, solid.
2 inches x 12 inches x 30 inches weighs $6\frac{1}{4}$ lbs. per square foot, furring.
3 inches x 12 inches x 30 inches weighs $9\frac{1}{4}$ lbs. per square foot, hollow.
4 inches x 12 inches x 30 inches weighs $12\frac{1}{4}$ lbs. per square foot, hollow.
5 inches x 12 inches x 30 inches weighs 15 lbs. per square foot, hollow.
6 inches x 12 inches x 30 inches weighs $16\frac{1}{2}$ lbs. per square foot, hollow.

SPECIFICATIONS. The partitions shall be started on the fireproofing floors, which shall be properly levelled to receive same before the laying of partitions is begun.

All walls and partitions laid up of fireproof tile must be tightly wedged against the underside of the fireproof floors above.

The carpenter contractor shall set the rough bucks for openings ahead of the contractor for the fireproof tiling. The bucks shall be left plumb and true by the carpenter and shall be made of . . . . . , the face abutting the partition tile to be 1 inch wider than the thickness of the tile, each tier of the blocks to be nailed at top with 10d. nails to plain bucks, or the buck to be rabbeted in $\frac{3}{4}$ inch and the exact thickness of the tile to receive the same.

Furr all outside walls where shown on plans with "EMPIRE" Fireproof Tile, laid up against the wall and securely anchored to brick walls by anchor nails.

All tile to be laid up in mortar made of one part of "EMPIRE" Cement Plaster and two parts of good sharp sand, thoroughly mixed, breaking joints and banding corners, all perfectly true and plumb. Grounds shall be $\frac{1}{2}$ inch.

PLASTERING.

The base coat shall be made of one (1) part of "EMPIRE" Cement Plaster and two (2) parts clean sharp sand, mixed and used according to the manufacturer's directions, to be filled out to grounds, soaked and darbied to a straight and even surface.

Finish with "EMPIRE" finish, white coat or float finish, to be applied according to manufacturer's directions.

THE CANADIAN STEEL STUDDING & MANUFACTURING CO., LTD.

HEAD OFFICE: 327 WINCH BUILDING.

FACTORY: 136-138 LORNE STREET WEST,

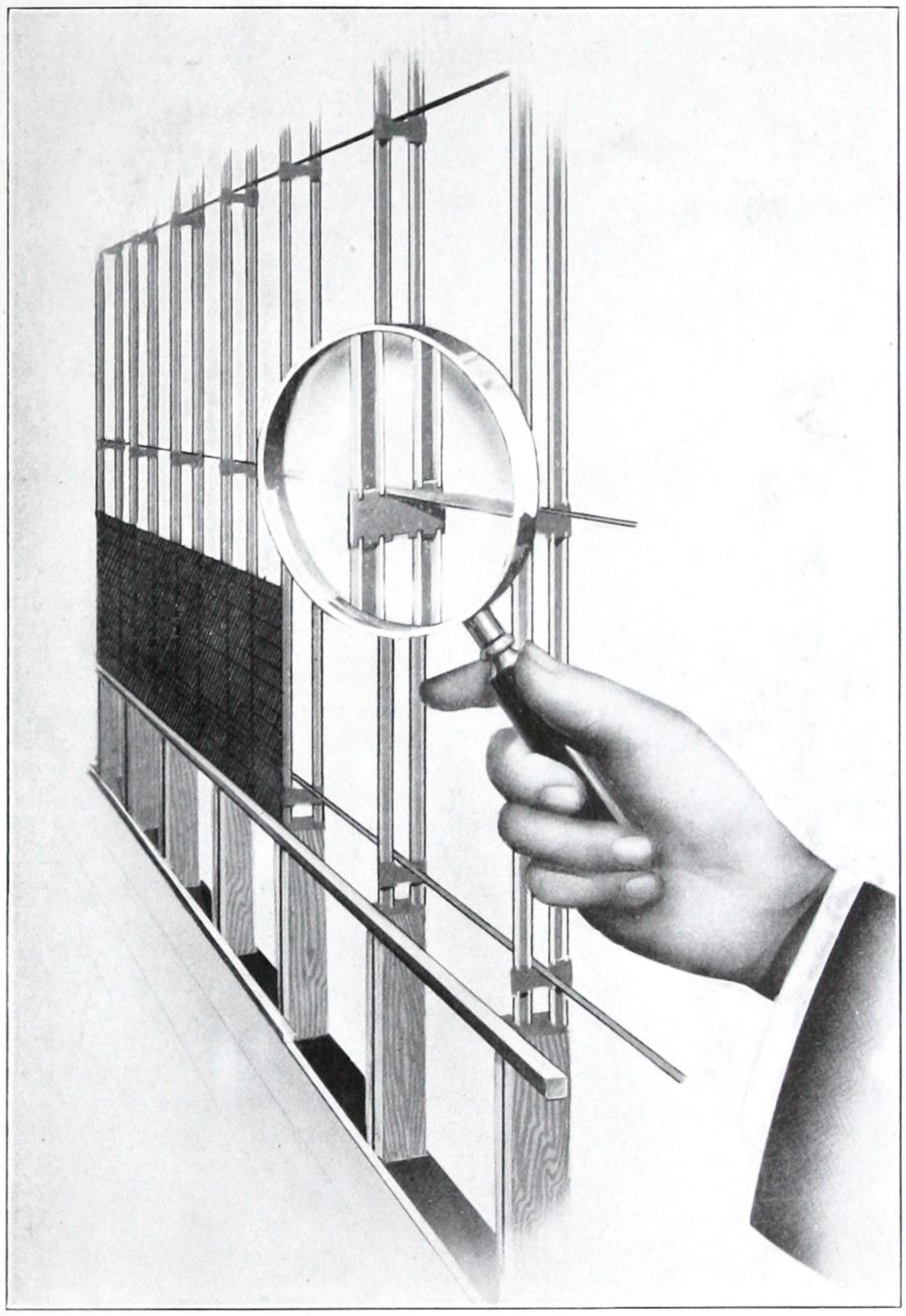
VANCOUVER, B.C.

FOR SALE BY

WM. N. O'NEIL & CO., LTD., Wholesale Builders' Supplies, VANCOUVER and VICTORIA, B.C.
WESTERN SUPPLY & EQUIPMENT CO., LTD., Wholesale Builders' Supplies, CALGARY and LETHBRIDGE, ALTA.
W. B. POUCHER, Wholesale Builders' Supplies, EDMONTON, ALTA.

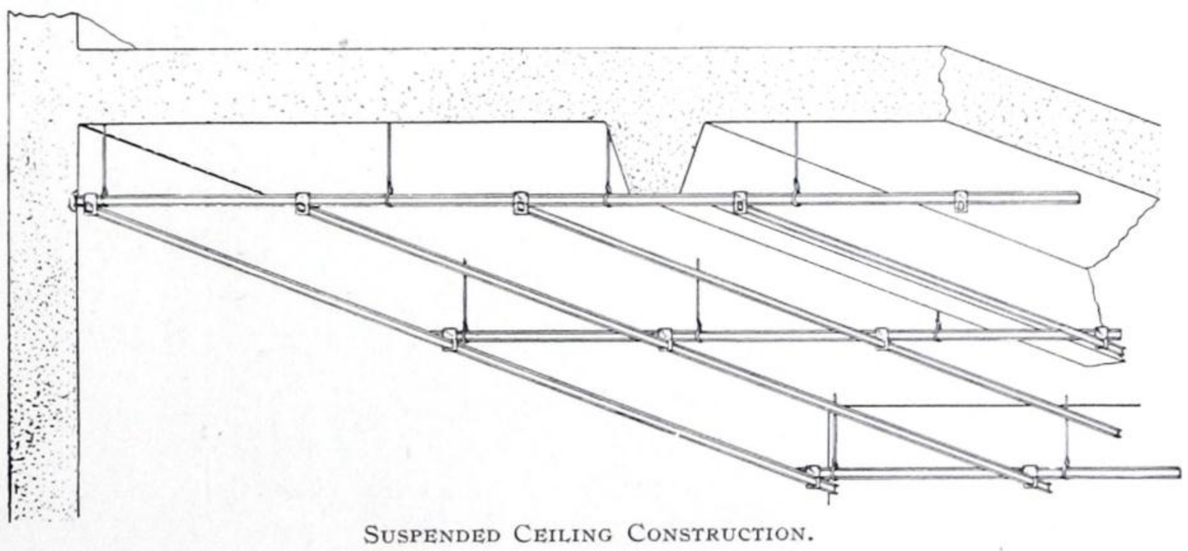
PRODUCTS. Manufacturers of COLLINS' PATENT STEEL STUDDING (FIREPROOF PARTITIONS), CEILING and FURRING (INTERLOCKING SYSTEM).

ADVANTAGES. COLLINS' patent is the latest and, undoubtedly, the best form of FIREPROOF METAL PARTITIONS. The material can be supplied to finish 2 in. solid, 3 in., 3½ in., 4 in., 5 in., 6 in., or even wider, if necessary, hollow. These partitions are 60% lighter—they are speedier to erect, besides being cheaper, than hollow tile, and their fireproof quality for insurance rates are the same. The weakness of hollow tile was clearly demonstrated beyond the question of a doubt at the time of the Baltimore and San Francisco fires, when many of the partitions were entirely destroyed. The great weight of tile, its high cost, low tensile strength, and unreliability when a hot wall is struck by a stream of water, are its greatest objections. COLLINS is a new and unique type in which will be found none of these objections. We claim for this system: STRENGTH, RIGIDITY, LIGHTNESS, LEAST AREA, INCOMBUSTIBILITY OF MATERIALS, NON-CONDUCTIVITY OF HEAT AND SOUND. And, further, it is the cheapest, on account of the great economy of labour and distribution of materials. Its very simplicity guarantees its saving in cost. By the use of baseplates perfect alignment is got, and by the use of a simple patented shoe, which fits into ceiling plates, the partition is made mechanically perfect. THERE IS NO CHANCE OF POOR WORKMANSHIP.



THIS ILLUSTRATES PERFECTION OF THE LOCKED BRACE RESULTING IN TRUE ALIGNMENT.

COLLINS' SUSPENDED CEILING CONSTRUCTION. This reproduction gives an idea of the perfect alignment of COLLINS' INTERLOCKING SYSTEM FOR CEILINGS. The ceilings are supported by No. 7 gauge galvanized wire, making the spaces for the carrying bars 3-ft. centres, and when ¾-in. channels are slipped through the openings of the clips, which are attached to the bars by machine at the factory at any centre, it ensures the lath having proper lapping space on the channels, which is necessary to make a FIRST-CLASS JOB.



SUSPENDED CEILING CONSTRUCTION.

We invite the most thorough investigation of COLLINS' PARTITION AND CEILING CONSTRUCTION, believing same will prove its superiority over all other methods.

WRITE FOR CATALOGUE.

THE ALABASTINE COMPANY, PARIS, LIMITED

HEAD OFFICE: PARIS, ONT.

MINES AND PLASTER MILLS: CALEDONIA, ONT. ALABASTINE WORKS: PARIS, ONT

TORONTO BRANCH: ALABASTINE HARDMORTAR LIMITED,
3 JARVIS ST., TORONTO, ONT.

PRODUCTS. Everything required for interior walls: PARISTONE (Neat, Haired, Gypsum Hardwall Plaster); PULPSTONE (Neat, Wood Fibred Gypsum Hardwall Plaster); STANDARD WHITE PLASTER OF PARIS; No. 3 SPECIAL GREY FINISH PLASTER (no lime required); ANCHOR BRAND HARDWALL PLASTER (sanded ready for use); MONARCH BRAND HYDRATED LIME (for finish plaster); SPECIAL EXTERIOR PLASTER (for outside work); PULPSTONE FIREPROOFING GYPSUM BLOCKS; ALABASTINE (Church's Cold Water Sanitary Wall Coating); BEST BROS. KEENE'S CEMENT.

PARISTONE. Paristone is a Neat, Hardwall Gypsum Plaster, ready for use as soon as mixed with sand and water on the job. It is stronger, harder, many times more durable, than lime and sand mixtures. Every shipment is carefully tested. When our printed directions are carefully followed, failure is impossible.

PULPSTONE. Pulpstone is a Neat, Wood-fibred Gypsum Hardwall Plaster, ready for use, with or without sand. Especially recommended for one-coat work or for plastering over dry lath or plaster board.

FINISH. No. 3 Special Grey Finish Plaster is prepared especially for finishing walls that are intended to be decorated, and Alabastine is recommended as the most satisfactory wall coating to use. Alabastine comes in 21 tints and white, in packages ready to mix with cold water. It can be recoated successfully many times, does not fade or peel, and lends itself perfectly to harmonious combinations with furnishings.

SPECIFICATIONS. GROUNDS.—For wood lath, $\frac{5}{8}$ in. to $\frac{3}{4}$ in.; brick, $\frac{3}{8}$ in. to $\frac{1}{2}$ in.; metal lath, $\frac{3}{8}$ in. over face of lath; plaster blocks, $\frac{1}{4}$ in. to $\frac{3}{8}$ in.

WOOD LATH.—Should be best white pine, free from bark, knots or sap, green or half-seasoned is best, spaced about $\frac{1}{4}$ in. and not less than 3-16 in. Joints well nailed and broken every tenth lath. Dry lath must be wet down with water at least two hours before plastering and kept well soaked.

METAL LATH.—Should be of good quality, applied according to maker's directions.

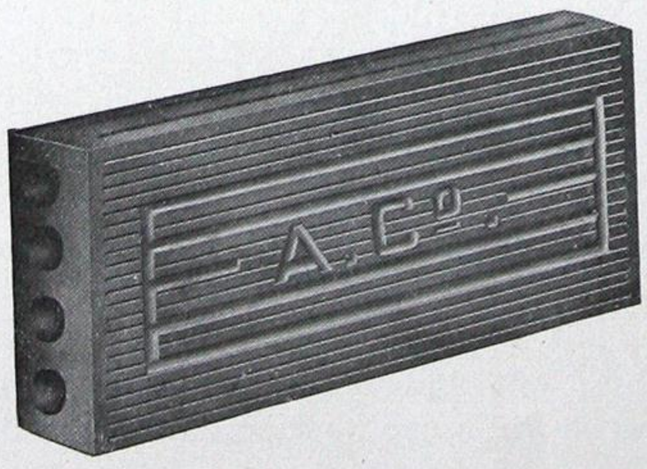
PLASTER BLOCKS.—To be Pulpstone Fireproofing Gypsum Blocks, manufactured by the Alabastine Co., Paris, Limited.

PLASTER.—To be Paristone, Pulpstone, or Anchor Hardwall Plaster manufactured by the Alabastine Co., Paris, Limited.

FINISH.—To be No. 3 Special Grey Finish, left natural colour or tinted with Alabastine; or Monarch Hydrated Lime gauged with Standard White Plaster Paris for white putty coat.

PULPSTONE FIREPROOF GYPSUM BLOCKS. Plaster Blocks made of gypsum and wood fibre, moulded into block form for fireproof partitions, furring, covering columns, and all steel members; also for sloping roofs and mansards. Made by hand at our works, cured outdoors, of excellent design, Pulpstone Blocks are superior to the imported kinds, stronger and less breakage.

Plaster Blocks are being used on a great many of the better-class buildings in Canada, because they combine the least weight with the greatest fire-retarding and sound-proofing qualities. They show no expansion under the most extreme variations of temperature, and will not split, warp, or crack during the progress of a fire, and have only to be replastered to restore to full strength afterward. Pulpstone Gypsum Blocks are perfectly uniform and lay up true and straight, forming an extremely rigid partition, which requires only $\frac{1}{2}$ in. of plaster to complete. Full directions and specifications given in our booklet, "Modern Fireproofing."

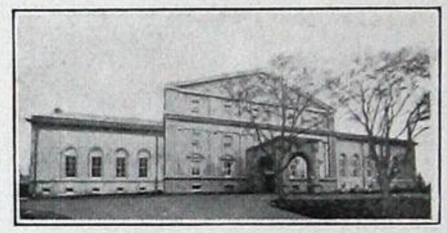




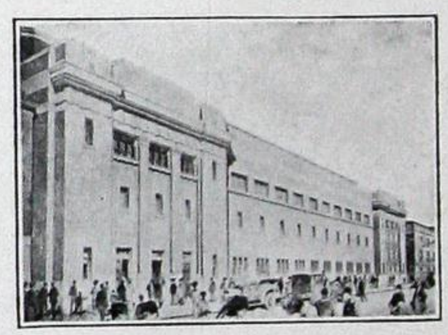
C.P.R. BUILDING, TORONTO.
Plastered with Anchor Hardwall Plaster made by the Alabastine Hardmortar Ltd., Toronto.



Y.M.C.A. BUILDING, MONTREAL.
An example of the class of building in which Paristone, the best of all Hardwall Plasters, is used.



RIDEAU HALL, THE GOVERNOR-GENERAL'S RESIDENCE, OTTAWA.
DOMINION GOVERNMENT ARCHITECTS.
P. Lyall & Sons had 90-day contract. They used 50 tons Paristone, and finished the building 15 days ahead of time, receiving $5,000 as a bonus.



ARENA GARDENS, TORONTO.
Plastered with Paristone Hardwall Plaster



TRANSPORTATION BUILDING, MONTREAL.
Paristone Plaster was used exclusively in this building.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

BUILDING MATERIALS.

ASBESTOS

TRADE MARK.

PRODUCTS. J-M ASBESTOS STUCCO.

For complete list of J-M Building Materials see our catalogue in Roofing Section.

J-M ASBESTOS STUCCO. J-M Asbestos Stucco is composed of pure Asbestos Fibres and uniformly ground Asbestos Rock, together with proper binding materials.

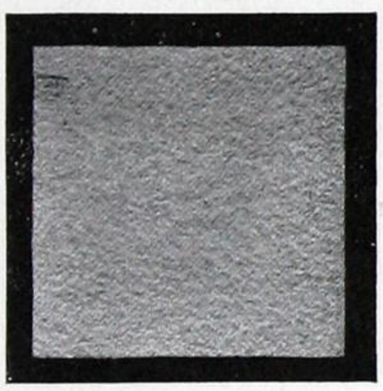
Any desired texture effect can be obtained with J-M Asbestos Stucco, from a float finish to a very rough cast or slap-dash. In prepared form it can be furnished in White, Gray and Buff.

ADVANTAGES. Sand, which is necessary in all other stuccos, contains vegetable matter and other foreign materials that not only cause stains and discolorations, but also prevent proper setting and make the stuccos liable to crack and flake off. As J-M Asbestos Stucco contains no sand or vegetable material, it dries a handsome, uniform colour, which lasts indefinitely without discoloring or flaking.

As a non-conductor of heat and cold, J-M Asbestos Stucco presents an important advantage in fuel saving. It keeps buildings warm in winter and cool in summer. And it positively prevents the sides of a building catching fire from adjoining conflagrations.

It is lighter in weight, spreads more evenly and smoothly, has a considerably greater covering capacity, and can be applied at a less cost of labour than sand and cement stuccos.

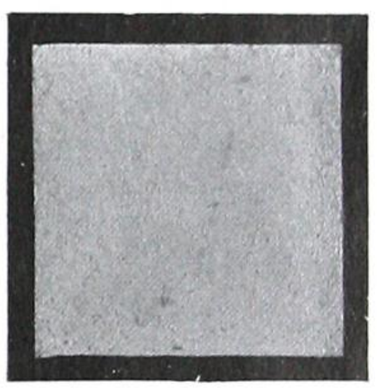
COVERING CAPACITY. When mixed according to directions, one ton of rough J-M Asbestos Stucco will cover approximately 40 square yards $\frac{5}{8}$-inch thick.



Float Finish.



Rough Cast.



Stipple Finish.

A FEW OF THE HANDSOME FINISHES POSSIBLE WITH J-M ASBESTOS STUCCO

SPECIFICATIONS. Material to be used shall be THE CANADIAN H. W. JOHNS-MANVILLE COMPANY, LIMITED, Asbestos Stucco, mixed in the following proportions:

To two bags of Portland Cement, add twenty pounds of first quality hydrated lime, and, after mixing thoroughly, spread over five bags of Rough Asbestic. Turn twice and add sufficient water to make a good workable mortar, mixing thoroughly.

One bushel of plastering hair may be added to a ton of the material for the scratch coat over wire lath. No sand should be used.

When Applied Over Wire Lath and Expanded Metal.—Over sheathing boards apply horizontally one layer of THE CANADIAN H. W. JOHNS-MANVILLE COMPANY, LIMITED, Neptune Brand Hair Insulator, lapping one inch and tacking in place with waterproof side out. Over this, nail thin vertical furring strips or mason's lath, on twelve-inch centres, and over these apply horizontally lath or expanded metal. Lath shall be nailed to furring strips and lapped at least one inch and laps between furring strips shall be nailed with a galvanized staple sufficiently long to get a hold in sheathing boards. This will prevent any cracking occurring from lappings.

When Applied Over Terra Cotta Blocks, Concrete Blocks and Brick.—Surface to which scratch coat is to be applied should be free from foreign matter and should be thoroughly wet down before coat is applied. Surface of scratch coat, after it has been applied, should be thoroughly scored with a piece of lath or other tool, in order to provide a sufficient key for subsequent coats.

Should three coats be desired, a browning coat may be applied over scratch coat after it has sufficiently set to allow working upon, not before twelve hours after scratch coat has been applied, and should be left slightly rough in order to furnish some key for finishing coat. Should only two coats be desired, finishing coat may be applied directly to scratch coat. Scratch and browning coats should be thoroughly wet down before another coat is applied, in order that they will not absorb moisture from the following coat. First coat shall be applied at least $\frac{3}{8}$ inch thick, and second and finishing coats not less than $\frac{1}{4}$ inch thick. Finish coat of stucco shall be of texture and colour approved by architect.

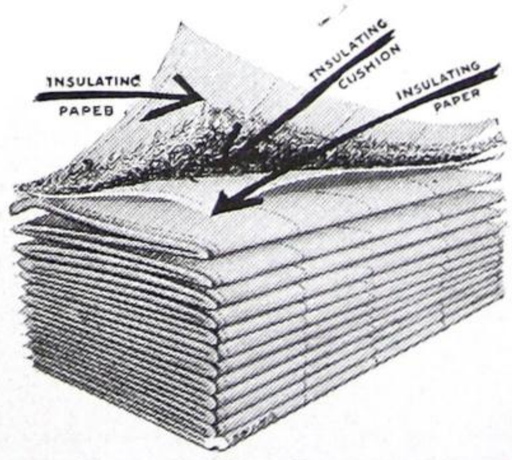
Finish coat work should, as far as possible, be applied to entire area of one side of structure at one operation. No finish coat work should be left in an incompleted condition. All work shall be carried to angles.

To insure satisfactory results, we are prepared to apply J-M Asbestos Stucco.

KEYSTONE HAIR INSULATOR. This sheathing is made of a heavy layer of cleansed and sterilized cattle hair, securely fastened between two sheets of strong, non-porous building paper.

The hairs cross and re-cross each other at every conceivable angle, forming small air chambers, and the paper on each side seals up the dead air immeshed in the air chambers. This makes a material more effective than many layers of building paper for keeping a building warm in winter and cool in summer.

As a non-conductor of sound it has no equal when placed between floors and walls. It will not pack down or settle, will not dry out and split, will not rot or attract moisture, and will not carry flame like vegetable materials.



KEYSTONE HAIR INSULATOR.

CROWN GYPSUM COMPANY, LIMITED

LYTHMORE, ONTARIO, CANADA.

MANUFACTURERS OF

GYPSUM PLASTERS AND GYPSUM PRODUCTS

TRADE  MARK

HARD WALL PLASTERS.

PRODUCTS. "BEAVER"–"THISTLE"–Neat cement plasters. Unsanded. To be mixed with sand on the work. Easily applied. Large covering capacity. Satisfactory results on lath, brick, terra cotta, plaster board or metal lath.

WOOD FIBRE PLASTERS.

"BEAVER"–"THISTLE"–Light, tough, elastic plasters of greater bulk, especially adapted to securing the most satisfactory results with one coat work. MORE STRENGTH WITH LESS WEIGHT. The most suitable of all plasters for use on plaster board.

CONCRETE PLASTER.

"CROWN"—For plastering directly on the concrete. The most adhesive plaster for interior concrete walls and ceilings.

FINISHES.

"PEARL"–A prepared WHITE FINISHING COAT ready for use with the addition of water alone. Takes the place of lime and Plaster of Paris mixtures and the incidental bother, delay and chance of defective work.

"CROWN WHITE"–A hard, white, ready-to-use TROWEL FINISH for the highest grade of work on walls and ceilings. Especially adapted to imitation tile work in bath rooms. Non-staining. Extremely dense and smooth. A most satisfactory substitute for Keene's Cement.

PLASTER PARIS and FINISHING PLASTER.

STRENGTH—DURABILITY—FINENESS—COLOUR—
UNIFORM QUALITY.

INFORMATION. Further information in the way of specifications and other data will be gladly forwarded to anyone interested. We are especially desirous that architects, builders, and contractors become acquainted with the quality of our products.

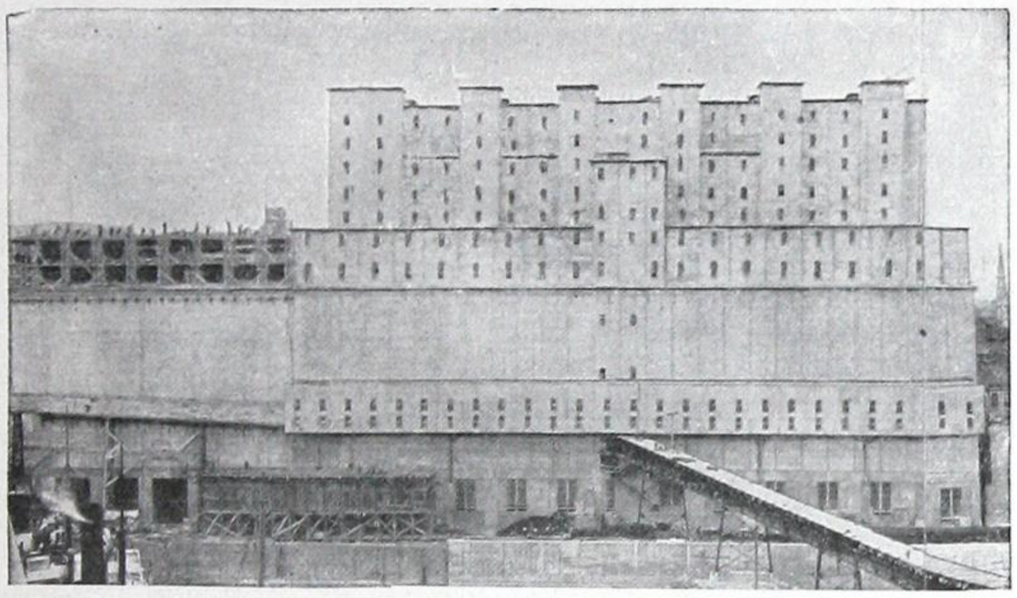
STINSON-REEB BUILDERS' SUPPLY CO., LIMITED

EASTERN TOWNSHIPS BANK BUILDING,

MONTREAL, QUEBEC.

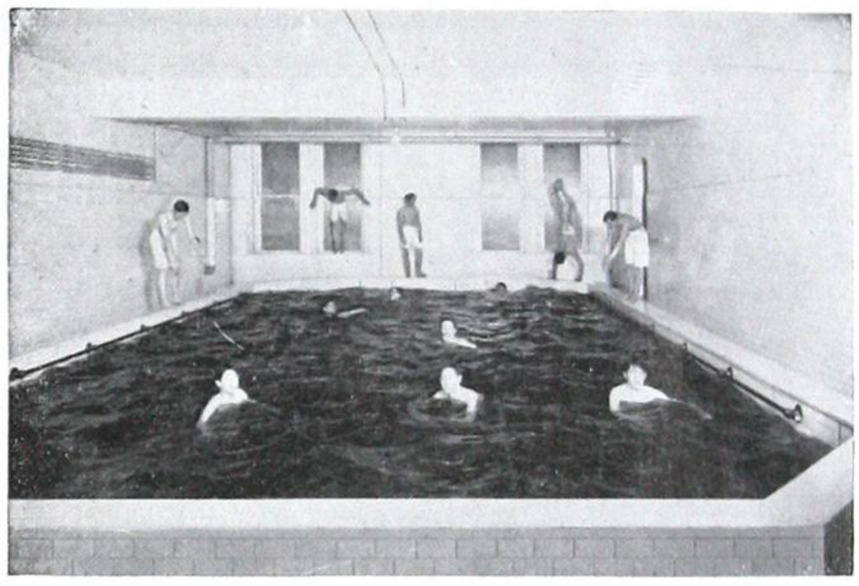
PRODUCT. "MEDUSA" WATERPROOFING COMPOUND. A dry powder to be thoroughly mixed dry with dry cement before sand and water are added, thus becoming an inseparable part of the concrete and rendering it impervious to water. It does not affect strength, setting or colour of Portland Cement.

METHOD OF USE. For most purposes from one to two per cent. of the weight of cement used will be found sufficient. This is equivalent to from 3½ to 7 lbs. Medusa to one barrel of cement. Much depends on the proportion of sand, etc., employed, and on the kind of work done. For cisterns and reservoir linings, etc., which must be absolutely impervious, a larger amount should be used. Mixing is of the utmost importance.



NO. 2 GRAIN ELEVATOR—MONTREAL HARBOUR COMMISSIONERS.

"MEDUSA" WATERPROOFING was used throughout the entire construction. This is one of the largest reinforced concrete elevators in the world. About thirty thousand pounds of Medusa Waterproofing was used in the work.



SWIMMING POOL, Y.M.C.A., PORT ARTHUR, ONT.,

"MEDUSA" used for Waterproofing.

CANADIAN INSPECTION AND TESTING LABORATORIES.

CANADIAN EXPRESS BUILDING, MONTREAL, December 10th, 1913.

THE STINSON-REEB BUILDERS' SUPPLY COMPANY, LIMITED,
10th Floor Eastern Townships Bank Building, Montreal, P.Q.

RE "MEDUSA" WATERPROOFING COMPOUND.

DEAR SIRS,—

Following your instructions, we have made the following tests with:—

"A"—"Medusa" Waterproofing Compound, manufactured by the Manitoba Gypsum Company, Limited, Winnipeg, Man.
"B"—"Medusa" Waterproofing Compound, manufactured by the Sandusky Portland Cement Company, Sandusky, Ohio.
"C"—"Medusa" Waterproofing Compound, manufactured by the Stinson-Reeb Builders' Supply Company, Limited, Montreal, P.Q.

SOUNDNESS AND SETTING.

These tests were made according to the specifications of the Canadian Society of Civil Engineers, using one and two per cent. each of the above-named compound and neat cement without compound for comparison. All these tests were satisfactory, showing no falling off in soundness and setting.

TENSILE TEST.

Made according to Canadian Society of Civil Engineers' Specifications, using one and a half per cent. each of the compound with neat cement. The results, as tabulated below, show no appreciable effect on the strength of the cement.

Briquettes, one cement to three of standard sand, with 1½ per cent. "Medusa" Waterproofing.

TENSILE TEST AT 7 DAYS.

Without Waterproofing.	"A"	"B"	"C"
245	250	240	235
248	241	234	239
256	239	255	258
Average. 249	Average. 243	Average. 243	Average. 244

TENSILE TEST AT 28 DAYS.

Without Waterproofing.	"A"	"B"	"C"
375	355	350	361
348	367	372	354
360	362	354	360
Average. 361	Average. 361	Average. 359	Average. 358

ABSORPTION AND PERCOLATION.

Tests were made with Permeability Testing Apparatus, as supplied by the Humboldt Company, under city water pressure of an average of 45 lbs. per square inch, using briquettes of one of cement to three of standard sand, containing one and two per cent. each of "Medusa" Waterproofing Compound. These briquettes, after maturing, some for 7 days and some for 28 days, were subjected to water under pressure, as stated above, of 45 lbs. per square inch. The briquettes were weighed before and after tests. No water percolated through the briquettes, and, when broken, the briquettes did not show any penetration of the water, the increase in weight of the briquettes being practically nil, showing that the briquettes had not absorbed any water and that the waterproofing effect of the Compound was very effective.

Concrete blocks, with an aggregate of 1 cement, 2 sand and 4 crushed stone of ¾-in. size, with an addition of 1 and 2 per cent. of the "Medusa" Waterproofing Compound manufactured by the Stinson-Reeb Builders' Supply Company, Limited, were made and subjected to a water pressure of 45 lbs. per square inch for 24 hours. This test was made on blocks which had matured for 28 days. These blocks did not show any increase in weight after this test. Upon being crushed, they broke at an average pressure of 2,164 lbs. per square inch, superficial area, and showed no sign of the water penetrating the concrete, the waterproofing being thoroughly effective.

In conclusion, we are pleased to state that the addition to concrete of "Medusa" Waterproofing Compound has no deleterious effect, and the waterproofing of the concrete—if the compound is thoroughly mixed with the cement—is very complete.

Yours very truly,

CANADIAN INSPECTION AND TESTING LABORATORIES, LIMITED,
By DR. G. HERLITSCHEKY, Director of Cement Laboratories.

DOMINION GYPSUM COMPANY LT'D.

MANUFACTURERS OF

"PEERLESS" BRANDS OF CEMENT WALL PLASTER.

GENERAL OFFICE AND MILL:
WINNIPEG, MAN.

QUARRIES:
GYPSUMVILLE, MAN.

PRODUCTS.

"PEERLESS" WOOD-FIBRE PLASTER.—Light of weight and a non-conductor of heat, sound and electricity on account of the shredded wood included.

"PEERLESS" HARD-WALL PLASTER.—Noted for its covering quality and for its resistance to hard usage.

"PEERLESS" HARD-WALL PLASTER, UNFIBRED.—Can be used as a finishing coat, but is particularly adapted for Carpet Float or Sand Finish.

"PEERLESS" IVORY FINISH.—When mixed with lime putty makes a beautiful finishing coat.

"PEERLESS" PREPARED FINISH.—Requires no lime and is ready to use when mixed with water.

"PEERLESS" PLASTER OF PARIS—"PEERLESS" STUCCO.—Is made from a high-grade selected Gypsum rock.

"PEERLESS" ASBESTOS PLASTER.

ARCHITECTS' SPECIFICATIONS FOR THE USE OF "PEERLESS" BRANDS OF CEMENT WALL PLASTER.

WOOD-FIBRE. Mixed in proportion of one of plaster to one and a half of sand, will require ten to eleven hundred pounds of plaster to cover 100 square yards on wood or metal lath. On terra cotta or brick walls, nine hundred pounds will cover 100 square yards.

HARD-WALL. Mixed in proportion of one of plaster to two of sand, will require eight to nine hundred pounds of plaster to cover 100 square yards on wood or metal lath. On terra cotta or brick, increase the proportion to three parts sand to one part plaster and the covering capacity will be proportionately greater.

HARD-WALL, UNFIBRED. Mixed in proportion of one of plaster to one of sand, when used for Carpet Float or Sand Finish, will require 200 pounds of plaster to cover 100 square yards.

IVORY FINISH. Mixed in proportion of one of Finish to two of lime putty for trowel finish, will require about 100 pounds of Finish to cover 100 square yards.

PREPARED FINISH. When mixed with water, is ready to use and requires no lime. Four hundred pounds of Finish will cover 100 square yards.

GROUNDS. For Wood Lath: to be 5-8 in. to ¾ in., preferably ¾ in.

On Brick or Tile: ½ in.

On Wire Lath or Expanded Metal: ½ in. over face of lath.

On Plaster Board: 3-8 in.

WOOD LATH. No. 1 white pine or spruce, free from black knots, sap or bark, spaced one-quarter inch apart, also end spaced the same distance and well nailed. Green or half-green lath preferable. If lath are dry, thoroughly soak them three or four hours before using.

SPRAYING. All porous backing, including lath, tile and brick, to be sprayed with water before plastering.

SAND. To be clean, sharp sand.

PLASTER. To be "PEERLESS".....manufactured by the DOMINION GYPSUM COMPANY LT'D., and to be gauged and applied according to their printed instructions.

CATALOGUE With full instructions how to use all Gypsum Products, and particularly "PEERLESS" CEMENT WALL PLASTER, will be mailed on application.

INTERNATIONAL VARNISH CO., LIMITED

TORONTO. WINNIPEG.

CANADIAN FACTORY OF

STANDARD VARNISH WORKS: NEW YORK, CHICAGO, LONDON, BERLIN, BRUSSELS.

PRODUCTS. ARCHITECTURAL FINISHES AND STAINS: "Elastica" No. 1 (Exterior), "Elastica" No. 2 (Interior), "Elastica" Floor Finish, "Flattine" Cabinet Finish, "Kleartone" Flat Varnish, "Satinette" White Enamel, "Kleartone" Stains—Oil, Spirit, Acids.

"ELASTICA" No. 1. FOR EXTERIOR WORK.—For finishing front doors and all classes of housework exposed to the weather, where greatest durability is requisite. Dries free from dust in ten to twelve hours, and hardens sufficiently in about five days to admit of being rubbed. Possesses the maximum elasticity attainable in any finish or varnish. Produces a beautiful lustre over natural, painted or grained woods, which may be cut down with pumice stone and water to a dull finish. Does not scratch or mar white, and resists atmospheric influences better than any other varnish or finish in use for the purpose.

"ELASTICA" No. 2. FOR INTERIOR WORK.—Extreme paleness and durability are distinguishing features of this varnish. It works with surprising freedom, covers the maximum surface area, and produces a brilliant, permanent finish. Dries free from dust in seven to nine hours and to rub perfectly in three to four days. Can be cut down with pumice stone and water to a dull finish. Can also be given a brilliant piano polish.

Especially recommended and adapted for finest trim work in palatial residences, fine bank, office and hotel buildings, and wherever the finish is required to be the very best possible.

"ELASTICA" FLOOR FINISH. Combines quick and hard drying properties without sacrificing elasticity or durability, and protects the wood under severest wear and washing. Does not mar, scratch white or spot. Works easily; dries dust free in four to six hours, hardens over night and can be rubbed. On painted or old floors, linoleum or oil cloth, one coat is sufficient. Remove all grease and dirt from floors before applying. Reduce with turpentine when necessary.

"FLATTINE" CABINET FINISH. FOR FLAT OR WATER RUBBED EFFECT.—Works with great freedom and surfaces well. Produces an even and full dead or flat finish without rubbing. Dries bone hard over night and is exceedingly tough and durable. Contains no wax and is the only perfect dead varnish. Two coats produce a rubbed effect finish on new work; one coat only is required for old work.

"KLEARTONE" FLAT VARNISH. Dries with a flat or rubbed effect. Contains no wax or pigment. Does not need stirring. Dries hard over night and is exceedingly tough and durable.

It is waterproof, and, unlike most flat varnishes, can be used over mahogany or mahogany-stained surfaces without clouding same.

"SATINETTE" WHITE ENAMEL. The perfection of white enamel. Works freely under the brush; is quick drying, combining elasticity, hardness and durability; does not turn yellow. Is extremely durable. If too heavy on account of having become chilled, place in a pail of hot water for a short time, and, if in consequence of evaporation, reduce a trifle with spirits turpentine.

An important feature of our "Satinette" Enamel is that, owing to its specialized manufacture, it is adaptable for either Exterior or Interior use, and gives equally successful results.

"SATINETTE" INTERIOR WHITE ENAMEL (FLAT). Produces a durable and smooth flat white enamel finish. Works freely under the brush, hardens quickly, and does not turn yellow. Intended for the final coat over a surface properly prepared. If too heavy on account of having become chilled, place in a pail of hot water for a short time, and, if in consequence of evaporation, reduce a trifle with spirits turpentine.

"KLEARTONE" OIL STAINS. Olive Green, Sage Green, Early English, Dark Brown, Light Brown, Walnut, Light Oak, Dark Oak, Weathered Oak, Tuna Mahogany, Dark Mahogany, Light Mahogany, Cherry. "Kleartone" Oil Stains have been brought to a high degree of perfection, developing and enhancing the beauty of the wood over which they are applied. They are uniform in shade, are easily applied, and will not affect the drying of succeeding varnish coats.

"KLEARTONE" SPIRIT STAINS. Dark Mahogany, Light Mahogany. "Kleartone" Spirit Stains, which are specially designed for use on mahogany, produce effects that no other maker has hitherto been able to accomplish. For depth, clearness and tone they are unparalleled, and are highly commended by the leading painters and decorators.

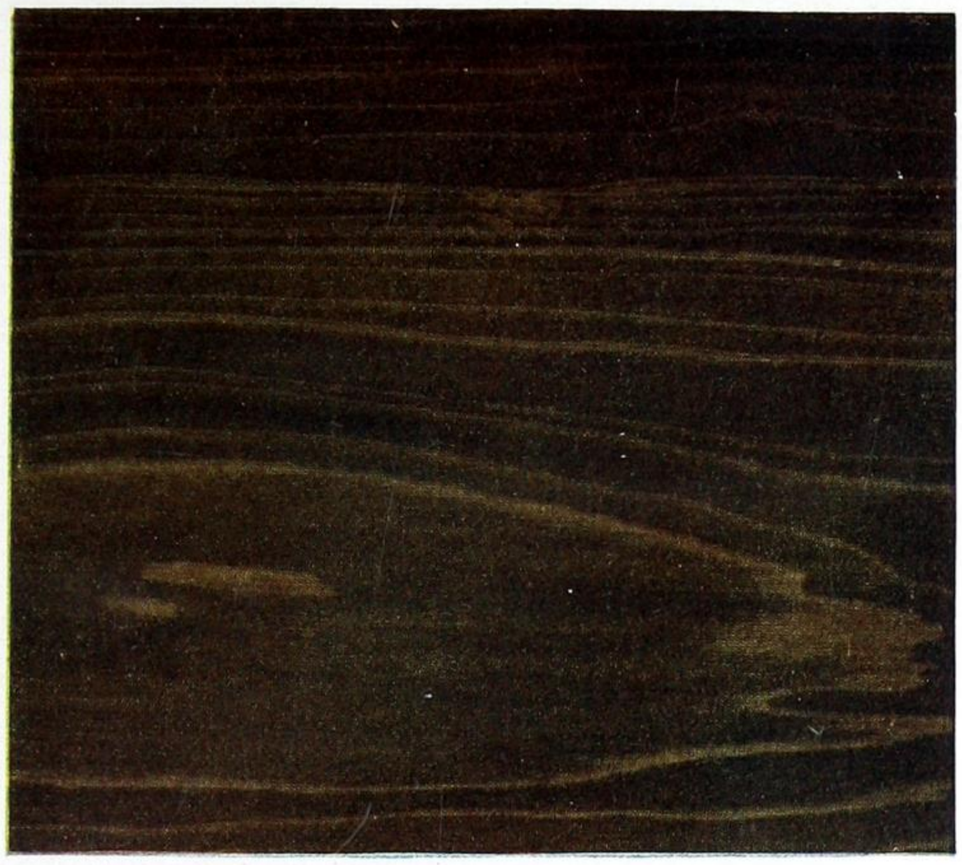
"KLEARTONE" ACID STAINS. Silver Gray for Oak and Maple; Light and Dark Mahogany for Birch, where surfaces exposed to the sun and weather; Light and Dark Fumed and Holland Blue for Oak. "Kleartone" Acid Stains are not injurious to the wood, and beautiful effects are secured by following our specifications.

CATALOGUE. The following pages show actual photographic reproductions and results obtained on different kinds of wood treated with "Kleartone" Stains. The accompanying description indicates the manner of finishing. Where samples of these stains on specific woods are desired, they will be furnished on request, or should the architect desire a particular finish not illustrated in the following panels, we shall be glad to submit special samples, with specifications, thus assisting the architect in obtaining the desired finish.

CONTINUED ON NEXT PAGE



THE PERFECT *Satinette* WHITE ENAMEL



A



B



C

WEATHERED OAK, KLEARTONE OIL STAIN.

On (A) Yellow Pine, (B) Quartered Oak, (C) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.



D



E



F

EARLY ENGLISH, KLEARTONE OIL STAIN.

On (D) Yellow Pine, (E) Quartered Oak, (F) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.

CONTINUED ON NEXT PAGE



A



B



C

SAGE GREEN, KLEARTONE OIL STAIN.

On (A) Yellow Pine, (B) Quartered Oak, (C) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.



D



E



F

OLIVE GREEN, KLEARTONE OIL STAIN.

On (D) Yellow Pine, (E) Quartered Oak, (F) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.

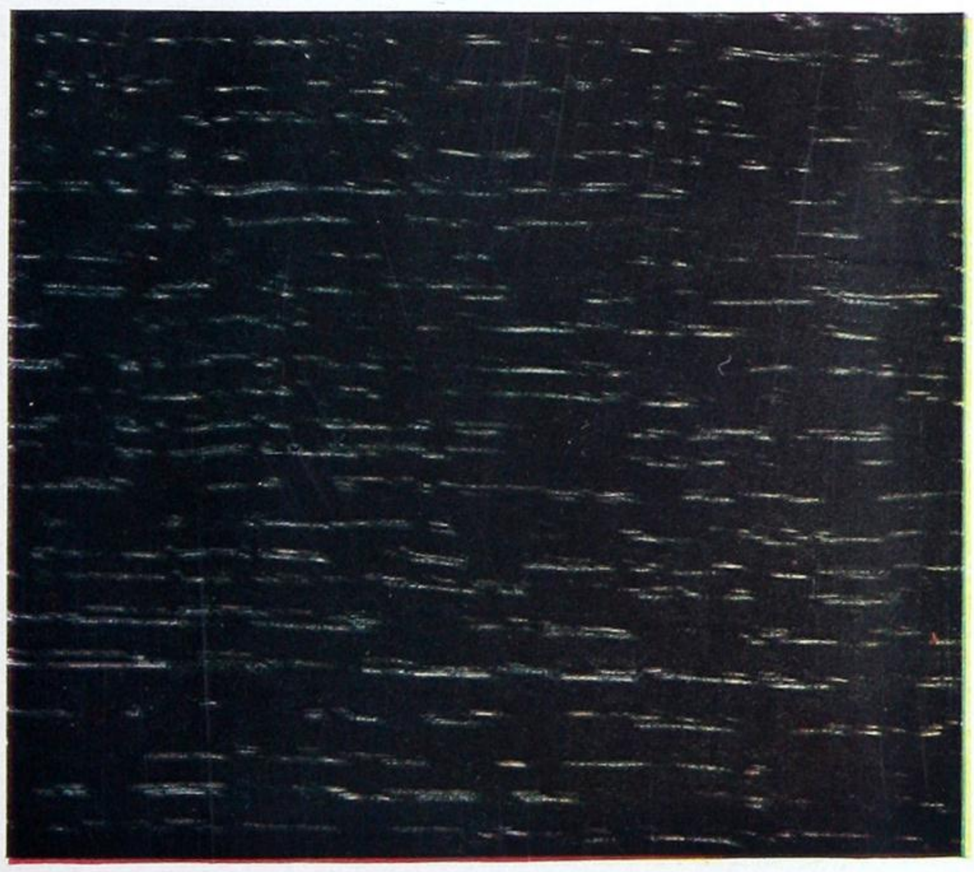
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A



B



C

KLEARTONE ACID STAINS.

Silver Gray on (A) Bird's-Eye-Maple, (B) Quartered Oak.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone Silver Gray Coater and two coats Flattine Cabinet Finish.

Holland Blue on (C) Quartered Oak.

Finished with one coat Holland Blue Kleartone Acid Stain, one coat Kleartone White Shellac, filled with white paste filler. Second coat Kleartone White Shellac, two coats White Polishing Varnish. Last coat rubbed.



D



E



F

KLEARTONE ACID STAINS.

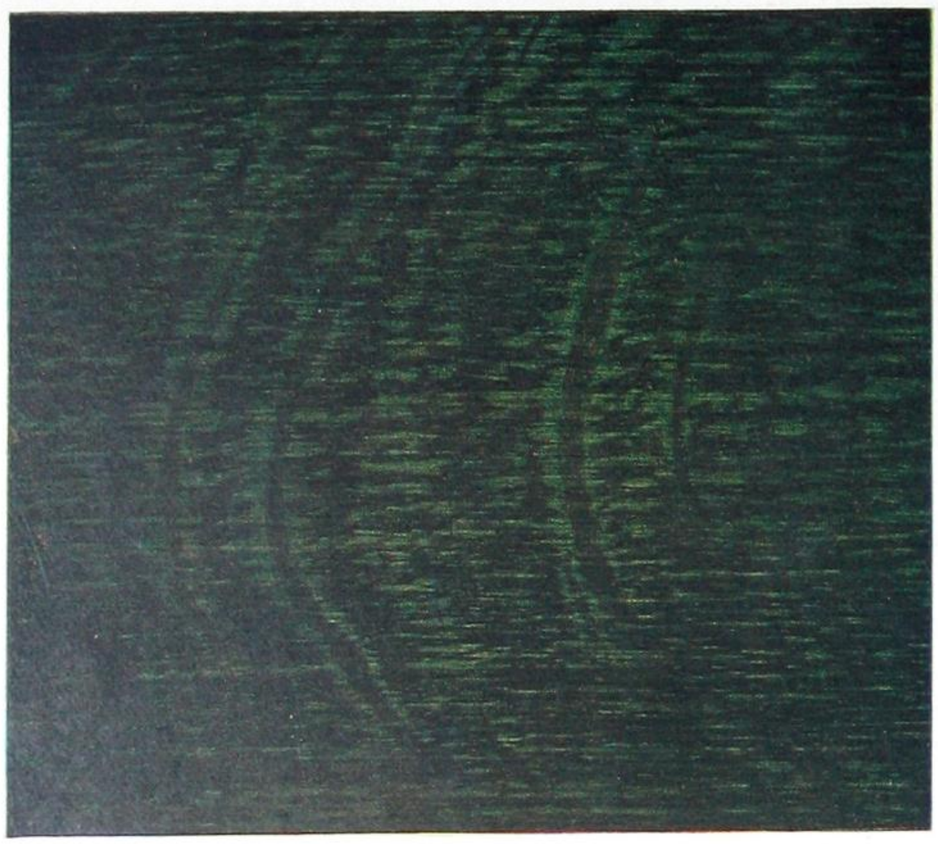
(D) Dark Fumed Oak, and (E) Light Fumed Oak on Quartered Oak.

The Stains were brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.

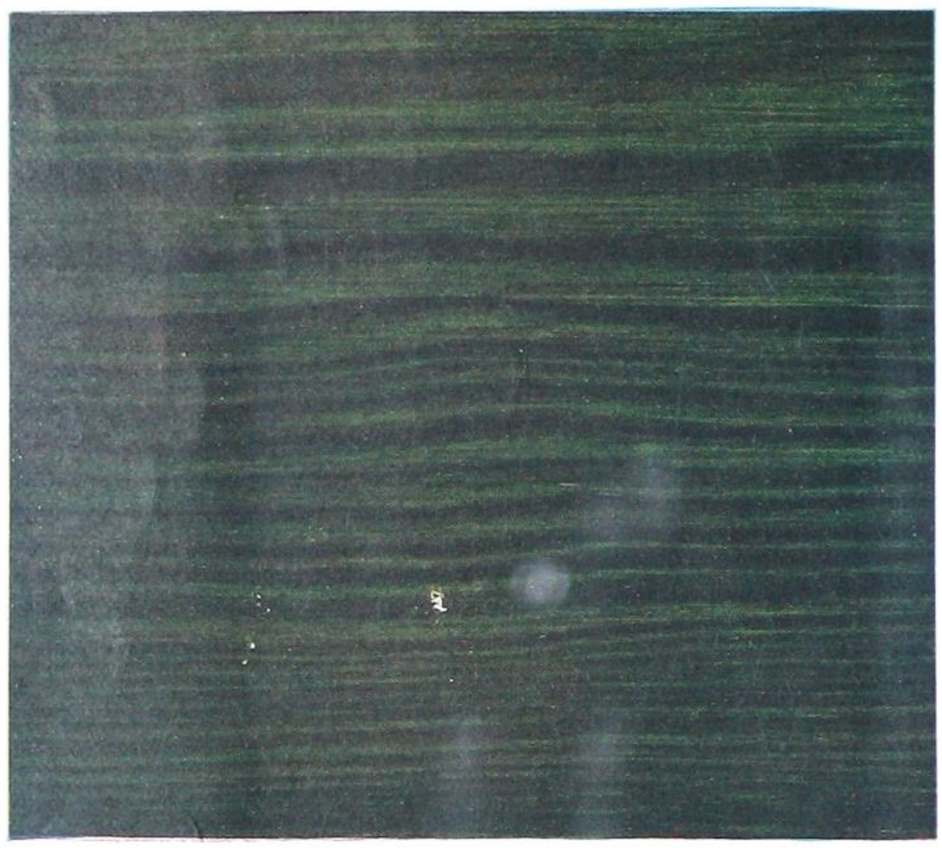
English Oak (F) Kleartone Oil Stain on Quartered Oak.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.

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A



B



C

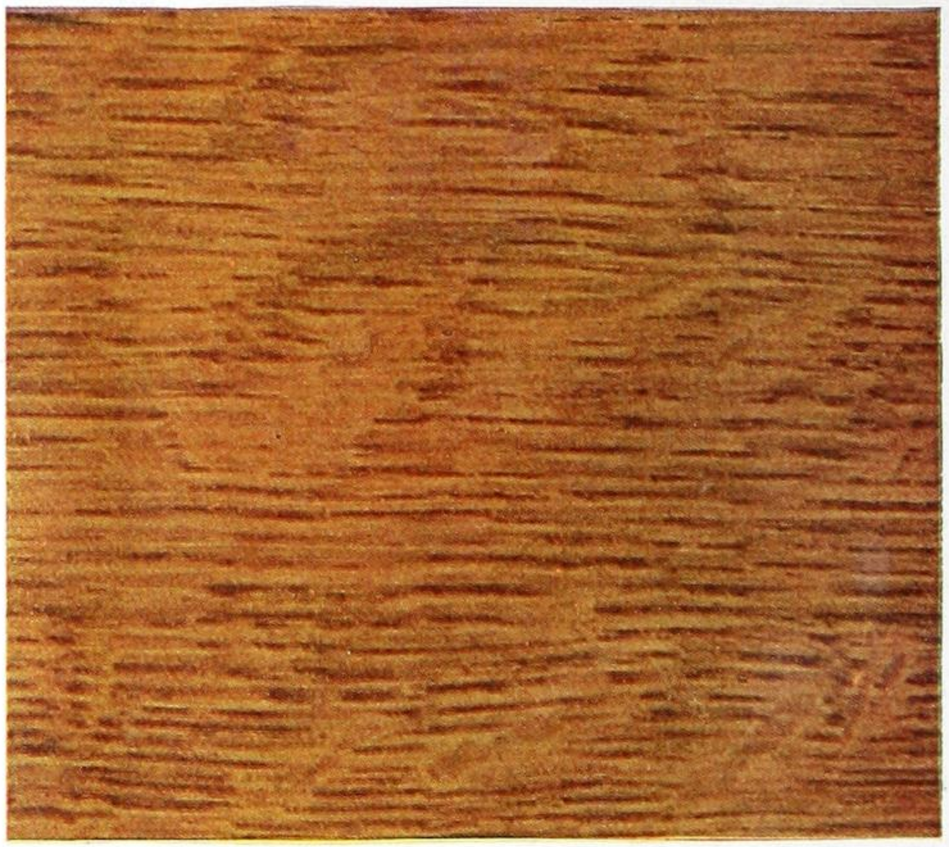
KLEARTONE OIL STAINS.

Dark Forest Green on (A) Quartered Oak, (B) Yellow Pine.
Flemish Oak on (C) Quartered Oak.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.



D



E



F

KLEARTONE OIL STAINS.

(D) Bog Oak on Quartered Oak, (E) Pollard Oak on Quartered Oak.

The Stains were brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.

Extra Dark Mahogany Acid Stain on (F) Birch.

One coat Extra Dark Mahogany Kleartone Acid Stain, one coat Kleartone Mahogany Coater, two coats Elastica No. 2. Last coat rubbed.

NOTE.—Use Kleartone Mahogany Coater over Kleartone Mahogany Stains, as the Coater enriches the colour of the Stain and prevents fading. On Birch always use Kleartone Mahogany Acid Stain.

CONTINUED ON NEXT PAGE



A



B



C



D



E



F

WALNUT, KLEARTONE OIL STAIN.

On (A) Yellow Pine, (B) Birch, (C) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flattine Cabinet Finish.

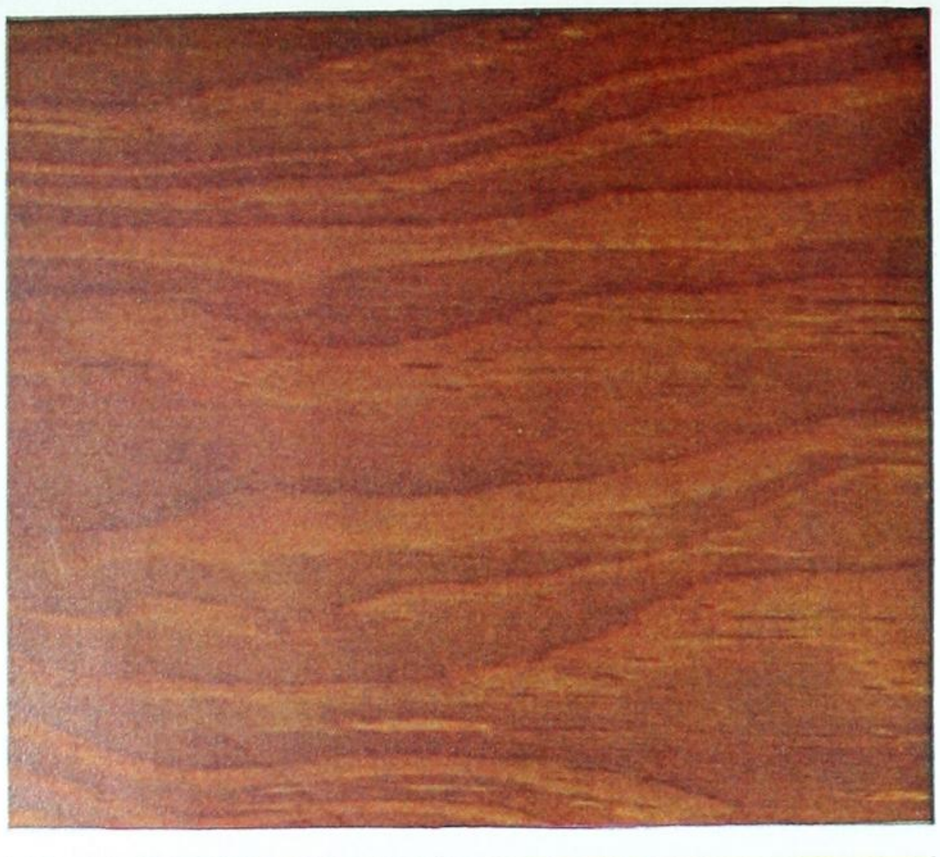
KLEARTONE OIL STAINS.

Cherry (D) on Yellow Pine.—One coat Cherry Kleartone Oil Stain, one coat Kleartone White Shellac, two coats Elastica No. 2. Last coat rubbed.

Golden Oak (E) on Quartered Oak.—One coat Golden Oak Kleartone Oil Stain, one coat Kleartone Orange Shellac, filled with Dark Antique Filler, two coats Elastica No. 2. Last coat rubbed.

Golden Oak (F) on Yellow Pine.—One coat Golden Oak Kleartone Oil Stain, one coat Kleartone Orange Shellac, two coats Elastica No. 2. Last coat rubbed.

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A



D



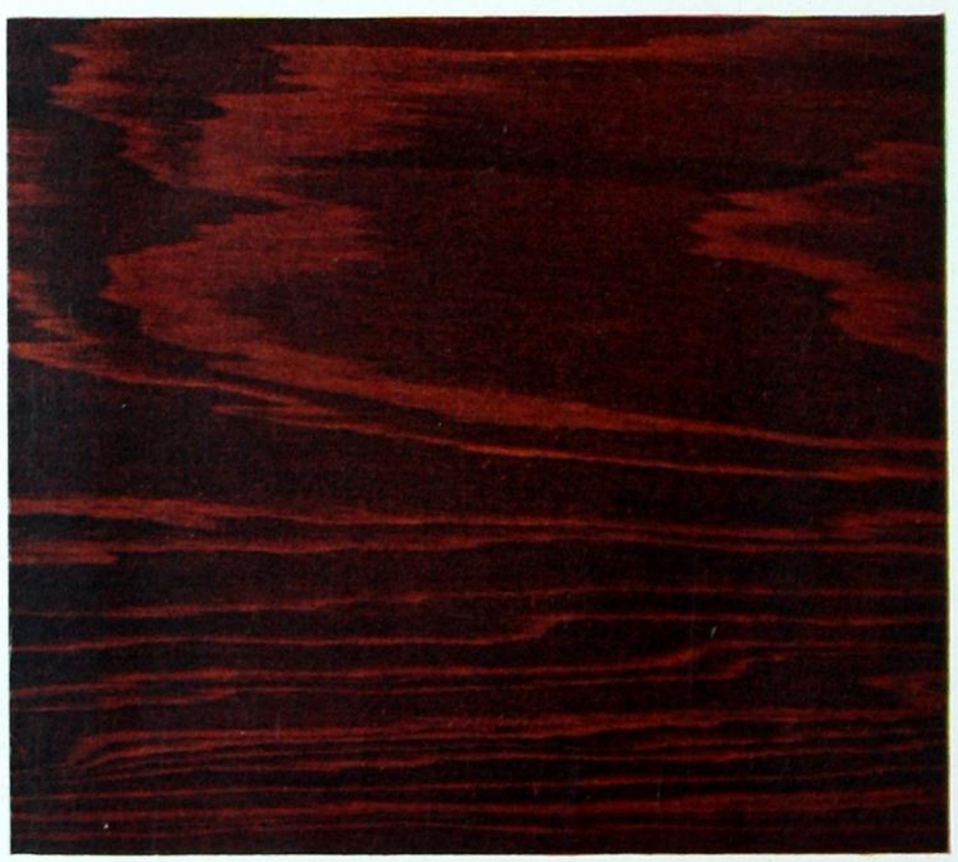
B



E



C



F

LIGHT MAHOGANY, KLEARTONE OIL STAIN.

On (A) Yellow Pine, (C) Cypress.

Finished with one coat Light Mahogany Kleartone Oil Stain, one coat Kleartone Mahogany Coater, and two coats Elastica No. 2. Last coat rubbed.

LIGHT MAHOGANY, KLEARTONE ACID STAIN ON (B) BIRCH.

One coat Light Mahogany Kleartone Acid Stain, one coat Kleartone Mahogany Coater, and two coats of Elastica No. 2. Last coat rubbed.

NOTE.—Use Kleartone Mahogany Coater over Kleartone Mahogany Stains, as the Coater enriches the colour of the Stain and prevents fading. On Birch always use Kleartone Mahogany Acid Stain.

DARK MAHOGANY, KLEARTONE OIL STAIN.

On (D) Yellow Pine, (F) Cypress.

Finished with one coat Dark Mahogany Kleartone Oil Stain, one coat Kleartone Mahogany Coater, and two coats Elastica No. 2. Last coat rubbed.

DARK MAHOGANY, KLEARTONE ACID STAIN ON (E) BIRCH.

One coat of Dark Mahogany Kleartone Acid Stain, one coat of Kleartone Mahogany Coater, and two coats of Elastica No. 2. Last coat rubbed.

NOTE.—Use Kleartone Mahogany Coater over Kleartone Mahogany Stains, as the Coater enriches the colour of the Stain and prevents fading. On Birch always use Kleartone Mahogany Acid Stain.

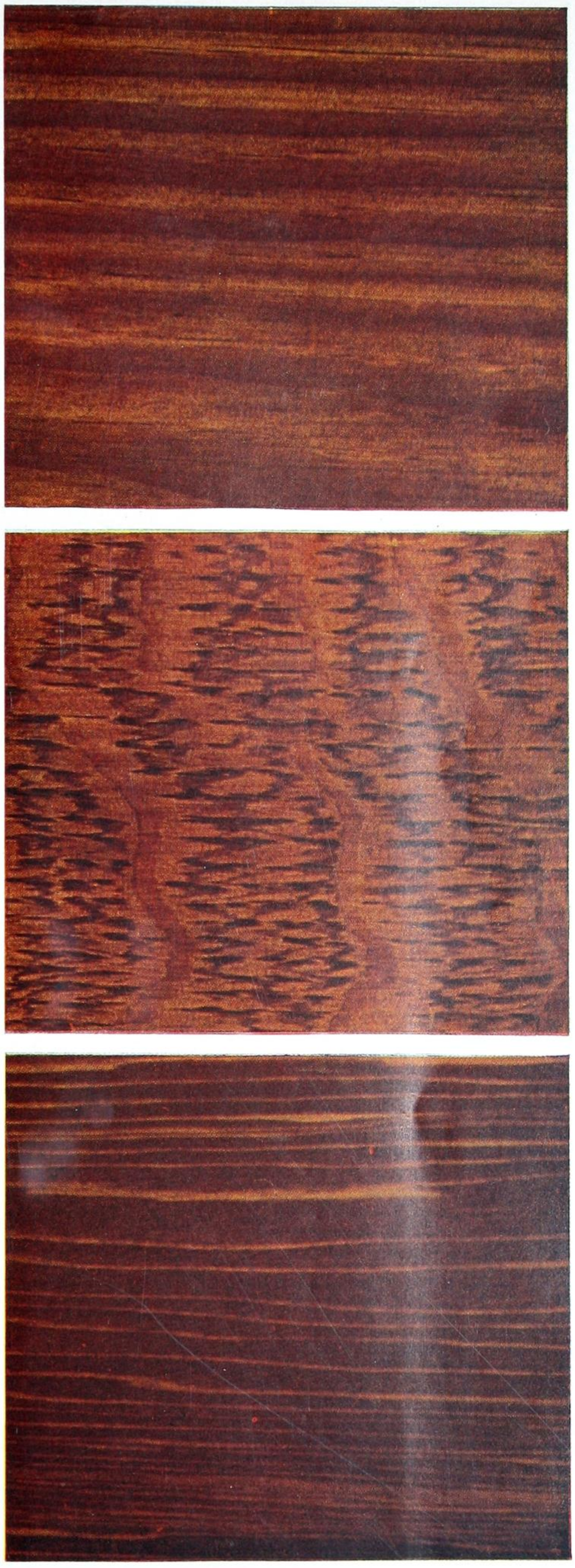
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A

B

C



D

E

F

LIGHT OAK, KLEARTONE OIL STAIN.

On (A) Yellow Pine, (B) Quartered Oak, (C) Cypress.

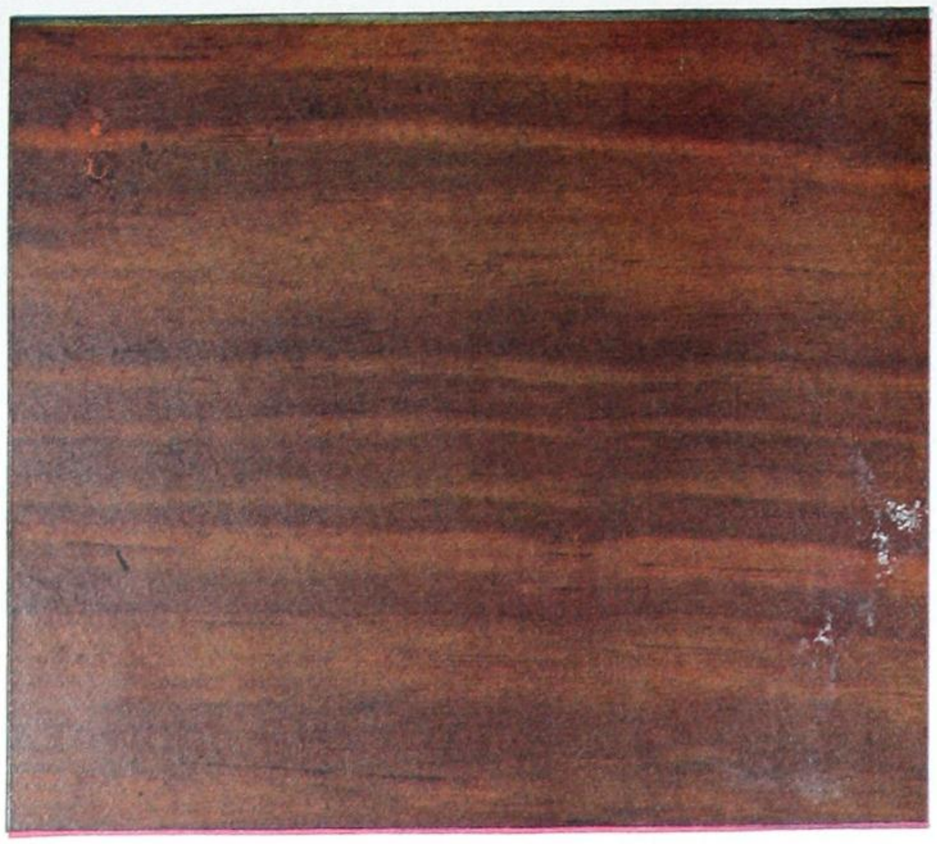
The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flattine Cabinet Finish.

DARK OAK, KLEARTONE OIL STAIN.

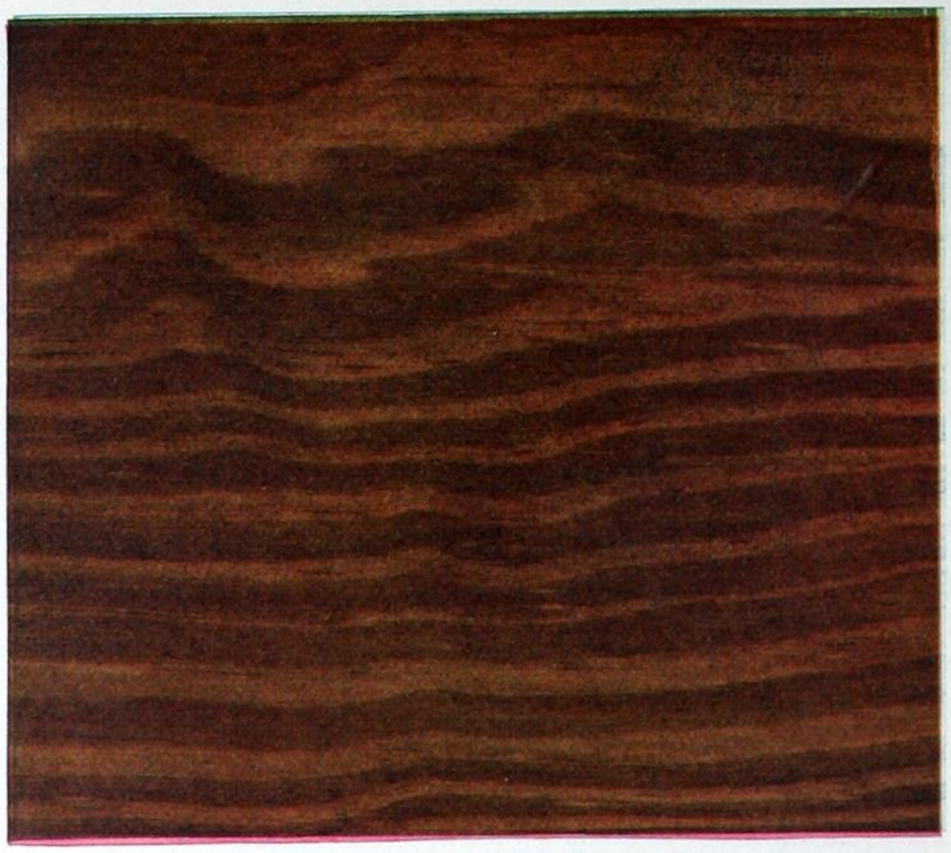
On (D) Yellow Pine, (E) Quartered Oak, (F) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flattine Cabinet Finish.

CONTINUED ON NEXT PAGE



A



D



B



E



C



F

LIGHT BROWN, KLEARTONE OIL STAIN.

On (A) Yellow Pine, (B) Birch, (C) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flattine Cabinet Finish.

DARK BROWN, KLEARTONE OIL STAIN.

On (D) Yellow Pine, (E) Birch, (F) Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattine Cabinet Finish.

PINCHIN, JOHNSON & CO. (Canada), LIMITED

Manufacturers of the Famous British Brands

Minerva Paints and Paint Specialties, Varnishes, Etc.

Factories:

TORONTO, CANADA LONDON, ENG.

ESTABLISHED 1834

PRODUCTS.

We manufacture a complete line of PAINTS and PAINT SPECIALTIES, WOOD FILLERS, ENAMELS and VARNISHES, under the supervision of Practical and Technical Experts. ALL CANS CONTAIN FULL IMPERIAL MEASURE.

Specific information in regard to our products, descriptive books, colour cards and samples will be furnished on application. Our line is extensive, covering all protective and decorative requirements, and each article is of the superior quality that will permit the architect to specify Minerva Brand with confidence.

MINERVA PURE READY PREPARED PAINT.

For Exterior and Interior Work. Made in 48 shades, exclusive of Outside, Inside and Flat White, Exterior and Interior Black, and Light and Dark Primer. Combines in correct proportions: Pure White Lead, Pure Oxide of Zinc, Pure Linseed Oil, Pure American Turpentine, and sufficient Pure Dryer to insure best results.

Outside White. A better white paint for outside use and all exposed surfaces cannot be made. It is the most durable and economical white painting material for exterior woodwork on the market. After being thoroughly stirred, it is ready for application.

Inside White. Made exclusively for interior use. Is durable, economical, and produces an exceptionally white oil gloss finish that can be washed.

MINERVA GALVANIZED IRON PRIMER.

A first-coater for Galvanized Iron Work. Owing to the surface of Galvanized Iron, it requires special treatment in order to prevent subsequent coats from coming off. By the use of Minerva Galvanized Iron Primer this is overcome. The Primer is applied directly to the metal surface and over it can be applied Paint in any colour.

MINERVA GRAPHITE PAINTS.

For Iron and Steel Surfaces. A composition of pure inert Graphite and Linseed Oil. It prevents rust and is unaffected by gases and is heat-resisting, owing to the elastic qualities. It is the most suitable, economical, and durable coating for structural iron work, bridges, elevators, smokestacks, and metal work of all kinds.

MINERVA ENAMEL.

An Enamel of exceptional merit, unsurpassed for covering capacity and fullness, which can always be relied upon. Made in 52 shades, exclusive of Exterior, Interior, and Flat White, so that any scheme of decoration can be carried out with materials of assured quality.

MINERVA SCHOOL BOARD SLATING.

A Superior Material for Making and Refinishing Blackboards. It produces a non-oily surface, is very durable, and will not crack or chip off. Made in two shades—Black and Green.

FRESCONETTE.

A Washable Flat Wall Finish, durable and sanitary, for use in homes, hospitals, and public buildings. Designed to replace the unsatisfactory and unsanitary wall coatings heretofore used.

While Minerva FRESCONETTE dries with a perfectly flat finish, it is still an oil paint, which produces a non-absorbent, permanent sanitary surface that can be repeatedly washed with soap and water, and repainted at any time without the necessity of removing the old coating.

Minerva FRESCONETTE can be used on walls of rough, smooth or sand finish, plaster, woodwork, metal, concrete or cement. It can also be used over burlap or wall paper. It is made in 16 pleasing shades, from which combinations can be made suitable for any scheme of decoration, and where a more elaborate scheme of decoration is desired other than the mere distinction between frieze, wall and ceiling, any floral or geometrical design can be applied by using the different shades as fresco colours.

SPECIFICATIONS.

Method of Application.—Stir Minerva FRESCONETTE thoroughly from the bottom of the can to a uniform consistency, which should be that of thick cream. If thinning is necessary, use Pure Spirits of Turpentine only—do not use Benzine. Apply with a good, broad, flat brush, and do not finish with vertical or lengthwise strokes, but with cross hatching.

Covering Capacity.—One gallon of Minerva FRESCONETTE will cover approximately 360 sq. ft., two coats to the gallon, or 200 sq. ft. on rough plaster. This depends, of course, upon the condition of the surface over which it is applied.

New or Old Plastered Walls and Ceilings.—The surface must be clean and free from grease and dirt; loose paint or paper removed. Sandpaper all lumps and roughness to a smooth, even surface; fill all cracks and holes flush and even. Then apply Minerva FRESCONETTE Wall Size tinted with the desired shade of Minerva FRESCONETTE, using three quarts of Minerva FRESCONETTE Wall Size to one quart of Minerva FRESCONETTE. Should any spots be visible after this first or priming coat becomes thoroughly dry, which usually takes from 24 to 48 hours, depending upon the condition of the surface, it is advisable to give these spots another coat of priming. Then, when the priming is thoroughly dry, apply two coats of Minerva FRESCONETTE, allowing at least 48 hours between coats. Two coats of Minerva FRESCONETTE over the priming coat will produce excellent results, but in some cases a third coat is advisable.

Cement, Concrete or Burlap.—Should first be treated with Minerva FRESCONETTE Wall Size, tinted with Minerva FRESCONETTE of the desired shade, then follow specifications given for finishing on new or old plastered walls and ceilings.

New Woodwork.—Coat all knots and pitchy spots with Shellac; then use one quart each of Raw Linseed Oil and Pure Spirits of Turpentine and one-half pint of Light Japan Dryer to each gallon of Minerva FRESCONETTE for the first or priming coat; then apply two coats of Minerva FRESCONETTE, as it comes from the can, allowing each coat 48 hours for drying before succeeding coat is applied. Sandpaper lightly between coats with No. oo sandpaper.

Old Woodwork.—Clean the surface thoroughly. Sandpaper old paint to a smooth, even surface, removing all loose paint; then apply two coats of Minerva FRESCONETTE, allowing each coat 48 hours for drying before succeeding coat is applied. Sandpaper lightly between coats with No. oo sandpaper.

Application over Old Wall Paper.—When the surface is in good condition, two coats of Minerva FRESCONETTE applied over wall paper will produce a pleasing and handsome effect For the first coat, thin Minerva FRESCONETTE with one quart of Pure Spirits of Turpentine to each gallon of Minerva FRESCONETTE, apply and let dry for 48 hours; then apply the second coat and flow it on freely.

MINERVA ART AND CRAFT STAINS.

Penetrating Stains that produce rich and lustrous effects, unsurpassed for beauty and truth of tone. By their use any depth of tone of any kind of wood can be faithfully reproduced. Sample panels and complete specifications furnished on request.

MINERVA SHINGLE STAIN.

A Creosote Stain for use on shingles. It is a perfect wood preservative. It penetrates deeply into the surface. Economy, durability, and permanency of shade are the chief characteristics of this product.

STRUCTURAL WATER-PROOFING COMPOUNDS.

SEE SPECIFICATIONS AND DIAGRAMS on pages 39, 40 and 41.

SAMUEL CABOT, INC.

MANUFACTURING CHEMISTS,

BOSTON, MASS., U.S.A.

CANADIAN AGENCIES:

MONTREAL—SEYMOUR & CO., 13 St. John Street.
CALGARY & EDMONTON—CANADIAN EQUIPMENT & SUPPLY CO.
TORONTO—THE ANDREW MUIRHEAD CO., 82 Bay Street.
OTTAWA—L. S. MACOUN, Central Chambers.
HALIFAX—FRANK A. GILLIS & CO.
QUEBEC—ARTHUR LAURENT.
VANCOUVER—HENRY DARLING.
WINNIPEG—BRAID & MCCURDY.
SASKATOON—SASKATCHEWAN SUPPLY CO.

PRODUCTS. Inventors and sole manufacturers of CABOT'S "CREOSOTE" SHINGLE STAINS, SHEATHING AND DEADENING "QUILT," "CONSERVO" WOOD PRESERVATIVE, WATERPROOF BRICK AND CEMENT STAINS, DAMP-PROOFINGS, PROTECTIVE PAINT, ETC.

CABOT'S "CREOSOTE" SHINGLE STAINS. The Cabot Stains are the original Creosote Stains invented by Samuel Cabot over twenty-five years ago, and the beauty and variety of their soft, artistic colouring effects has made the wide vogue of the shingled house possible. They have been used all over the world, and are acknowledged to be "the standard shingle stains."

They are beautiful, durable, preservative and economical, and are the only genuine Creosote Wood-preserving Stains.

APPLICATION OF SHINGLE STAINS. The Stains are sold ready for use, and no thinning or adulteration should be permitted. The shingles can be dipped before laying, or the Stain can be applied with a brush after laying. Dipping more thoroughly preserves the shingles and prevents unstained wood from showing, if the shingles shrink after laying. Brush coating takes less stain but more labour. The colouring effect is about the same in either case. If applied with a brush, two coats should always be used, because one coat is not a thorough job in any material. After dipping, a brush coat on the laid shingles is worth while, as it takes but little stain, covers any raw spots, and adds to the durability.

STIRRING.—The Stains should be kept thoroughly stirred, and should be applied to dry wood to insure uniform and durable results.

COVERING CAPACITY. One gallon to 100 sq. ft., two brush coats; 2½ to 2¾ wine gallons to 1,000 shingles dipped two-thirds; 3 gallons for dipping and afterwards brush coating.

SPECIFICATION FOR SHINGLE STAINS. Specify "Cabot's 'Creosote' Shingle Stains, in original packages bearing Cabot's trade mark. Colour to be selected by architect or owner." State whether shingles are to be dipped or brush coated, or both.

SAMPLES. Samples on shingle cedar, showing all the regular colours, will be sent on request.

CABOT'S SHEATHING AND DEADENING "QUILT." PURPOSES.—For heat insulation in dwellings, cold stores, ice houses and all buildings where uniform temperature is desired, and for deadening sound in schoolhouses, flats, hotels, hospitals, lodges, etc.

"QUILT" is a scientific non-conductor of both heat and sound. It consists of a matting of *cured eel-grass* (Zostera Marina) stitched between two layers of remarkably strong Kraft paper. The long ribbon-like fibres of eel-grass cross each other at every angle, and form within each layer of "Quilt" innumerable minute cells of "dead" air, making a soft, elastic cushion which is a wonderfully effective non-conductor. It is therefore not a mere felt or paper, but has a structure like a bird's plumage, that is, first a layer of matter, then a layer of dead air. These dead-air cells prevent the transmission of heat, and they break up and absorb sound-waves. One layer of "Quilt" is equal to more than forty of the cheap building papers.

a a-Studding. *b b*-Boards. *c c*-"Quilt." *d*-Shingles. *e e*-Plaster. *f*-Laths. *g g*-Furring Strips. *h h*-Floor Timbers. *i*-First Flooring. *k*-Finish Flooring.

APPLICATION "QUILT." "Quilt" can be applied in any way that felt or paper can, but a few methods are shown in these drawings: Figs. 1 and 3 show methods of heat insulation in dwellings, etc. Figs. 2, 4 and 5 show methods of sound-deadening in partitions and floors.

CONTINUED ON NEXT PAGE

WHY EEL-GRASS?—"Quilt" is made of eel-grass because that substance more perfectly meets the requirements than any other known. (1) It has a long, flat fibre, and when felted, as we use it, these ribbons form the successive air-spaces which give "Quilt" its chief power, and which would be impossible with a round fibre; (2) Eel-grass is indestructible by decay,* and because of its saline origin and percentage of Iodine is repellent to insects and vermin; (3) It will not burn, as it is composed of Silicon in place of the Carbon of plants that grow in the air, and is therefore an efficient fire-retardant; (4) It is very tough and never loses its elasticity.

DECAY AND VERMIN-PROOF.

UNIN-FLAMMABLE.



OLD PIERCE HOUSE, DORCHESTER, MASS.
Built about 1635.

*The walls of the old Pierce House, Dorchester, Mass., were stuffed with eel-grass when the house was built, about 1635, and the grass is still in a perfect state of preservation. We have a sample of this 270-year-old eel-grass in our office ,as here shown.



FAC-SIMILE OF LABEL ON BOTTLE SHOWN ABOVE.

WATERPROOF CEMENT STAINS.

These Stains enter and seal the pores of cement, plaster or concrete, making them rain-proof, and producing beautiful colouring effects without weakening the cement. They sink into the surface, and form no skin, so that they cannot chalk, crack or peel like paints and other coatings. Being transparent, they show the variations of texture, tone and density of the concrete almost as perfectly as in its uncoloured state.

Made in ten regular colours—Moss Green, Red, Brown, Gray, Cream, White, Ivory White, Italian Pink, Lichen Green and Light Fawn; also Colourless—but practically any shade can be produced. One gallon covers from 100 to 250 square feet two coats, depending upon the surface.

WATERPROOF BRICK STAINS

For colouring and waterproofing brickwork these Stains are vastly superior to paint, from either the artistic or practical standpoint. For evening up off-coloured and mis-matched brick, or restoring the colour of old, faded and discoloured walls, they are unequalled.

They sink into the pores leaving the "matte" surface and texture of the brick unchanged, and they cannot crack, peel off, or grow shabby, as any surface coating, like paint, does. They make the brickwork permanently rain-proof, and the colours wear as long as any colours can, and are easily renewed. One gallon covers about 200 square feet, two coats, on the average brick.

COLOURS.—Light and Dark Brick-Red, Terra-Cotta, Brown, Cream, and White.

"CONSERVO" WOOD PRESERVA-TIVE.

For preserving all kinds of woodwork from decay, worms and insects.

At a cost of two or three cents per stick "Conservo" will almost double the life of piles, posts, sills, bridge, mine, wharf and dam timbers, and all kinds of planking. It is a high-boiling Coal Tar distillate compound, the result of twenty-five years of experience and research, and is as perfect a preservative as can be made with the present knowledge of the subject. It gives a butternut brown tone, and makes an excellent interior finish for stables, as it kills foul odours and prevents horses from "cribbing."

CABOT'S PLASTERBOND DAMP-PROOFING.

A permanent waterproof and adhesive coating for interior brick and concrete walls on which plaster can be laid directly without furring or lathing. It forms a perfect bond between wall and plaster. One gallon covers 80 to 100 square feet, two coats.

CABOT'S STONEBACK WATER-PROOFING.

For stone, brick or concrete walls, above or below grade. Prevents staining of delicate stone. Elastic and permanent. One gallon covers 80 to 100 square feet, two coats.

CABOT'S PROTECTIVE PAINT.

A chemically pure pitch paint, thoroughly clarified and refined, which protects iron and steel from rust, electrolysis and corrosion. One gallon covers 300 square feet, two coats.

THE "R. I. W." DAMP-RESISTING PAINT COMPANY

(TOCH BROTHERS, NEW YORK).

Established 1848.

Canadian Office: 201-202 Mail Building, Toronto, Ont.
Canadian Factory: Oakville, Ont.

Inventors and Manufacturers of
TECHNICAL PAINTS, VARNISHES, COLOURS, WATERPROOFING MATERIALS, Etc.

Canadian Distributors:

Black Building Supply Co., Ltd., Toronto, Ont.
Dartnell, Ltd., Montreal, Que.
A. R. Pruneau, Quebec, Que.
Gandy & Allison, St. John, N.B.
Lawerence Hardware Co., Ltd., Halifax.
People's Building Supply Co., Fort William.
The Western Paint Co., Winnipeg, Man.
Canadian Equipment and Supply Co., Ltd., Calgary and Edmonton.
Carter-Dewar-Crowe Co., Vancouver, B.C.

"R. I. W."
REMEMBER IT'S WATERPROOF

"R. I. W." No. 232. A non-saponifiable bituminous compound, similar to a liquid gutta-percha, for application to the inner surface of exterior brick or terra-cotta walls, on which plaster can be directly applied. "R. I. W." No. 232 saves the cost of furring and lathing, and renders walls to which it is applied vermin-proof, moisture-proof and stain-proof.

"R. I. W." No. 110. For backing marble, granite, limestone, etc., to prevent staining and exclude dampness, as it prevents chemical action between the cement and stone.

"R. I. W." Marine Cement. For damp-proofing exterior of foundation walls, below grade level; for water-proofing between decks of boats, and between floors of railroad cars; for paying seams, etc.

"R. I. W." Insulectric No. 5. A quick-drying paint for all kinds of electrical insulating—armatures, transformers, storage batteries, etc. Is also used by traction railroad companies as a handrail, fender and trolley pole paint.

"TOCKOLITH." A cement paint, ready for use, for the permanent protection of steel, iron or metal against corrosion. "Tockolith" must always be second-coated with one of our "R. I. W." Damp-Resisting Paints, Structural Steel or Bridge Paints.

"R. I. W." No. 112. For the second coat on structural steel—over "Tockolith"—to prevent electrolysis. Also used for painting brine and condenser pipes and interior iron and woodwork.

"R. I. W." No. 49. This paint used over Tockolith, furnishes a perfect protection against the action of locomotive gases, acid and other fumes to which railroad bridges and viaducts are subjected. Is also an ideal paint for fire escapes, stacks and other exposed metal surfaces.

"LIQUID KONKERIT." A cement paint, ready for use, for application to the exterior of brick, stone, cement or concrete walls, above grade level, to prevent the penetration of dampness, and at the same time give the walls a uniform appearance. Is also used on the interior of such walls as a decorative finish, when plaster is omitted. Is made in white, also in five standard shades, but can be made to match any colour desired.

"CEMENT FILLER" and "CEMENT FLOOR PAINT." The use to which cement floors are subjected causes fine particles of silica and lime to float through the air and injure merchandise or machinery with which they come in contact. We were the first to discover that an organic acid resin (not a rosin) applied to cement floors or cement structures combines with the free calcium hydrate and forms a true calcium resinate. Inside of 24 hours this combination is complete, and the floor is then treated with another coat of the same material containing an inert pigment (Cement Floor Paint). The combined use of these materials will prevent cement floors from dusting up, and at the same time render them water-proof and oil-proof.

"TOXEMENT" WATER-PROOFING CONCRETE. Is a chemical compound, in powder form, which, when mixed in the proportion of from 2% to 3% of the amount of Neat Portland Cement used in the concrete or cement mortar, will render cement or concrete construction absolutely water-proof.

We shall be glad to furnish detailed information concerning any of the above-mentioned materials, which are manufactured in Canada. Our expert and advisory services are at the command of the trade.

LOWE BROTHERS, LIMITED

PAINT MAKERS, VARNISH MAKERS,

263-269 Sorauren Avenue,
TORONTO, ONT.

Distributors:
Lyon-Monkhouse, Limited,
Winnipeg, Man.

Distributors:
The Johnston Paint and
Varnish Co., Limited,
Vancouver, B.C.

CONCRETE AND CEMENT COATING. Renders surface impervious to moisture; prevents discoloration. It is alkali-resisting and forms hard-drying coating, to which dust or dirt does not adhere. Fourteen colors. Easily applied and beautifies the building on which it is applied.

MELLOTONE. "Soft as the Rainbow Tints."

A flat finish for Interior Decoration of walls, ceilings and woodwork, producing a sanitary, washable velvet finish that is restful to the eye and appealing to a refined taste. Plaster, Burlap and Wall Board should be primed with Lowe Brothers' Sealcote mixed with "Mellotone" in the proportion of three quarts of Sealcote to one or more quarts of "Mellotone." Woodwork should be primed with one coat of "High Standard" Liquid Paint thinned with turpentine and used according to directions then allowed at least forty-eight hours to dry and harden before applying "Mellotone."

When desired, the finishing coat can be frescoed, picked out in gold, embellished in relief or otherwise. Mellotone is made in the following colors:

IVORY TINT 695
CREAM TINT 612
ROSE TINT 610
BLUE TINT 611
GRAY TINT 661
GREEN TINT 613
OLIVE GREEN 615
DARK GREEN 616

Also WHITE 622

LIGHT TAN 619
GOLDEN YELLOW 696
DARK TAN 620
BROWN 618
DARK GRAY 662
NEUTRAL GREEN 614
CRIMSON 617
DELFT BLUE 621

Also BLACK 623

PUBLICATIONS. "High Standard Paint Specifications" (a book of forms)—"Hints to Architects"—"Paint and Painting"—"Homes Attractive"—"Protective and Preservative Paint"—"Test by Technologists"—Architects' Mellotone Combination Book, Descriptive Mellotone Booklet and Common Sense About Interior Booklet; also color cards of each product, giving details of the best methods of usage. They may be secured upon request.

JAMES LANGMUIR & CO., LIMITED

OFFICE AND FACTORY:
OAKVILLE, ONT.
TORONTO TELEPHONE: PARKDALE 5176.

TORONTO REPRESENTATIVE:
M. SINCLAIR,
47 PLEASANT BOULEVARD.
TELEPHONE: NORTH 2320.

MONTREAL DISTRIBUTORS:
DARTNELL, LIMITED,
8 Beaver Hall Square.

WINNIPEG DISTRIBUTORS:
WESTERN PAINT COMPANY,
121 Charlotte Street.

VANCOUVER DISTRIBUTORS:
JOHNSON PAINT & VARNISH CO., LIMITED.



RESIDENCE OF MR. R. SECORD, EDMONTON, ALTA. — LANGMUIR'S WILLOW GREEN SHINGLE STAIN USED ON ROOF. — ARCHITECT, H. D. JOHNSON, EDMONTON, ALTA.

PRODUCTS. We manufacture SHINGLE STAINS, COLOURS IN OIL AND JAPAN, VARNISHES, ENAMELS AND FLOOR WAXES.

SHINGLE STAINS. Years of experience have demonstrated the fact that the LANGMUIR SHINGLE STAINS are non-fading in colour, possess an unsurpassed richness of tone, and are the best possible preservatives and beautifiers of wood. Set of samples and literature on request.

COLOURS OF SHINGLE STAIN. Moss Green, Hedge Green, Willow Green, Deep Sea Green, Spring Green, Red Cedar (Light), Red Cedar (Deep), Seal Brown, Slate, Rich Oak, Mission Finish, Silver Grey, Vermilion, Walnut Brown, and Russet Brown.

SPECIFICATION FOR SHINGLE STAINS. Shingles to be best grade of B.C. Cedar (or Ontario Cedar, or Pine), well dried, and stained by dipping for two-thirds of their length in LANGMUIR'S SHINGLE STAINS, or if laid before being stained two coats must be applied. The head of packages must be removed and the Stain stirred thoroughly before and during process of work.

COLOURS IN OIL AND JAPAN. We manufacture a full line of colours in oil and japan for the exacting decorator and painter, which are unsurpassed for strength, richness of tone and fineness of grinding. The results obtained by using the Langmuir colours are remarkable for clearness of tone and smoothness of finish.

VARNISHES. We manufacture a complete line of Varnishes, including Amberine, for both interior and exterior finish, Hard Oil and Elastic Oak, and would specially commend the Amberine Varnish, both interior and exterior, for particular work and where fine results are desired.

EXTERIOR ENAMELS. These Enamels are specially made to resist changes in temperature and to withstand the effects of severe exposure. They are particularly desirable for porches and verandahs. Are free flowing, slow setting, and are unsurpassed for whiteness.

SPECIFICATION FOR OUTSIDE ENAMELS. First a priming coat of Langmuir's Pure White Lead; follow this with a second coat of Pure White Lead, thinned with equal parts of raw linseed oil and turpentine, adding a small portion of pale drying japan; third coat Langmuir's Inside Flat Finish thinned with turpentine only.

INSIDE FLAT FINISH. A Lithopone White ground in refined linseed oil and pale japan. Thinned with turpentine, it produces a beautiful satin finish. It can be thinned with part oil and part turpentine for gloss finish. Is whiter, covers better, is non-poisonous, and for all interior purposes is superior to white lead.

FLOOR VARNISH. We manufacture a special Varnish for floors, under the name of Adamantine Floor Varnish, which is remarkable for its wearing properties and hardness. A coat of Langmuir's Adamantine Floor Varnish laid over a floor which has been stained, filled and shellacked, will outwear any other product.

FLOOR WAX. Our Wax Finish for floors is made to meet the demand for a hard, high lustre finish; this Wax Finish is easily applied, sets quickly, and is readily brushed up to a bright surface, which steadily increases in hardness and wearing properties.

INTERIOR DECORATIVE STAINS. We manufacture a line of Interior Decorative Stains to enable the architect to obtain soft harmonious colour effects on interior woodwork. Sample sets on application. Colours include Red Browns, Yellow Browns, Soft Greens and Asphaltum effects, which are unsurpassed for clearness and richness of tone.

STURGEONS, LIMITED
TORONTO.

AGENTS WITH STOCKS IN
HALIFAX, MONTREAL, OTTAWA, HAMILTON, PORT ARTHUR, WINNIPEG, REGINA, CALGARY, EDMONTON, VANCOUVER.

Solignum

Wood preservative and stain made by Major & Co., Limited, Hull, England. Solignum is manufactured from coal tar oil, supplied in reds, greens and browns.

Covering power: 1½ gals. will dip 1,000 shingles.
1 gal. will brush coat 150 sq. feet.

SPECIFICATIONS: Shingles—To be dipped in Solignum No. . . . followed by a brush coat when laid, or to be brush-coated when laid with Solignum No. . . .

Half Timber Facia Boards. . . . . to be given a coat of Solignum No. . . . before being placed in position, a second coat to be given on completion of job.

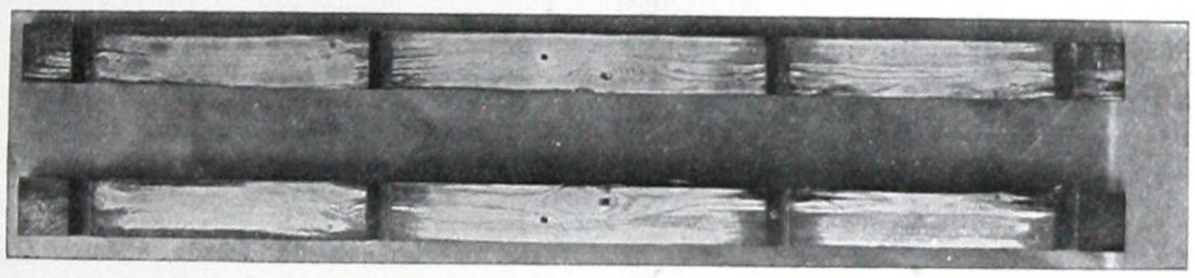
For interior finish please write us for specifications.



HOUSE OF
MR. JAS. RYRIE,
OAKVILLE.

Shingles and Half-Timber treated with Solignum.

Messrs. Burke, Horwood & White, Architects.



A TELEPHONE CROSS-ARM TREATED WITH SOLIGNUM.

Note how the penetration is all around the sappy parts where it is most needed. Solignum takes the points of least resistance.



BURWASH HALL, TORONTO.

In these beautiful buildings Solignum was used for interior staining. Messrs. Sproatt & Rolph, Architects.

PARIPAN

Washable lacquer Enamel made by Randall Bros., London, England, in 66 different colours, GLOSSY AND FLAT.

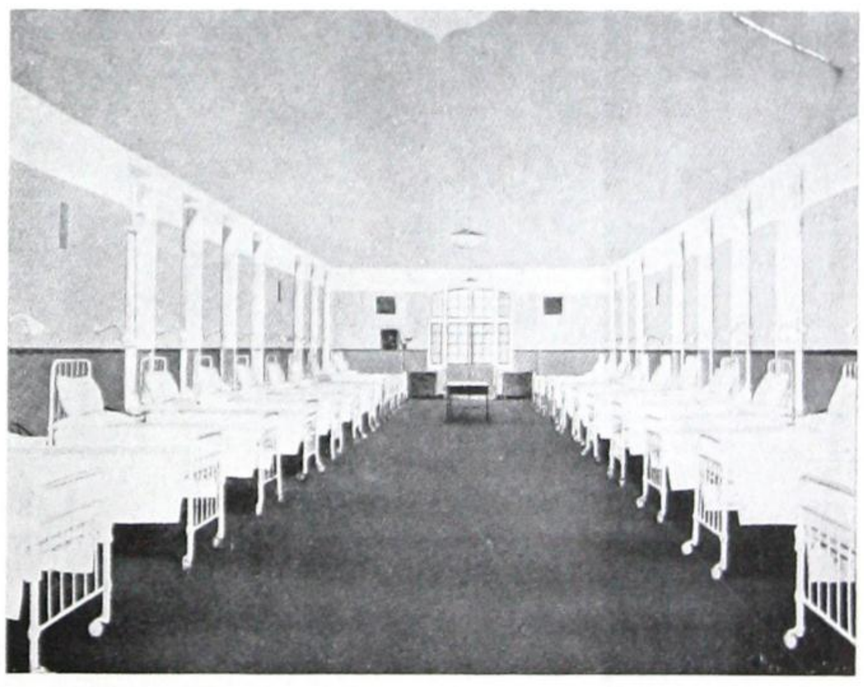
Recommended for plaster walls or woodwork, inside or outside.

General Specification for white work, for best jobs.

Two coats Paripan Filler or under coat, one coat Paripan Flat, one coat of Paripan Gloss or Flat. When colour is to be used, tint first, second and third coats.

Testimonials showing use of Paripan for 15/20 years. Further specifications on application.





This photograph is of one of the Toronto General Hospital wards, where Paripan was used on all the plaster walls and woodwork. Architects, Messrs. Darling & Pearson.

Because it was Hygienic, Paripan three-coat work was used on Toronto General Hospital.

"SOLPAR" WOOD-FINISHING PRODUCTS.

"Solpar" Woodfiller, Stains, Wax and Varnishes are unequalled.
Samples of finished wood on application.
Supplied in fumed, brown, Flemish, weathered oaks; also brown and red mahogany.
The outstanding feature of this stain is that the plain Solpar Stain has a beautiful finish of itself.

GENERAL SPECIFICATION: Mission Finish—Apply one coat Solpar Stain, rub after three minutes.
Wax or Varnish—Apply one coat Solpar Stain (one coat of filler for open grain woods), one coat shellac, then wax or varnish as desired.

PRATT & LAMBERT, INC.

VARNISH MAKERS, BRIDGEBURG, ONTARIO. OFFICE AND FACTORY, 32 COURTWRIGHT STREET.

FOREIGN FACTORIES:

NEW YORK BUFFALO CHICAGO
LONDON PARIS HAMBURG

PRODUCTS.

The following are special Varnishes for special purposes:
"61" FLOOR VARNISH, a finish for every floor.
"38" PRESERVATIVE VARNISH, for the highest grade of inside work.
SPAR FINISHING VARNISH, for exposed or exterior work.
"110" CABINET VARNISH, for general inside work.
ALCOLAC, a first coater for close-grained woods.
PALEST INTERIOR VARNISH, for work over delicate shades of fillers and stains.
HYGIENIC GLOSS FINISH, for hospitals, schools and institutions.
DULKOTE, an invisible preservative for a dull finish without rubbing.
OIL and ACID STAINS, in a variety of colours to produce every practical effect known to the finishing trade.
PASTE WOOD FILLERS of every colour.
VITRALITE, a permanent white enamel for inside and outside work.
EGG-SHELL VITRALITE, an egg-shell enamel for a dull enamel finish without rubbing.
P. & L. ENAMEL UNDERCOATING, for the second and third undercoats of enamel work.

WHY THESE SPECIFICATIONS ARE OF VALUE.

The service which any suggested specifications can render the architect depends to a great extent upon the experience back of such recommendations.

On the subject of interior finishing, PRATT & LAMBERT, Inc., occupy a position of unique importance and advantage. Not only are they with their European connections, the largest varnish industry in the world, and one of the oldest, but PRATT & LAMBERT were the first to enter the field of special architectural finishes, and the P. & L. Line has never been equalled for the beauty and variety of effects possible, or the durability of the finish.

FREE SAMPLE PANELS AND SPECIFICATION BOOK.

We would be glad to send you panels showing effects obtainable with Pratt & Lambert Stains, Fillers and Varnishes, also copy of our Specification Book, compiled especially for Architects.

SIXTY-FIVE YEARS' EXPERIENCE AT YOUR DISPOSAL.

The following specifications, of course, can give only in a general way the best methods to follow and the possible effects in the different kinds of finishing. Whenever, therefore, you desire any particular advice, information or suggestions, do not hesitate to ask us.

SUGGESTED SPECIFICATIONS.

EXTERIOR WORK—

Open-Grained Woods—
One coat of Paste Wood Filler of desired colour.
One coat of "61" Floor Varnish.
Two coats of Spar Finishing Varnish.

Close-Grained Woods—
One coat of Pratt & Lambert Oil Stain of the desired shade, if stained finish is desired. If not, stain is not required.
One coat of "61" Floor Varnish.
Two coats of Spar Finishing Varnish.

FINE INTERIOR WORK—NATURAL—

Open-Grained Woods—
One coat of Paste Wood Filler.
Three coats of "38" Preservative Varnish, left in gloss, rubbed dull or polished.

Close-Grained Woods—
One coat of "Alcolac."
Two coats of "38" Preservative Varnish, left in gloss, rubbed dull or polished.

REGULAR RUN OF INTERIOR WORK—NATURAL—

Open-Grained Woods—
One coat of Paste Wood Filler.
Two coats of "110" Cabinet Varnish, rubbed dull or left in gloss.

Close-Grained Woods—
One coat of "Alcolac."
Two coats of "110" Cabinet Varnish, rubbed dull or left in gloss.

ONE-TONE COLOUR EFFECTS—

Close-Grained Woods—
One coat of Acid or Oil Stain.
Over acid stain, one coat of pure shellac. Over oil stain, one coat of Pratt & Lambert Alcolac.

Two coats of Pratt & Lambert "38" Preservative Varnish, left in gloss or rubbed or polished.

Open-Grained Woods—
One coat of Pratt & Lambert Paste Wood Filler of the required shade. If desired depth of colour cannot be obtained with the coloured paste wood filler, a coat of Pratt & Lambert Acid Stain should be applied before the filler, followed when dry with a coat of paste wood filler of the same colour.

Over acid stain and paste wood filler, one coat of pure shellac, two coats of Pratt & Lambert "38" Preservative Varnish, left in the gloss, rubbed or polished.

Over paste wood filler only, three coats of Pratt & Lambert "38" Preservative Varnish, left in gloss, rubbed or polished.

TWO-TONE COLOUR EFFECTS—
One coat of Acid Stain.
One coat of Shellac.
One coat of Paste Wood Filler, of a different colour than was the acid stain.
One coat of Shellac.
Two coats of P. & L. Palest Interior or "38" Preservative Varnish, left in gloss, rubbed or polished.

NOTE.—*Two-Tone Effects* can be procured on open-grained woods, such as oak, etc., only, and are produced by the combination of acid stains and a white or tinted paste wood filler of a different colour.

Example: For instance, the Pratt & Lambert Wood Finish Effect No. 7220 is a combination of a dark brown, English Oak Acid Stain and Pratt & Lambert Special Green Paste Wood Filler. A thin coat of white shellac is applied over the acid stain, which is applied first. After this green filler is applied. This coat of shellac allows the filler to "take" only in the porous parts of the wood, and the result is a beautiful combination of the brown and green.

INTERIOR WORK, DULL-FINISH, NO RUBBING—

Dull-Finish Without Rubbing—
Use the foregoing suggestions for specifications; substituting, however, one coat of "Dulkote" in every case where "38" Preservative, Palest Interior Varnish or "110" Cabinet Varnish is specified, and omit rubbing.

ENAMEL WORK—

Interior—wood, plaster, etc.
One coat of lead and oil.
Two coats of Vitralite Enamel Undercoating.
Two coats of Vitralite Enamel, left in the gloss or rubbed.

Exterior Work.
Use coats of lead and oil instead of Enamel Undercoating.

Egg-Shell or Dull-Finish, Without Rubbing—
One coat of lead and oil.
Two coats of P. & L. Enamel Undercoating.
One or two coats of Egg-Shell Vitralite Enamel.
NOTE.—For metal work omit the coat of lead and oil.

Cement, Concrete, etc.—Exterior or Interior.
One or two coats of Vitralite Cement Undercoating.
One or two coats of Vitralite.
NOTE.—Although Vitralite is made only in the white, it may be brought to any tint by mixing in thoroughly the necessary quantity of the desired colour ground in Japan.

FLOORS—

Oak and All Open-Grained Woods—
One coat of Paste Wood Filler.
Two or three coats of "61" Floor Varnish.

Maple, Pine and All Close-Grained Woods—
Two or three coats of "61" Floor Varnish.

THE STANDARD PAINT CO. OF CANADA, LIMITED

52 Victoria Square,
MONTREAL.

Sales Offices and Warehouses:
Winnipeg. Calgary.
Vancouver.

Factory:
Highlands, Lachine Canal,
Montreal.

PRODUCTS.

We manufacture DAMP-PROOFING PAINTS, CONCRETE MASONRY and CONCRETE FLOOR FINISHES, P. & B. PRESERVATIVE PAINTS, P. & B. ELECTRICAL INSULATING VARNISHES and COMPOUNDS. (Full list of our products on pages 70 to 73.)

S.P.C. DAMP-PROOFING PAINT, BLACK.

For coating the inside surface of brick, masonry and concrete walls above ground. It forms a perfect bond between the wall and plaster, and avoids the necessity of furring and lathing. At the same time, it insures a thoroughly moisture-proof building. This paint should be used only where no actual water pressure is encountered. Copy of specifications for applying will be forwarded on request.

S.P.C. DAMP-PROOFING PAINT, CLEAR.

A colourless paint for application to the exposed surface of brick, masonry and concrete walls. A wall may be made damp-proof without affecting its colour. This paint, also, is adapted only for work above ground.

"IMP" BRAND WATERPROOF MASONRY FINISH.

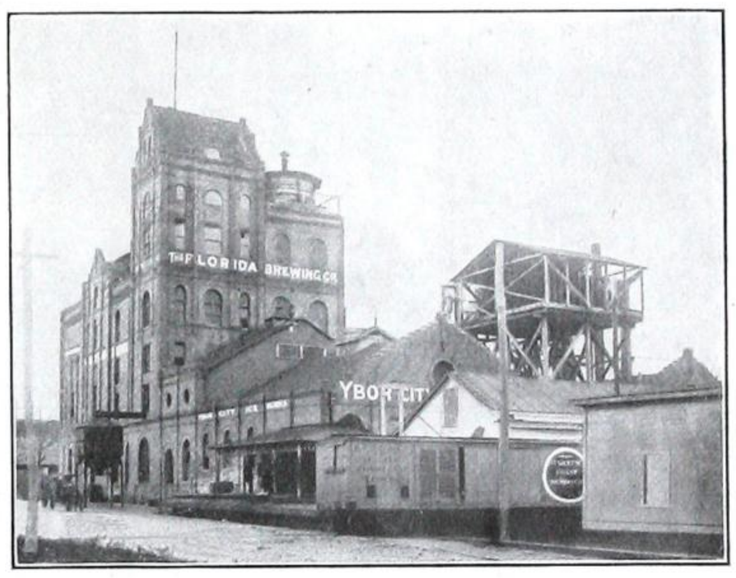
Manufactured in the form of a primer and finishing coat. The primer contains a vehicle which acts as a cement and fills the voids of the masonry, and, at the same time, combines with the free alkali which is present with either concrete or the mortar used in laying up the brick wall, and which proves so destructive to ordinary paints. Imp Waterproof Masonry Finish coat is manufactured in White and various colours. Colour card on request.

"IMP" BRAND CEMENT FLOOR FILLER AND FLOOR FINISH.

Imp Cement Floor Filler (Clear) can be classed as a priming coat and neutralizes any alkali present in the floor. Manufactured without pigment, and in eight standard colours. It may be applied as a finishing coat. Dries to a glossy surface and will withstand hard wear and usage. Floors treated in this manner will not dust under service and are non-absorptive, waterproof, oil-proof and sanitary.

"P. & B."—"S.P.C." PRESERVATIVE PAINTS.

For wood, iron or metal, exposed or submerged. Marketed for over 25 years, under the well-known P. & B. and S.P.C. trade marks, and demonstrated unique for preservation against weather, water, heat, cold, acids, alkalies, fumes, gases, etc. Prevent rust, rot, corrosion, oxidation and guard against electrolysis. *Write for our book on PAINTS for full information.*



Florida Brewing Co., Tampa, Florida.
P. & B. Paint used throughout.

"P. & B." ELECTRICAL COMPOUNDS.

Recognized as *standard* for over 25 years on account of their insulating properties and effectiveness for the special purposes they are designed to meet. Made in two grades:

No. 1.—To be used where a light surface and deep penetration is desirable.

No. 2.—For all general electrical purposes.

These Compounds protect wires, exposed or underground, against gases, corrosion, dampness or wet, and afford high insulating efficiency. Guard against electrolysis and leakage. *For fuller particulars, write for our book on INSULATION.*

"P. & B." ELECTRICAL INSULATING VARNISHES.

These varnishes are of two distinct classes, namely, Baking Varnishes, which harden by oxidation when subjected to artificial heat; and Air-Drying Varnishes, which harden or set by evaporation of the solvent. These may be sub-divided as follows:

Class 1. Baking Varnishes.—Entirely oil-proof. P. & B. Clear Baking Varnish, P. & B. Black Baking Varnish and P. & B. Baking Core-Plate Varnish.

Class 2. Air-Drying Varnishes and Compounds.—Entirely oil-proof. S.P.C. Armature and Field Coil Varnish and P. & B. Black Finishing Varnish.

Oil-Resisting.—P. & B. Black Air-Drying Varnish, P. & B. Air-Drying Core-Plate Varnish, and P. & B. Electrical Compound.

For fuller information, write for our book entitled "INSULATION."

WATERPROOFING PRODUCTS.

MEMBRANE FABRICS.

S.P.C. Asphalt Saturated Felt.—Made in the following weights:

No. 7, weighing 11 lbs. to the square. No. 10, weighing 14 lbs. to the square.
No. 12, weighing 20 lbs. to the square.

This Felt has unusually great tensile strength, and is guaranteed to contain no coal tar or coal tar products. Will not dry out or harden in storage or in service.

S.P.C. Waterproofing Felt.—Similar to S.P.C. Saturated Felt, but coated on one side with Ru-ber-oid Gum. Made in the following weights:

No. 7, weighing 15 lbs. to the square. No. 10, weighing 20 lbs. to the square.
No. 12, weighing 25 lbs. to the square.

Will stand exposure to the weather without any further treatment.

S.P.C. Saturated Burlap.—Consists of best quality burlap impregnated with a compound of great moisture-resisting properties. Made up in any desired weights.

INTEGRAL COMPOUND—IMPERVITE.

IMPERVITE is a soluble paste composed largely of mineral Asphaltum, and is manufactured in a neutral colour and various tints, including Slate, Terra Cotta, White and Green. It is not a paint or a wash. It is an *integral* waterproofing compound that is mixed through and through the mortar or concrete, or applied as a facing. *IMPERVITE contains no soap or saponifiable constituents.* It does not detract from the strength of the mortar or delay its set. *Write for our booklet for fuller information.*

RONUK LIMITED

PORTSLADE, ENGLAND.

SPECIALISTS IN THE MANUFACTURE OF FLOOR AND FURNITURE POLISH, AND IN THE TREATMENT OF FLOORS AND WOODWORK.

SHOW-ROOM WITH RONUK-TREATED FLOORS, PANELLING AND SPECIMEN FINISHES:

53 YONGE STREET, TORONTO—HEAD OFFICE FOR CANADA.

DEPOT: 91-93 YOUVILLE SQ., MONTREAL.

PRODUCT. RONUK FLOOR POLISH is a wax finish of unique composition; the purest ingredients only are used. Antiseptic materials are employed which possess the same germicidal properties as common disinfectants, but are without their disagreeable characters of smell and corrosive qualities. Ronuk is therefore particularly suitable for use in hospitals and public institutions. Ronuk has proved its superiority in England for the past 20 years as the best finish for floors and interior woodwork; it is fast gaining favour with Canadian Institutions, and is in use in a large number of Hospitals, Institutions, Clubs, Banks, Offices, etc., a list of which will be supplied on application.

RESISTS GERMS AND DIMINISHES DUST. Ronuk sinks in and fills the pores of the wood, instead of simply covering the surface, and forms a hard, bright, transparent finish, that will not "pick" or "roll." Ronuk Floor Polish, as well as filling up all crevices where germs and dust might accumulate, forms a surface so smooth and hard as to afford them no harbour.

FOR ANY WOOD. Ronuk can be applied to any hard or soft wood, and, in conjunction with Ronuk Special Stains, an infinite variety of beautiful effects can be produced. A Ronuk finish on any woodwork is silky and beautiful, and can be adapted to suit any taste.

LINOLEUM, CORK TILING. Ronuk is an excellent dressing and preservative for Linoleum, Cork Carpet and Tiles, Patent Flooring, etc.

SAVES LABOUR AND MATERIAL. To secure the best results, Ronuk should be applied sparingly, thus making it a very economical finish. One dressing only is sufficient, and it is kept in perfect condition by the application of a very little Ronuk from time to time. Ronuk floors never require scrubbing, or cleaning down with Turps or Benzine.

HOW TO APPLY. SOFT WOODS.—A preliminary treatment with Ronuk Special Staining not only beautifies the wood, but prepares the surface to receive the Ronuk Floor Polish properly. Ronuk stains do not bleach or come away.

PASTE FILLER UNNECESSARY. HARD WOODS need a preliminary dressing with Ronuk Oil Stopping (Filler) or combined Filler and Stain, which fills up the pores of the wood and enriches its appearance.

The floor should be absolutely clean and dry. The Stopping or Stain is then applied and thoroughly rubbed in with a circular motion, wiped dry on the surface, and allowed to stand for 24 hours. Ronuk is then well rubbed into the wood and *allowed to dry for 2 hours;* it should then be brushed thoroughly into the wood with a weighted floor brush, and finally polished with a cloth under the weighted brush, and finished with a second clean cloth or flannel in the same way. Ronuk does not dry too rapidly when applied. It contains no benzine, which evaporates too quickly to carry a dressing right into the flooring. Ronuk sinks right into the wood and preserves and feeds it.

MAINTENANCE. Floors treated with Ronuk Floor Polish should have a very little Liquid Ronuk applied, brushed in and rubbed with the flannel from time to time as required to maintain a bright, clean surface.

LASTING QUALITIES. Floors treated with Ronuk will wear for years, improving from year to year.

CONTRACT WORK. Ronuk Limited will undertake or arrange with contractors to undertake the treatment of floors, panelling, interior woodwork, linoleum, etc., following the methods above specified.

Write us for any additional information, prices, estimates, etc.

THE HOBBS MANUFACTURING CO., LIMITED

MONTREAL. TORONTO. LONDON. WINNIPEG.

SOLE CANADIAN MANUFACTURERS:

SIMPLEX SIDEWALK AND SKYLIGHT CONSTRUCTION.
3-WAY SIDEWALK CONSTRUCTION.
NU-PLAN SIDEWALK CONSTRUCTION.
BAR-LOCK SIDEWALK CONSTRUCTION.
QUICK-SET SIDEWALK CONSTRUCTION.

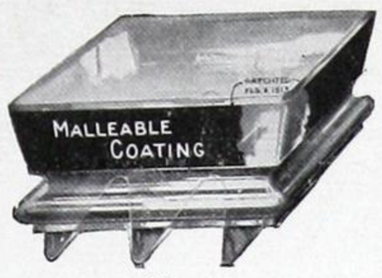
PRODUCTS. SIMPLEX DOUBLE REINFORCED CONCRETE SIDEWALK, PRISM AND SIMPLEX SKYLIGHTS.



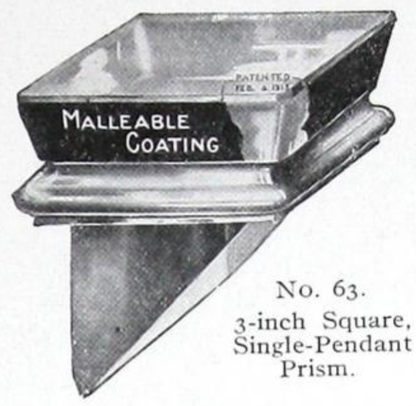
No. 60.
3-inch Diameter.



No. 61.
3-inch Plain Square.



No. 62.
3-inch Square, 3 Point Prism.



No. 63.
3-inch Square,
Single-Pendant
Prism.



No. 64.
3-inch Diameter
2 Point Prism.

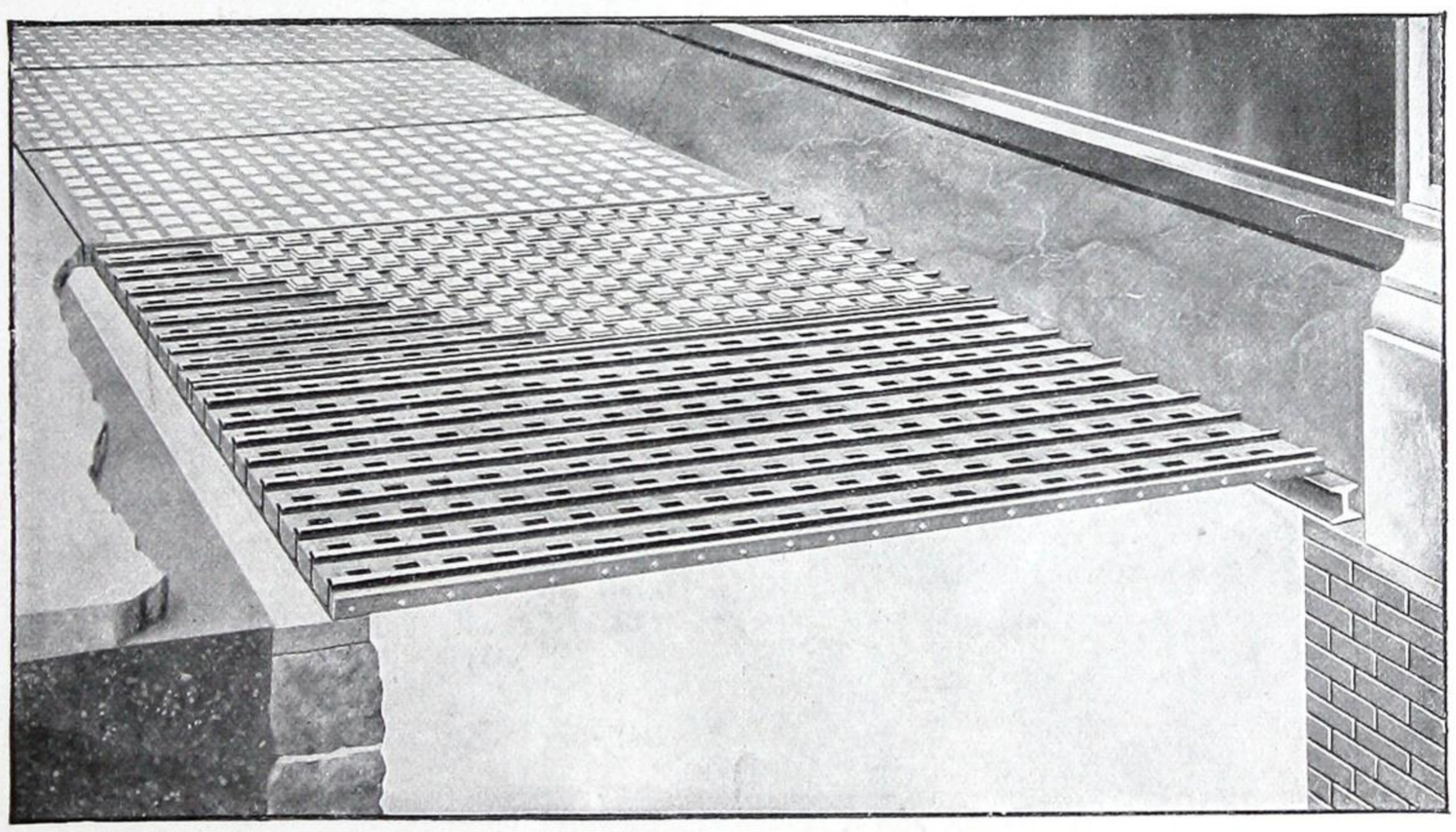
SIMPLEX REPLACEABLE SIDEWALK AND FLOOR LIGHTS.

A thoroughly practical construction, which is **guaranteed to be water-tight** and free from shaling of glass.

Simplex construction is doubly reinforced, and the steel used in it is entirely protected by the concrete, and is thus **immune from corrosion.**

The glass used in Simplex is covered with a patented malleable coating, which takes care of any expansion of the steel or concrete, and absolutely prevents shaling of the glass, which occurs in all other constructions, and which was impossible to overcome until Simplex was placed on the market.

This is the only sidewalk construction that does not require experts to set, the most important part of the work being done at our factory. When the pre-formed slab is placed over the opening, the glass is set in place, and the balance of the cement put on by an ordinary cement mechanic.



SIMPLEX CONSTRUCTION, SHOWING METHOD AND SIMPLICITY OF INSTALLATION.

SIMPLEX SKYLIGHT SYSTEM.

Simplex system of skylights consists of a pre-formed factory-made slab of reinforced concrete, insuring the proper spacing and placing of reinforcement. Pre-formed slab is 1¼ in. in thickness, with heavy I-beam reinforcement one way and twisted steel rods in the other direction, which is sufficient in itself to carry heavy loads. The finished work, being 2¼ in. thick, is so constructed that the glass, which measures 6 in. x 6 in., fits true and straight, making it impossible to set lenses out of perfect alignment.

SPECIFICATION.

Skylights, Sidewalk Lights, Floor Lights, shall be of double reinforced concrete construction, with factory-made pre-formed slabs, having heavy I-beam tension members one way, with transverse reinforcement of twisted steel rods, using No..... Tanex quality annealed glass, with cushion of malleable coating. All work to be guaranteed against defective workmanship and material, maintained water-tight, and glass guaranteed against breakage from expansion or contraction for a period of two years.

NOTE.

We will be pleased to furnish, on application, full size detail drawing of the various construction which we manufacture. See also page 195.

THE TORONTO PLATE GLASS IMPORTING CO., LIMITED

DON ROADWAY,

TORONTO, ONTARIO.

MADE IN CANADA BENT GLASS THE TORONTO PLATE GLASS IMPORTING CO. LIMITED TORONTO.

PRODUCTS. **GLASS BENDERS TO THE TRADE.**

BENT GLASS— "MADE IN CANADA." We make a specialty of CONTINUOUS GLASS in shop fronts, of bent and flat plates. A CONTINUOUS SHOP FRONT, the length of a street, may be obtained by this method, thus presenting many architectural effects WITHOUT CORNER AND INTERSECTING BARS. The edges of bent and flat glass, being suitably ground and abutted together, are held by small buttons. A store front of any dimensions, of one-half a circle or even more, on 2, 3 or 4 plates without bars can be readily made. A serpentine or any other circuitous line, with or without any intersecting flat plates, may be easily followed.

Suggestive diagrams and price lists sent on application.

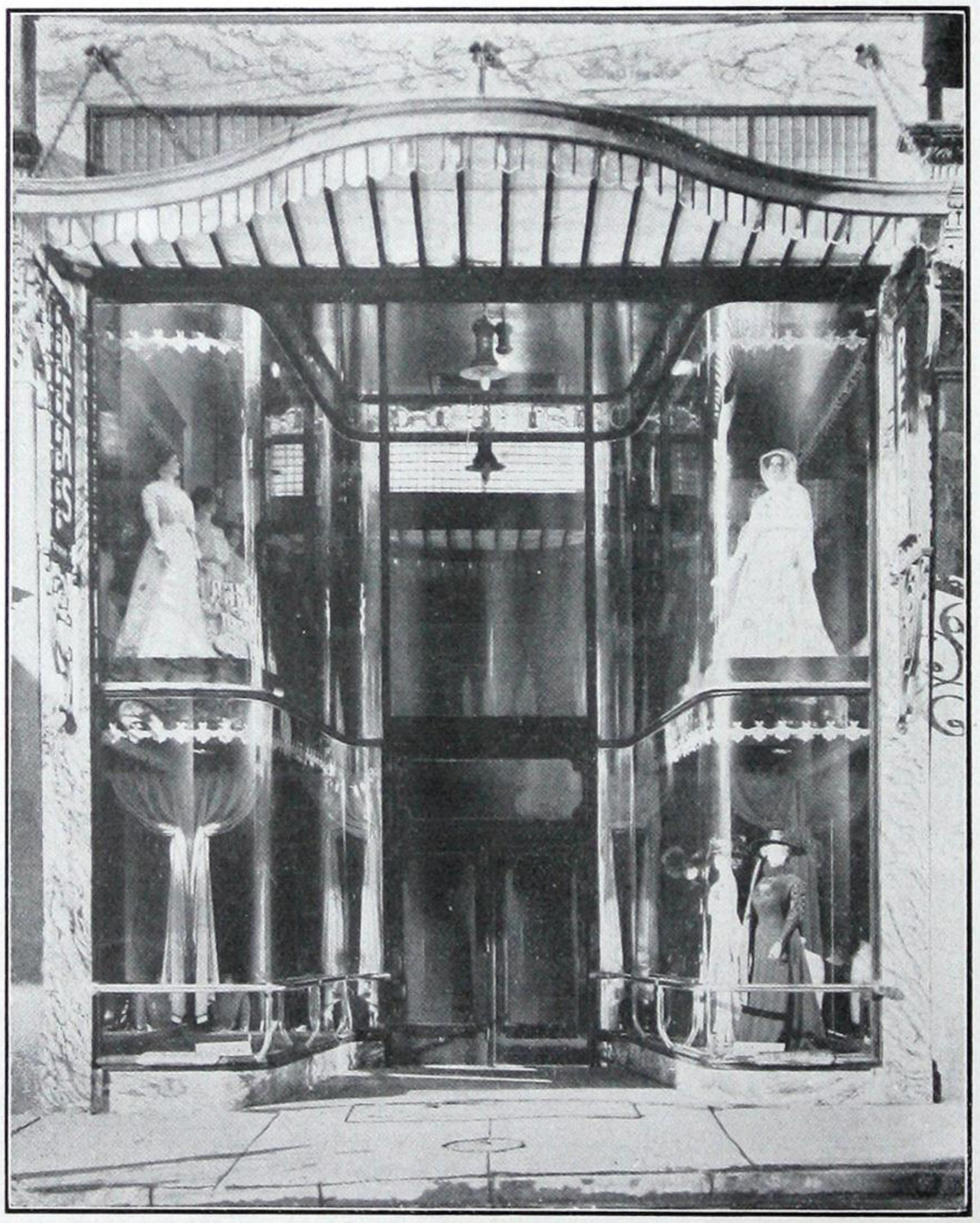


PHOTO OF STORE FITTED WITH OUR CONTINUOUS METHOD.
MUNRO & MEAD, ARCHITECTS.

SPECIAL.—BENT 32 - OZ. GLASS.—Our Bent 32-oz. best quality Sheet Glass in sash sizes, has an excellence almost equal to that of plate glass. It is bent true to curvature and free from waviness peculiar to the flat sheet glass. It is lighter than plate glass. This substance is useful where plate glass is too heavy.

NOTE.—See next page for price list.

CONTINUED ON NEXT PAGE

TRADE PRICES OF BULGED PANES.

FOR CASEMENT, SASH, TRANSOMS, AND INTERIOR WORK.

Made of Good Quality 16-oz. Glass.	Price (each). Glass included.
Panes not over 7 x 7	15 cents.
" " 8 x 8	18 "
" " 9 x 9	22 "
" " 10 x 10	26 "
" " 11 x 11	30 "
" " 12 x 12	35 "

These panes are glazed in the ordinary way with good putty, and not with stops. They make an exquisite window, and give a very high-class tone to an elevation, not obtainable with ordinary glass.

Oblong panes at same prices as above at equivalent areas.

SPECIAL TRADE PRICES OF GLASS BENDING.

Ordinary sweeps are those bends which are carved one way of the panes, not exceeding ¼ circle.

PLATE GLASS When bent to sweep not exceeding ¼ circle one way of the glass.	Price per Foot.
Panes not exceeding 76 united inches	$0.60
" exceeding 76, not exceeding 90 united inches	.75
" " 90 " " 100 " "	1.00
" " 100 " " 110 " "	1.20
" " 110 " " 120 " "	1.60
" " 120 " " 140 " "	2.00
" " 140 " " 160 " "	2.40
" " 160 " " 180 " "	2.80
" " 180 " " 200 " "	3.20
" " 200 " " 210 " "	3.60
" " 210 " " 220 " "	4.00
" " 220 " " 230 " "	4.40
" " 230 " " 240 " "	4.80

SHEET GLASS Double thick, when bent not exceeding ¼ circle one way of the glass.	Price per Foot.
Panes not exceeding 60 united inches	$0.25
" exceeding 60, not exceeding 70 united inches	.30
" " 70 " " 80 " "	.40
" " 80 " " 90 " "	.50
" " 90 " " 100 " "	.60
" " 100 " " 110 " "	.90

Single Thick Glass, when not over 60 united inches, 20% less.

Larger Plates: Prices on application.

Panes one part flat and one part bent, the bent part to be ⅓ or more of the width, and also circular panes exceeding ¼ circle and not exceeding ⅓ circle—25% advance.

Panes two parts flat and one part bent, the bent part to be ½ or more of width—40% advance.

Prices for more difficult shapes on application.

32-oz. Sheet Glass—20% advance on double thick prices; also Rolled Cathedral, Figured Rolled Glasses and ⅛ Rolled Plate not over 50 inches long or wide—10% advance on double thick bending prices.

Rolled Plate and other Glasses in larger sizes than mentioned in above paragraph, also Rolled Plate and other Glasses over ⅛-inch and not more than ⅜-inch thick, of any size—bending prices same as plate glass, with a further discount of 25%.

Plate Glass and Sheet Glass when ground, chipped, embossed or similarly ornamented—10% in addition to prices for extra risk in bending.

BENDING BEVELLED PLATE GLASS—Glass already bevelled cannot be received for bending. Special prices for bevelling bent glass on application.

Boat Panes, Panes Conical, Winding, or those not having parallel sides or ends, are charged net list.

Minimum charge for bending any one order is 50c. for Sheet Glass, and $1.00 for Plate Glass and other glasses, glass included.

Panes less than 12 inches wide will be charged as 12 inches wide.

Panes in quantities of 10 or more, less than 12 inches long and wide—special prices on application.

All bending is charged with fractional portions of inches as the next even inch.

Bending is not guaranteed exact, edges straight, flat parts flat or any two panes alike, owing to inequalities in expansion and contraction in moulds and glass, but our work will be found to be so exact as to avoid any reasonable complaint; extra large plates, and those exceeding ordinary sweeps are liable to be mould marked.

Where glass is to be put in metal frames, we advise these to be sent to our works, or provision made for adjustment. A charge is made for fitting in all cases when frames or sashes are sent to have bent glass fitted to same.

Glass supplied at current market prices.

DISCOUNTS OFF TRADE LISTS—
Bulged panes—from 10% to 20%, according to the importance of the order.
Glass bending—from net list single panes to 40% off for bending sheet glass.
And from 40% off for bending single plates to 50% off for bending quantities of plate glass.

Discount for bending will be 10% less in every instance when we do not supply the glass.

Above prices and conditions are only for glass and bending on the floor of our works. Packing charged at cost.

THE LUXFER PRISM CO., LIMITED

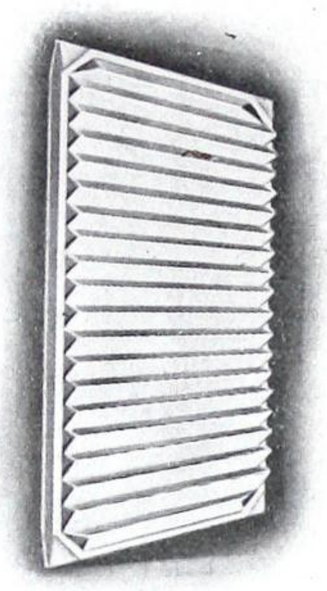
R. S. MOONEY,
1008 E. T. Bank Bldg., Montreal.
Telephone, Main 4615.
JOHN H. ALEXANDER,
616 Builders' Exchange Bldg., Winnipeg.

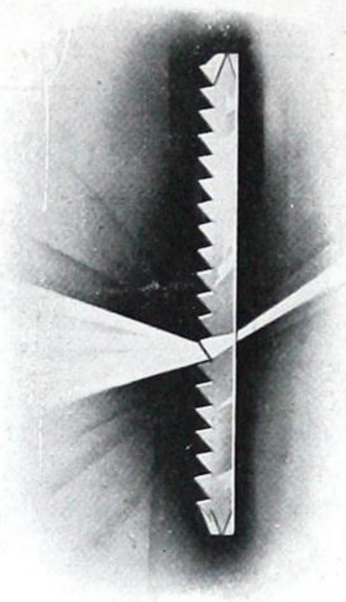
100 King Street West,
TORONTO, ONT.

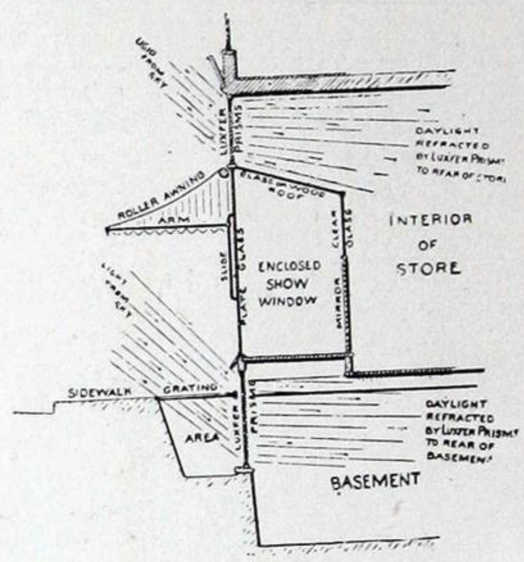
E. G. CULLEN,
418 Pacific Bldg., Vancouver, B.C.
WALKER & BARNES, Limited,
Edmonton, Alta.

PRODUCTS. We are the sole manufacturers of the original LUXFER PRISMS for Window Transoms, Canopies, Skylights and Pavement Lights.

LUXFER PRISMS. Luxfer Prisms are the outcome of years of scientific study, and they are acknowledged to be the most popular refracting prism obtainable. The prism is four inches square, and these squares are assembled by our electro-glazing method in solid copper, producing a solid, air-tight or windproof panel.

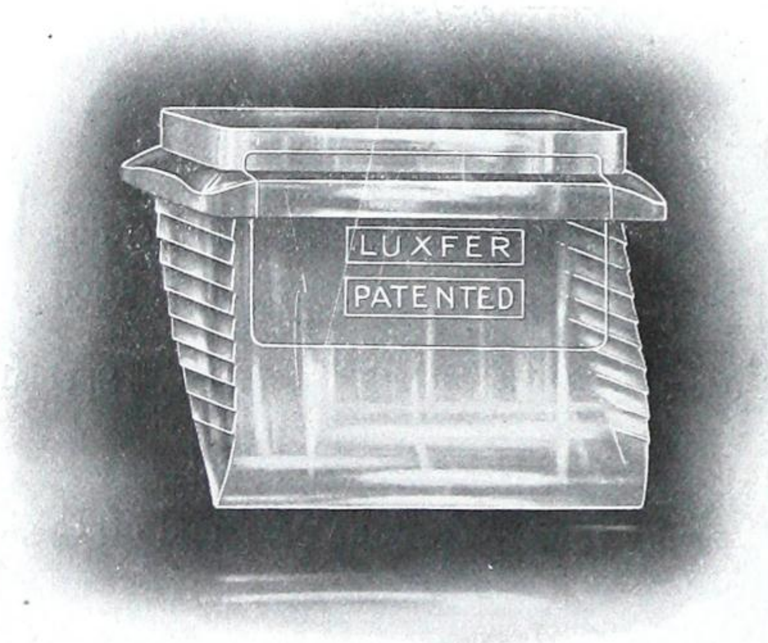


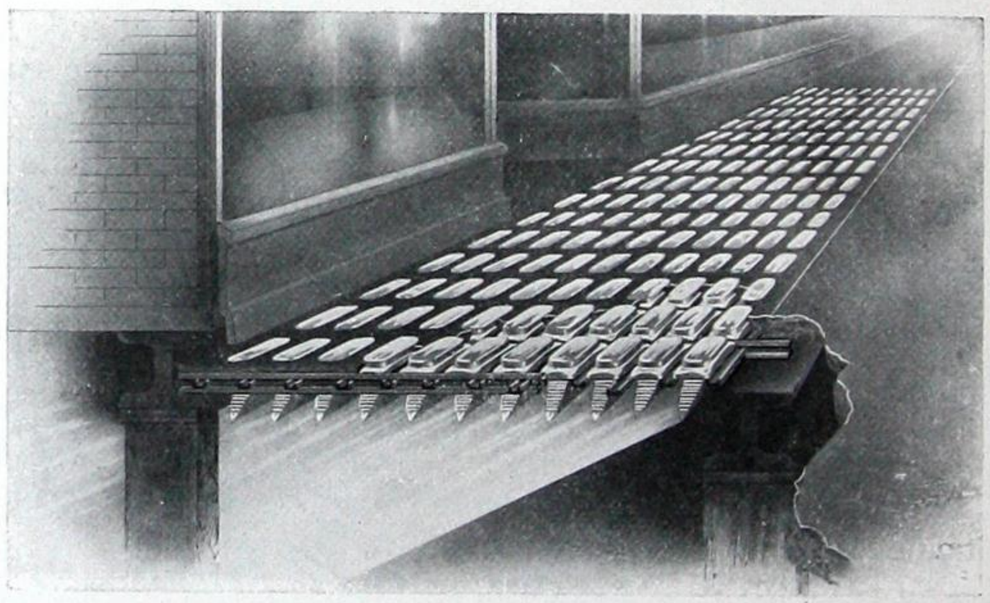




SIDEWALK PRISMS. The Sidewalk Prisms, as illustrated, are installed in the Luxfer Interlocking, galvanized or black steel frames; no iron is exposed on the surface.

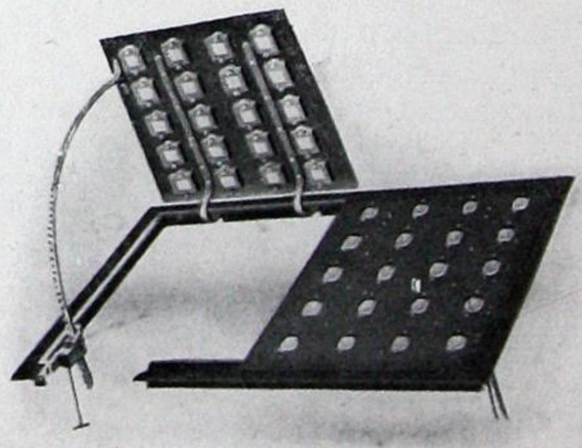
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ESTIMATES. We shall be pleased to demonstrate the value of Luxfer Prisms at our showrooms, to anyone interested. The services of our trained lucical engineer is at all times at the disposal of architects and intending purchasers, or of anyone desiring information or suggestions as to the means of obtaining the best possible lighting results. We are prepared to submit estimates for the complete installation of Luxfer Screens and Pavement Lights.

CATALOGUES. We shall be pleased to furnish fuller illustrated literature upon application.



HOIDGE MARBLE CO., LIMITED

34 PRICE STREET, TORONTO, ONT.

PRODUCTS. Manufacturers of and Contractors for all kinds of MARBLE WORK.

MARBLE. We import annually large quantities of Foreign Marbles, and are in a position to obtain the finest selections of blocks of both Foreign and Domestic Marbles.

We personally inspect all our Marble in the block before purchasing, thus obtaining the desired results in matching both colours and veining.



STAIRCASE ENTRANCE TO ROYAL BANK OF CANADA, TORONTO.

REFERENCES. Some of the contracts we have executed are—

Dominion Bank, Hamilton,	Carrere & Hastings and Eustace G. Bird, Assoc. Architects.
Royal Bank of Canada, Toronto,	Carrere & Hastings and Eustace G. Bird, Assoc. Architects.
Traders Bank, Toronto,	Carrere & Hastings and F. S. Baker, Assoc. Architects.
Bank of Nova Scotia, Toronto,	Darling & Pearson, Architects.
Bank of Nova Scotia, Kingston, Jamaica,	Darling & Pearson, Architects.
Bank of Montreal, Yonge and Queen, Toronto,	Darling & Pearson, Architects.
Standard Bank, King and Jordan, Toronto,	Darling & Pearson, Architects.
Canada Life Assurance Building, Vancouver,	Darling & Pearson, Architects.
Parliament Buildings, Toronto,	E. J. Lennox, Architect.
Electric Development Co.'s Offices, Niagara Falls,	E. J. Lennox, Architect.
Custom House, Toronto,	Curry, Sproatt & Rolph, Architects.
Standard Bank, Chatham, Brantford and Belleville,	Power & Son, Kingston, Architects.
Landed Banking and Loan, Hamilton,	Chas. Mills, Hamilton, Architect.
Court House, Vancouver,	F. W. Rattenbury, Victoria, Architect.
School of Household Science, Toronto,	G. M. Miller & Co., Architects.
Toronto General Trust, Head Office, Toronto,	G. M. Miller & Co., Architects.
Dominion Bank, Victoria, B.C.,	Carrere & Hastings and Eustace G. Bird, Assoc. Architects.
Dominion Bank, Vancouver, B.C.,	Carrere & Hastings and Eustace G. Bird, Assoc. Architects.

ONTARIO MARBLE QUARRIES, LIMITED

34 Price Street, TORONTO, ONT.

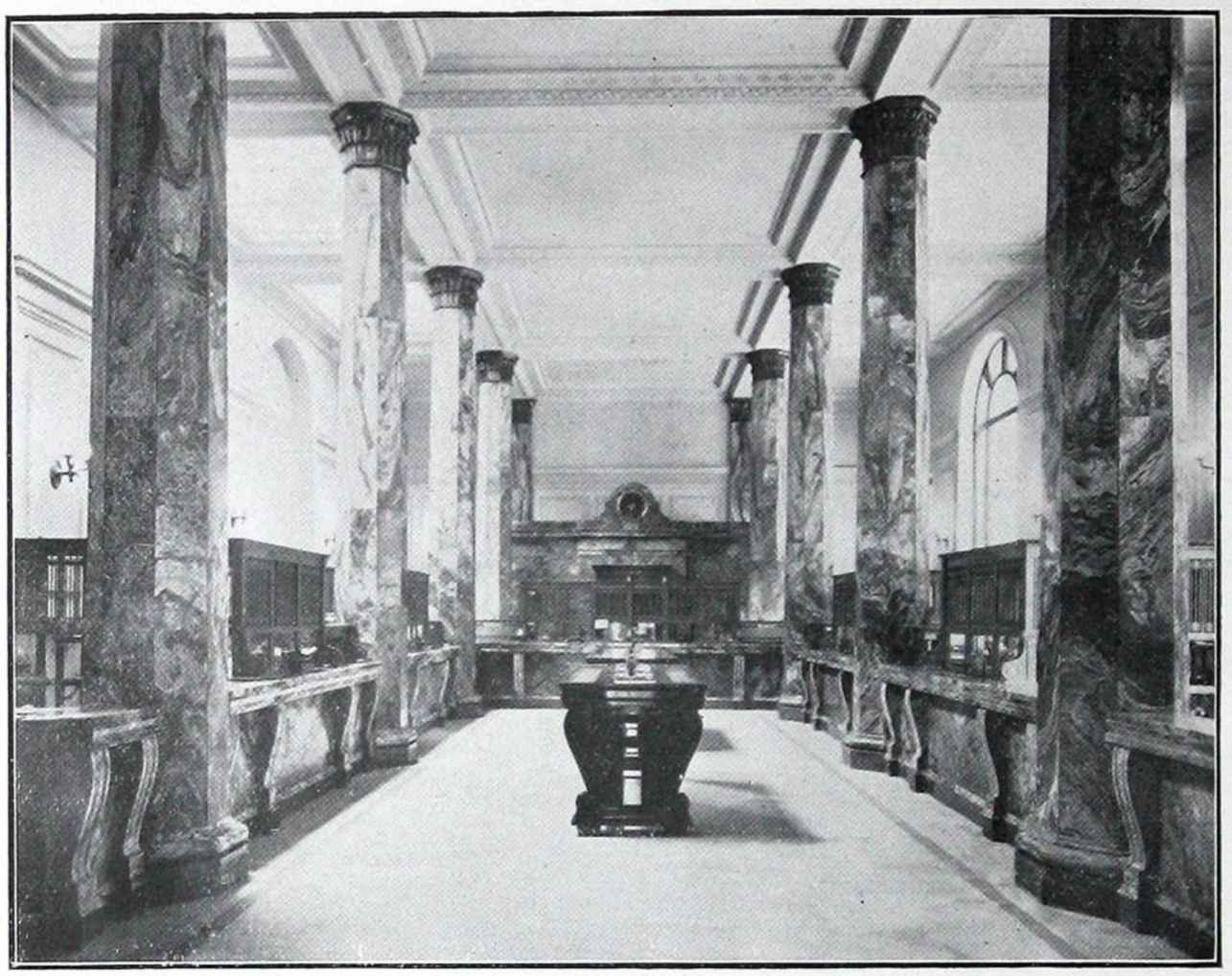
Quarries: Bancroft, Hastings County, Ont.

BUSINESS. Producers of DOMESTIC MARBLE.

We own and operate the largest Marble Quarries in the Dominion, situated on the Central Ontario Railway, near Bancroft, Ont.

CAPACITY. We have a total acreage of 1,500 acres, with marble deposits throughout the whole vast areas.

Have every modern facility for turning out Marble in any size required, with railway facilities both East and West.



BANKING ROOM, STANDARD BANK, TORONTO
Darling & Pearson, Architects.

The marble columns, counters, dado, etc., represented above, are all products of our quarries.

MARBLE INTERIORS. Previous to 1913 we were working two quarries, producing eight varieties of marble adaptable for almost any colour treatment.

VEINED WHITE. In 1913 we have opened up and developed a white marble quarry, with all the characteristics of English Veined Italian, with the exception of a slightly warmer colour in the ground. This is remarkably sound, and we can produce practically any size required.

EXTERIOR MARBLES. We have also for exterior purposes a White Marble with a touch of Cream, thus giving the required warmth and tone so much desired. This can be produced in any size blocks that may be desired.

DELIVERY. We are prepared to ship either in the block, of which we have on hand at all times a large quantity, or we will saw same to size or ship in the slab requirements for exterior building work. Interior, decorative, monolith columns, electrical or similar classes of work.

Samples and prices on application.

Address all communications to the Head Office, Ontario Marble Quarries, Limited, 34 Price Street, Toronto.

THE SMITH MARBLE AND CONSTRUCTION CO., LIMITED

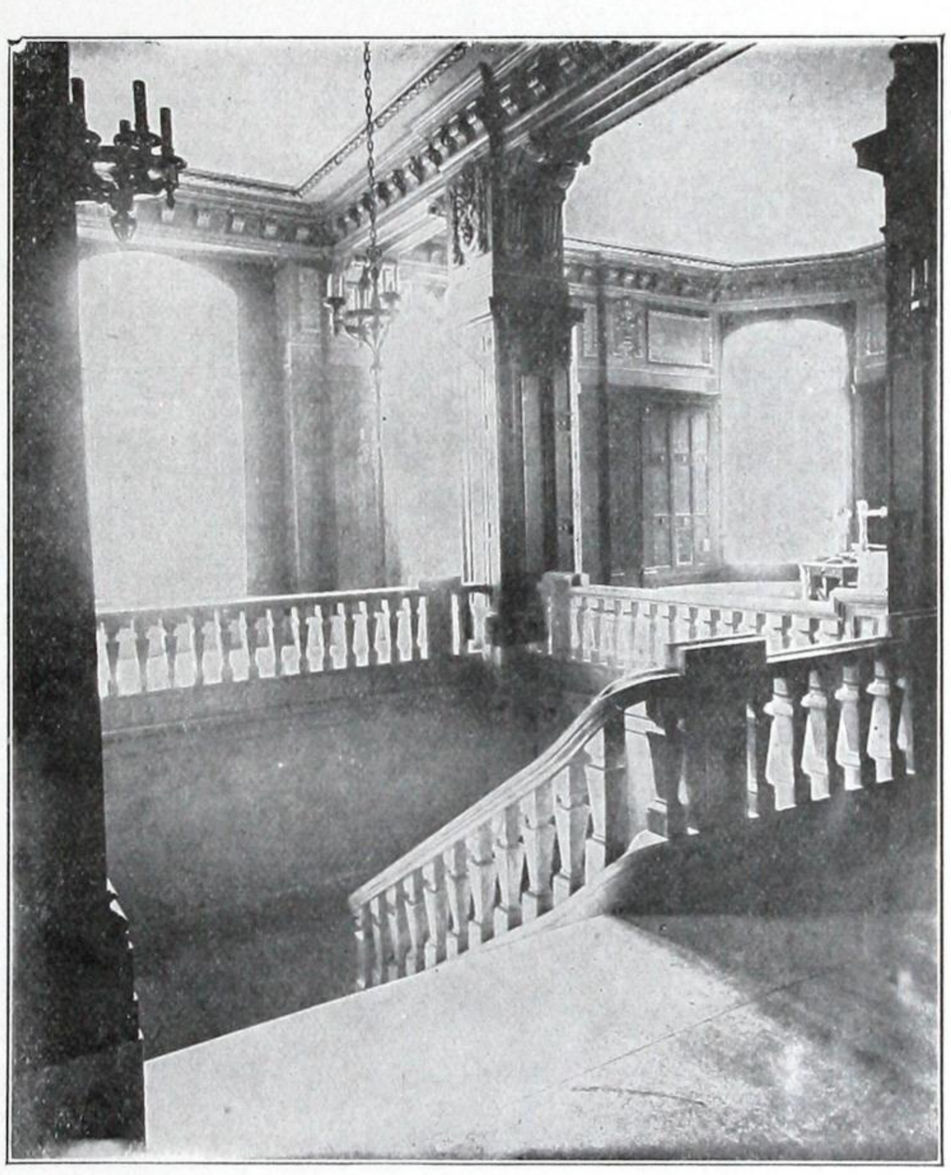
IMPORTERS, MANUFACTURERS, CONTRACTORS.

GENERAL OFFICE AND WORKS: 145 VAN HORNE AVENUE, MONTREAL, QUE.

PRODUCTS. We are importers (direct from Europe and United States) of MARBLES, and are Manufacturers of these and CANADIAN MARBLES of various kinds now being extensively used in the construction of important buildings. We carry a large and varied stock of Marble and Tiles. With our thoroughly equipped plant and facilities, we can assure the highest grade of workmanship and prompt deliveries.

CONTRACTORS. We are also Contractors for all kinds of Interior Marble, Tile and Slate Work, such as Marble Carving, Marble Walls, Floors, Treads, Electric Switchboards, Plumbers' Marble, Slate Blackboards, Floor and Wall Tile, Terrazzo, Mosaic and Ceramic Floors.

We finish and deliver goods, also erect and complete work in any part of Canada.



The above cut represents Hautville Marble Staircase leading from Lounge to Grill Room, Chateau Laurier, Ottawa. Executed by us for Messrs. Tiffany Studios of New York. Ross & McFarlane, Architects.

BUILDINGS ON HAND OR COMPLETED. We give below some representative buildings recently completed or now in hand as examples of our work:—

We invite correspondence with Architects and General Contractors.

BUILDING.	CITY.	
Bank of Montreal	St. John's, Nfld.	Peden & McLaren.
Post Office	Halifax, N.S.	David Ewart, Dominion Arch't.
Power Building	Montreal, Que.	Kenneth G. Rea.
McDonald College	St. Anne, Que.	Hutchison, Wood & Miller.
Lake of Woods Building	Montreal, Que.	Ross & McFarlane.
Bank of Montreal	Montreal, Que. (Peel St.)	Ed. & W. S. Maxwell.
Bank of Toronto	Montreal, Que. (Guy St.)	Ed. & W. S. Maxwell.
Royal Bank	Winnipeg, Man.	Carrere & Hastings and E. J. Bird.
Victoria Memorial Museum Building	Ottawa, Ont.	David Ewart, Dominion Arch't.
Place Viger Extension	Montreal	W. S. Painter.
Chateau Laurier	Ottawa	Ross & McFarlane.
Great West Life (Interior)	Winnipeg, Man.	John D. Atchison.
McGill Building	Montreal	R. E. Bostrom, Architect.
Read Building	Montreal	Ross & McFarlane, Architects.

MISSISQUOI MARBLES, LIMITED

PHILIPSBURG, QUE.

BRANCH OFFICES:
MONTREAL, TORONTO, ST. JOHN, N.B., WINNIPEG, VANCOUVER, NEW YORK CITY.

PRODUCTS. We supply QUARRY BLOCKS, DIMENSION MARBLE, DADOS, FULL-SIZED SLABS, TREADS AND PLATFORMS, TILES AND FLOOR BORDERS—all CANADIAN PRODUCTS. We also contract for the erection of INTERIOR MARBLE.

DESCRIPTION. Missisquoi Marble has many advantages, being very closely grained and taking an excellent finish. Porous marbles soon fade, stain and lose their polish and beauty. Missisquoi Marble is not only beautiful in appearance, but will outlast all ordinary marbles. For exterior work its fine grain and firm body defies the ravages of time, while for interior work they keep its polish which preserves it from stains. The various shades of Missisquoi Marbles lend themselves harmoniously to almost any colour scheme.

QUARRY. Our Quarries are the largest in Canada, the deposit being several miles in length and of unknown depth, although it has been tested to over 500 feet. The marble is stratified, and we produce from it nine distinct varieties:—Light Grey, Dark Grey, Dark Grey with White Mottle, our famous "Rex," "Regina," "Emeraldo," and the strikingly beautiful "Sea Green," "Vert Gris," and "Vert Rose."

CAPACITY. We have always on hand a large supply of quarry blocks of our several varieties of marble. The quarries have been thoroughly developed, and, with nine Channelling Machines and miscellaneous equipment, we are producing 4,000 cubic feet weekly, or 40,000 square feet of full sized slabs. Our Mills and Shops are equipped with eighteen gangs of Saws, Travelling Cranes, Hoists, Carborundum Machines, Lathes, Planers, Rubbing-beds, Pneumatic Tools, Gritting and Polishing Machines, and various smaller machinery to facilitate operations.

MARBLE INTERIORS. Marble interiors have become general for buildings throughout Canada, although the material, until very recently, had to be imported at considerable cost on account of freight and duty. Now that Missisquoi Marble is available in large quantities and in several varieties, it is used generally in the Dominion for the better class of interior decorative work. "Missisquoi" will be found in nearly all the Government Parliament Buildings, Banks, Hotels and Office Buildings. Canadian and American experts have pronounced Missisquoi to be fully equal in quality and appearance to the world's best products.

MARBLE TREADS AND FLOORS. We have a variety of Marble which is most suitable for Floors, Treads and Risers for Stairs. It is closely grained and hard, and will resist wear better than most marbles, while its non-absorbing qualities make it desirable for this class of work.

CRUSHED MARBLE FOR TERRAZZO. We produce a crushed marble for use in making Terrazzo Flooring, and can supply four different sizes and various colourings. The effect of these different sizes and colours in the finished floors is most pleasing and artistic.

LIME. Our Lime Plant is operated in connection with the Quarry, where all our waste marble is utilized. The Kilns have a capacity of ninety tons per week, and with the increasing demand additional capacity will be erected.

SHIPPING FACILITIES. The Philipsburg Railway, owned and operated by the Missisquoi Company, affords the best of shipping accommodations, as it connects directly with the Canadian Pacific, Central Vermont, and Grand Trunk Systems.

CONTINUED ON NEXT PAGE

VARIETIES OF MISSISQUOI MARBLE.

"VERT GRIS." "Vert Gris," as its name implies, is a mottled effect of green and grey.

The markings are more delicate than in other varieties, but variegated with small deep grey spots.

"DARK GREY." Dark Grey Marble is produced from the same strata as "Vert Gris," but the green has almost disappeared, leaving, however, a faint greenish tinge, which adds much to its appearance.

We recommend this for interior decorative purposes and also mausoleums, as it stands the weather well.



ROYAL BANK, TORONTO, ONT.

ILLUSTRATION. One of the finest pieces of interior marble work to be found in the country is in the Royal Bank at Toronto. This was one of the first contracts that the Company secured, and had much to do with the large volume of orders which have since been received, and the Company's general commercial success.

"REX." This is a beautiful, light-coloured marble. The background is a pinkish cream colour, with long green markings.

It can be produced in almost any length. This feature, combined with the "long green markings," makes "Rex" particularly adapted for column work.

It is also especially suitable for panelling, and gives an elongated effect to the work.

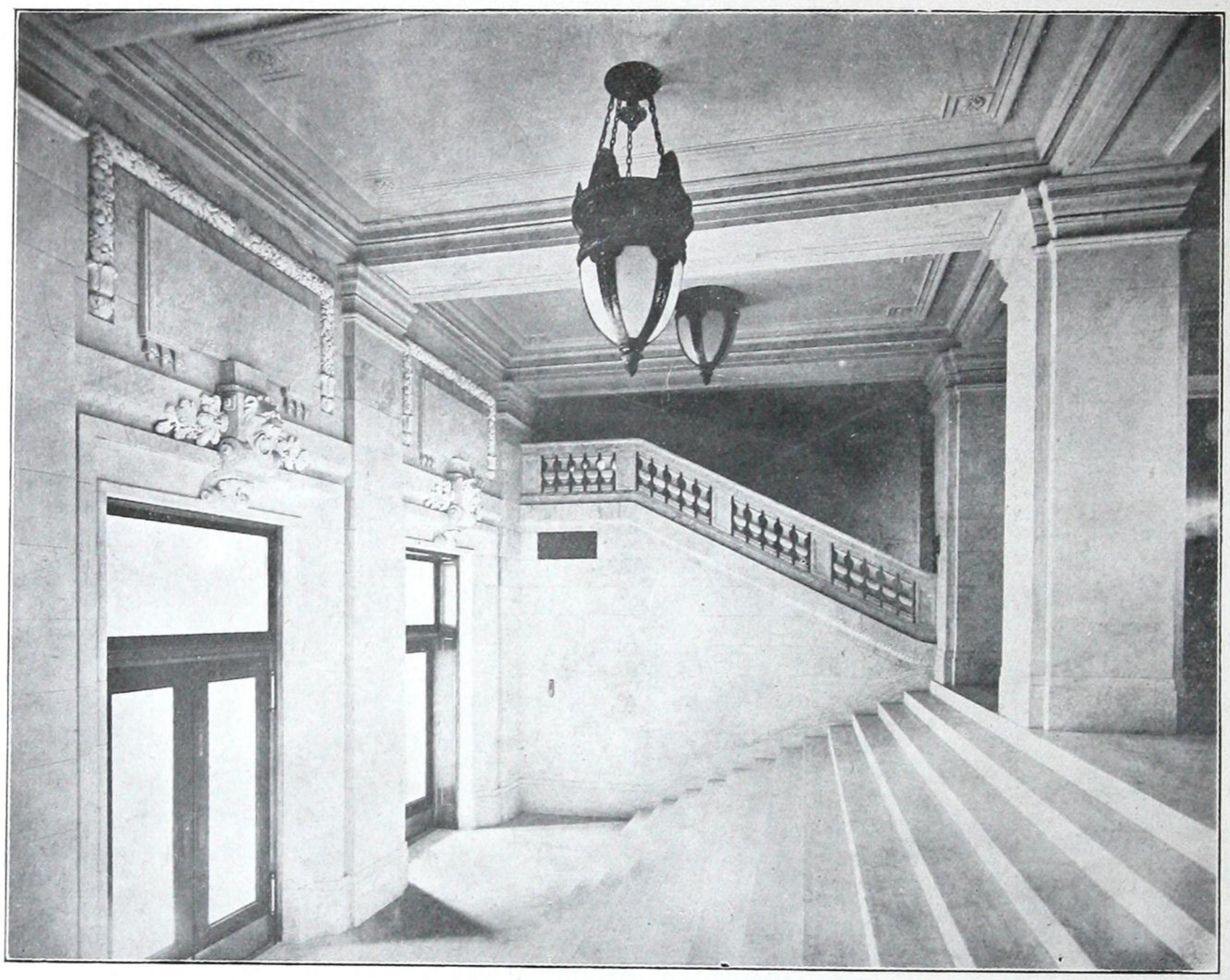
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VARIETIES OF MISSISQUOI MARBLE.

"SEA GREEN." This marble has a light background, with dark green markings. It is not so susceptible to a high polish as some of our other varieties, but is extensively used for base and cap mouldings on account of the attractive contrast, especially when used with light panelling.

"VERT ROSE." The background of this marble is a mottled green and grey, beautifully marked with pink to white, producing an artistic and pleasing effect.

We recommend "Vert Rose" for the *highest* class of interior marble decoration. It is especially attractive in pilaster work. There is no marble produced that has the same variety of colours. It is considered very unique.



HUDSON COUNTY COURT HOUSE, JERSEY CITY.

ILLUSTRATION. The above cut represents the interior of the Hudson County Court House at Jersey City, which shows how Missisquoi Marble lends itself to interior decoration.

"EMERALDO." This marble has a white background, with dark green markings, giving a mottled effect. The background is a very light grey, but the dark markings make it appear white. It is very closely grained, takes a high polish, and is very suitable for interior decorative work because of its uniform colour.

"REGINA." This marble is light grey (in places almost white), veined with light green, shading to still lighter green with yellowish tinge.

It can be produced in slabs 14 ft. x 7 ft., the limit of our saws, but in columns to almost any size. It has a very beautiful appearance when used in columns, a fair sample of which may be seen in the Royal Bank, Toronto, size 11 ft. 6 in. x 18 in.

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TESTS. Tests of four samples of Missisquoi Grey Marble, made by Professor MacKay, Director of the Department of Civil Engineering and Applied Mechanics, McGill University, Montreal, on July 13, 1909, shows the following:

COMPRESSION TEST.

First Sample, Maximum Load.....	21,380 lbs. per sq. inch.
Second Sample, Maximum Load.....	21,280 lbs. per sq. inch.
Third Sample, Maximum Load.....	21,760 lbs. per sq. inch.
Fourth Sample, Maximum Load.....	22,900 lbs. per sq. inch.

NOTE.—"It is to be noted that the compressive strength is exceptionally high and compares favourably with the best grades of granite."

ABSORPTION TEST. Two rough broken samples, after being thoroughly dried, were immersed in water for 48 hours, with the following results:

	WEIGHTS BEFORE IMMERSION.	AFTER.	GAIN.	PER CENT.
Sample 1.....	1.3770 lbs.	1.3780 lbs.	.0010	0.072
Sample 2.....	1.9540 lbs.	1.9555 lbs.	.0015	0.076

Specific Gravity, 2.71.
Weight per cubic foot, 169.5 lbs.

NOTE.—"The percentage of moisture absorbed is thus remarkably low, which indicates, in my opinion, a stone which should have exceptionally good weathering qualities."

From the above it will clearly be seen how well suited Missisquoi Marble is, both for exterior and interior construction.

REFERENCES. Our material may be seen, amongst other places, in the following buildings:

Transportation Building, Montreal.
St. Regis Hotel, Montreal.
Lyman Building, Montreal.
Canadian Bank of Commerce, Montreal.
Canadian Express Building, Montreal.
Montreal Post Office, Montreal.
Emmanuel Church, Montreal.
Molson's Bank, Ontario and La Salle Ave., Montreal.
Place Viger Station, Montreal.
Windsor Station Extension, Montreal.
Windsor Hotel Extension, Montreal.
Wilder Building, Montreal.
Y.M.C.A.—Drummond Street, Montreal.
Y.M.C.A.—North End, Montreal.
Y.M.C.A.—West End, Montreal.
McGill Building, Montreal.
Chateau Laurier, Ottawa.
Union Station, Ottawa.
Y.M.C.A., Ottawa.
Rosenthal Building, Ottawa.
City Hall, Ottawa.
Victoria Museum, Ottawa.
Bank of B. N. A., St. John, N.B.
Royal Bank, Toronto.
Birkbeck Building, Toronto.
Mossop's Hotel, Toronto.
Parliament Buildings, Toronto.
Heintzman Building, Toronto.
Central Building, Toronto.
Confederation Life Building, Toronto.
Ryrie's Store, Toronto.
Dental College, Toronto.
Imperial Life Building, Toronto.
Mason & Risch Building, Toronto.
Merger Building, Quebec.
Laval University, Quebec.
Caisse D'Economie, Quebec.
Custom House, Quebec.
Imperial Bank Building, Hamilton.
Fort Garry Station, Winnipeg.
Bank of Nova Scotia, Winnipeg.
Northern Crown Bank, Winnipeg.
Law Courts Building, Winnipeg.
Fort Garry Hotel, Winnipeg.
Lindsay Building, Winnipeg.
Bank of Ottawa, Vancouver.
Metropolitan Building, Vancouver.
Canada Life Building, Vancouver.
Hook Sing Tong Building, Victoria.
King George Hotel, Brandon.
Brandon Asylum, Brandon.
Parliament Buildings, Edmonton.
National Trust Building, Edmonton.

GILLIS & GEOGHEGAN

MANUFACTURERS OF

G. & G. TELESCOPIC HOIST,

TELEPHONE: SPRING 6140. 539 WEST BROADWAY, NEW YORK, N.Y.

W. T. GROSE, 905 Electric Railway Chambers, Winnipeg: Agent for Manitoba, Saskatchewan and Alberta.
WM. N. O'NEIL CO., LTD., 548-550 Seymour Street, Vancouver, B C.: Agents for British Columbia.
B. & S. H. THOMPSON & CO., LTD., Montreal: Agents for Quebec.
BLACK BUILDING SUPPLY CO., Mail Building, Toronto: Agents for Ontario.

PRODUCTS AND SERVICE.

We manufacture the G. & G. TELESCOPIC HOIST (Patented).
The G. & G. TELESCOPIC OVERHEAD CRANE HOIST.
The G. & G. TELESCOPIC HOIST WITH ELECTRIC MOTOR.
The G. & G. TELESCOPIC OVERHEAD CRANE HOIST WITH ELECTRIC MOTOR.
We install the apparatus complete in New York, N.Y.

DESCRIPTION.

The G. & G. Telescopic Hoist is a simple, safe and substantial means for hoisting and lowering between cellar and sidewalk, ash-cans, kegs, barrels, ice, etc. Fig. 1 shows Hoist as it is when not in use—*no part shows above sidewalk.* To put apparatus in position for hoisting (Fig. 2), the operator turns the telescoping handle as far as it will go. A safety ratchet device is provided with both telescoping handle and hoisting handle. For lowering, a powerful all-steel brake attachment is provided.

ADVANTAGES.

Hoist raises the load at speed of thirty feet per minute.
The opening in sidewalk need be little larger than necessary to permit passage of can.
Cable drum is grooved; gears are machine cut throughout. Hoist is very easy to erect.
We furnish all necessary clamps and bolts, and blue-print showing erection in detail.
Hoisting handle can be moved in a forward direction only, when load is being raised.
When brake is used to lower load, *the hoisting handle does not revolve.*
The position of operator, standing at sidewalk when Hoist is in use, protects the public against danger of falling into shaft, and protects operator against danger of heavy load falling on him.

CAPACITY.

The maximum working capacity is 500 pounds.

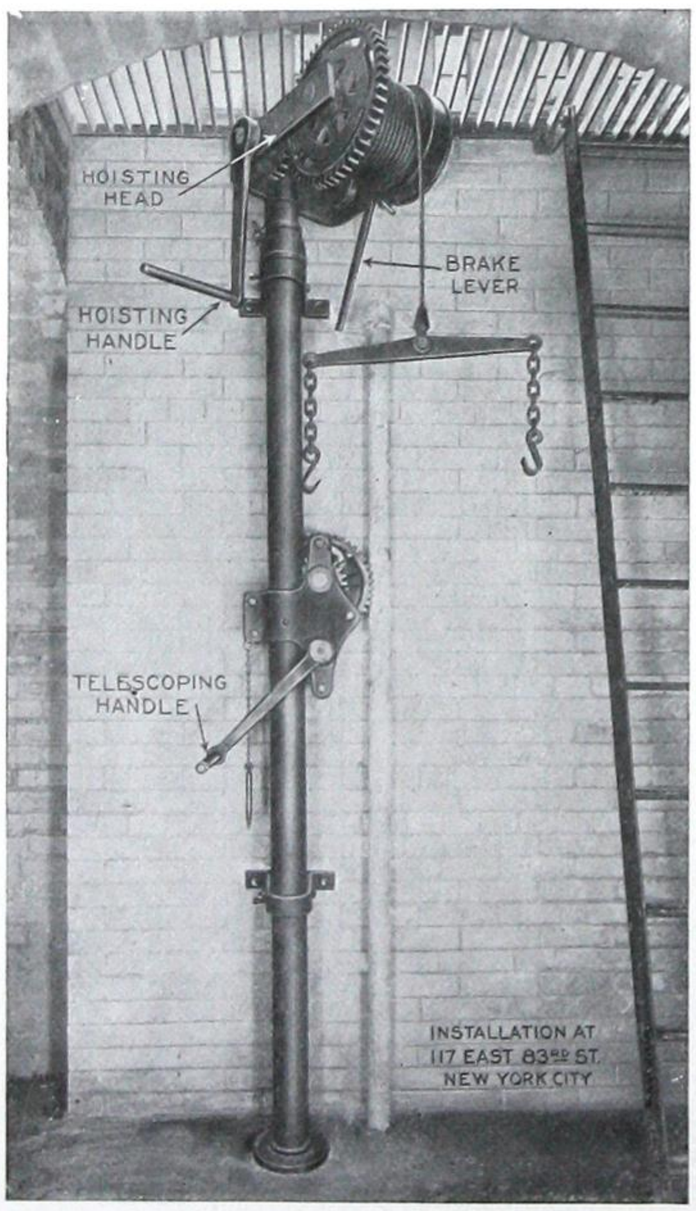


FIG. 1.—G. & G. TELESCOPIC HOIST NOT IN USE.
Compact, easy to erect, and takes up no room.



FIG. 2.—G. & G. TELESCOPIC HOIST IN OPERATION.
Hoisting Head revolves. Can is deposited on sidewalk without lifting.

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G. & G. TELESCOPIC OVERHEAD CRANE HOIST.

Illustration (Fig. 3) shows the G. & G. Telescopic Overhead Crane Hoist (Patented). This Hoist is so arranged that the operator, standing at grade level, may raise ash-can from cellar to position six or eight feet above grade, and empty can directly into cart, without rehandling at grade level. This Hoist has the telescopic feature, so that *no part shows above pavement when not in use.* It is also constructed so as to retain the features of strength, safety, durability, ease and rapidity in operation, and economy of space occupied, the same as our ordinary sidewalk level hoist.

CAPACITY.

Raises load at speed of thirty feet per minute. Maximum working capacity, 300 pounds. The can shown in Fig. 3 weighs 200 pounds, when full of ashes.

On request, we construct Hoist with adjustable guy rods, running from top of Hoist to building walls. When Hoist is so arranged, its maximum working capacity is 500 pounds.

G. & G. TELESCOPIC HOIST WITH ELECTRIC MOTOR.

Illustration (Fig. 4) shows the G. & G. Telescopic Hoist with Electric Motor (Patented), for hoisting or lowering ash-cans between cellar and sidewalk. *No part shows above sidewalk when not in use.* Maximum working capacity, 500 pounds. Raises load at speed of sixty feet a minute.

Prices and specifications furnished on request.

We also manufacture the G. & G. Telescopic Overhead Crane Hoist with Electric Motor for raising ash-cans from cellar and emptying directly into ash cart without re-handling at grade level. No part shows above pavement when not in use.

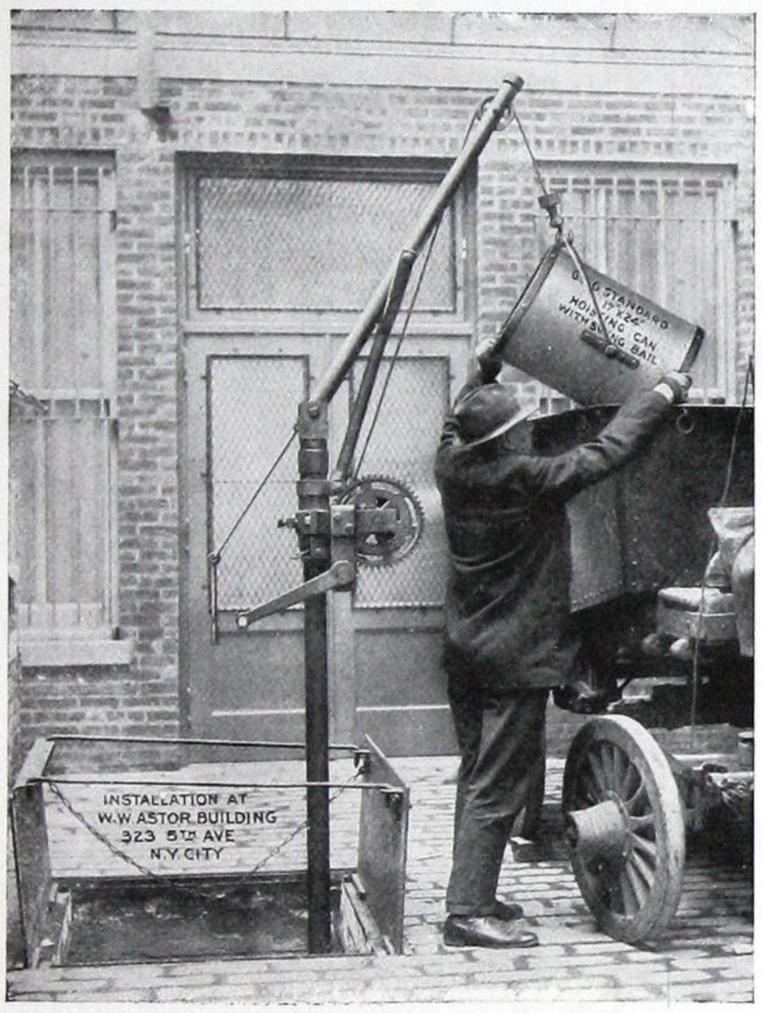


FIG. 3.—G. & G. TELESCOPIC OVERHEAD CRANE HOIST IN OPERATION. Hoisting Head revolves on ball bearing to swing can over wagon.

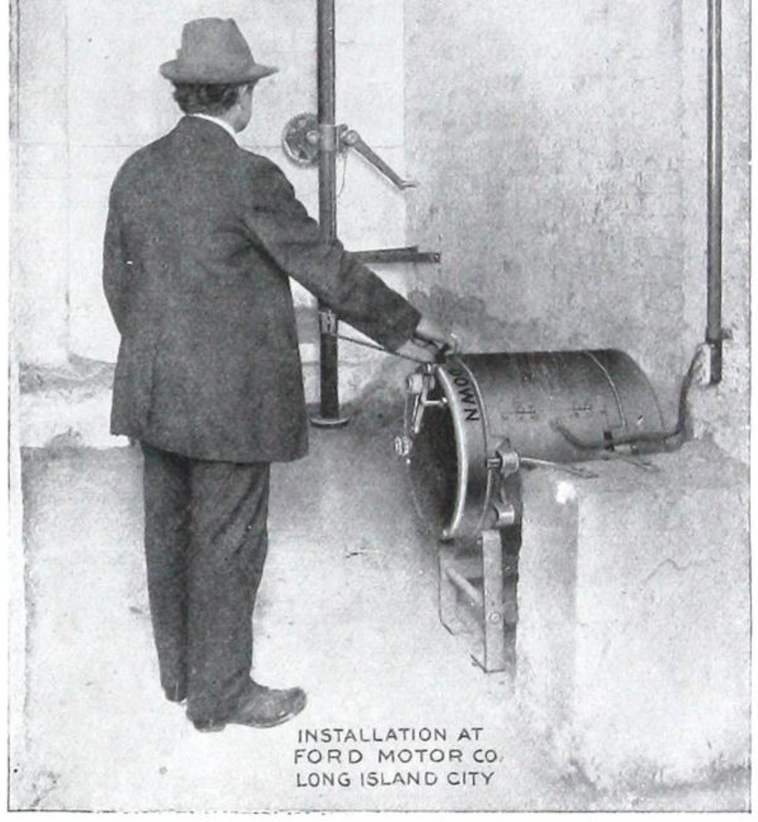


FIG. 4.—G. & G. TELESCOPIC HOIST, WITH ELECTRIC MOTOR. Raises load at speed of 60 feet per minute.

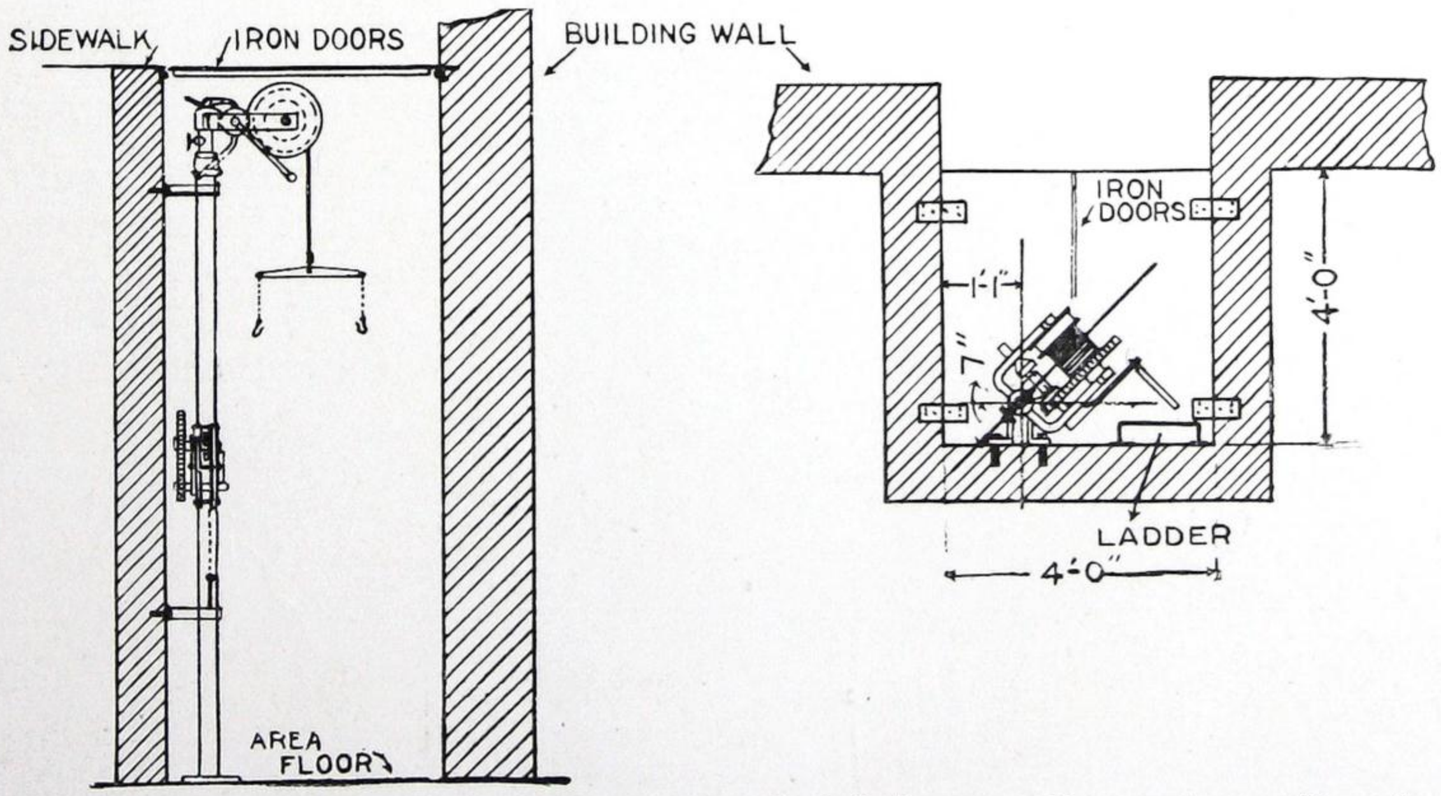


FIG. 5.—PLAN AND ELEVATION SHOWING ARRANGEMENT OF G. & G. TELESCOPIC HOIST IN AREA OF USUAL SIZE.
Note.—Area shown above is large enough for overhead Crane Hoist or Hoist with Electric Motor.

THE TURNBULL ELEVATOR MANUFACTURING CO.

126-132 JOHN STREET,
TORONTO, ONT.

TYPES OF TURNBULL ELEVATORS.

HIGH-SPEED TRACTION PASSENGER.

STANDARD DRUM PASSENGER D.C. AND A.C.

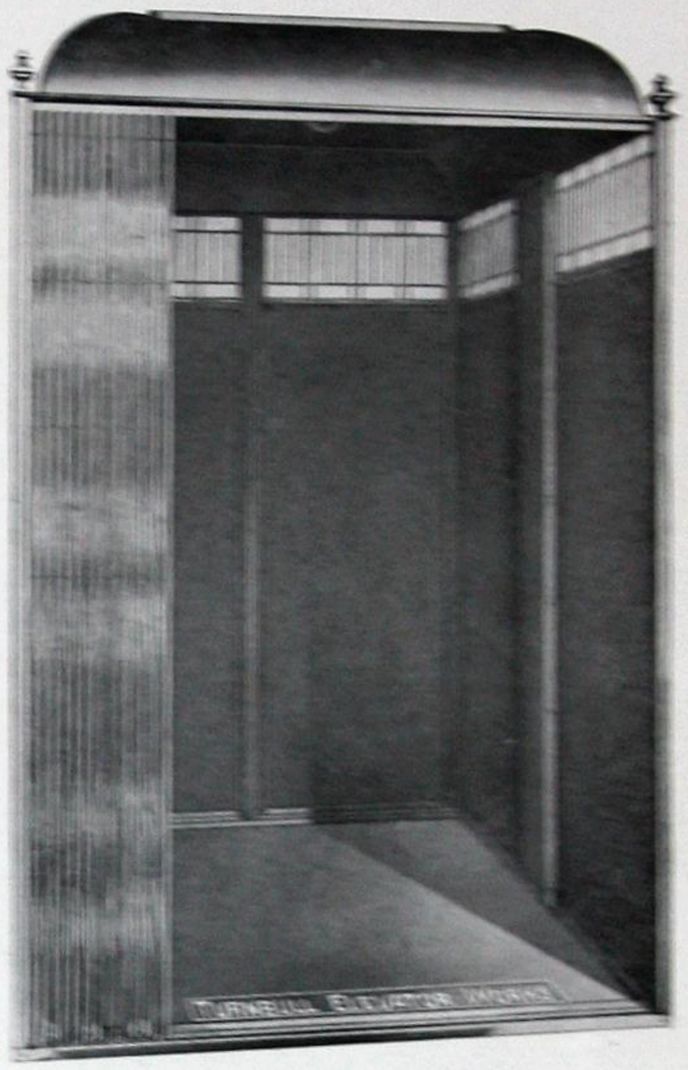
AUTOMATIC PUSH BUTTON CONTROL.

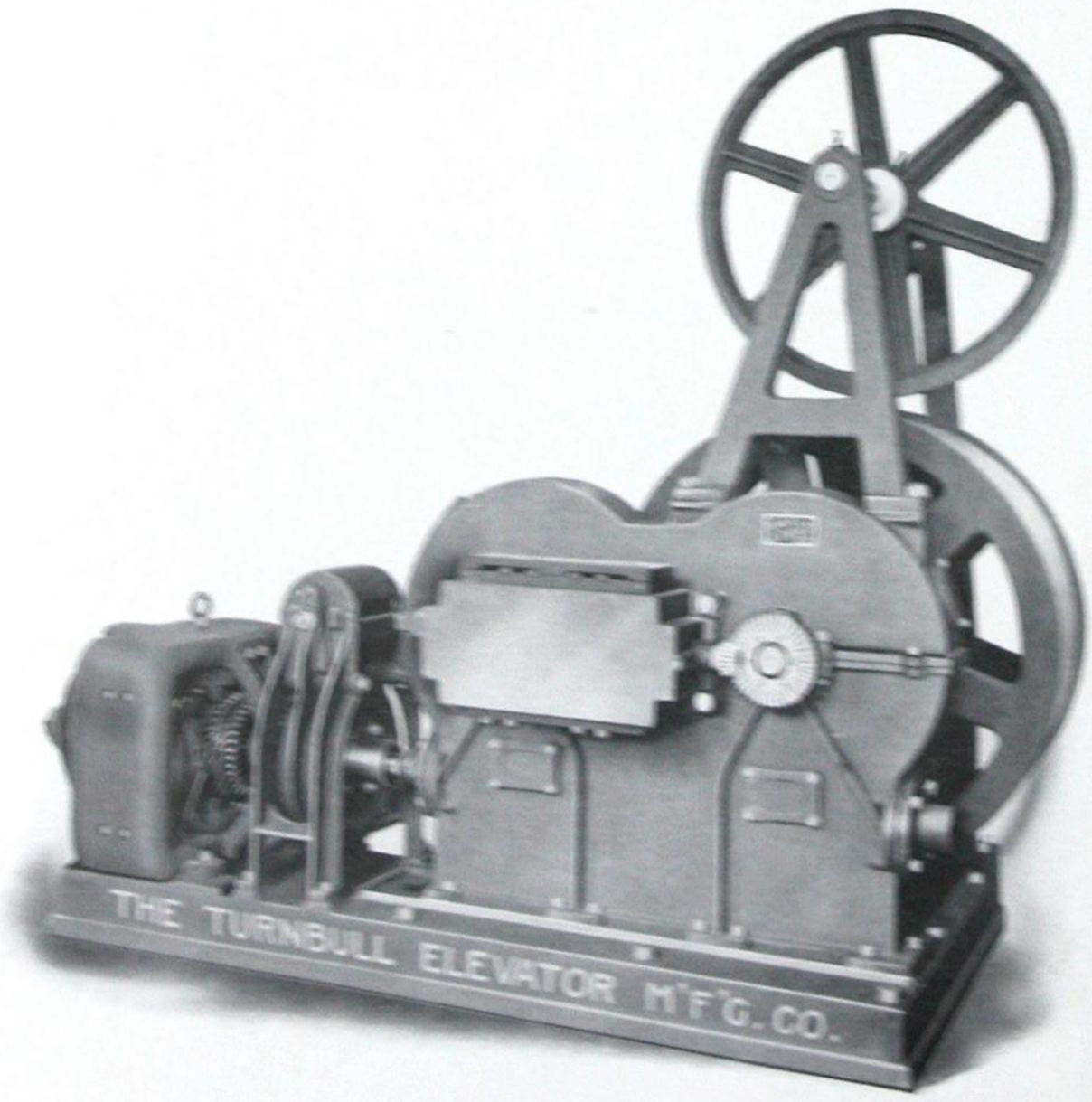
ELECTRIC FREIGHT — DIRECT-CONNECTED OR SINGLE BELT.

DOUBLE BELT FREIGHT — HAND-POWER—DUMB WAITERS.

HYDRAULIC — PASSENGER AND FREIGHT.

ENCLOSURES AND CAB GRILLES, SAFETY GATES, ETC.





SOME INSTALLATIONS.

Toronto General Hospital.
Ryrie Office Building, Toronto.
Confederation Life Building, Toronto.
Mason & Risch, Building, Toronto.
Massey-Harris Company, Toronto.
Canadian Niagara Power Co., Niagara Falls.
Grain Exchange Bldg., Fort William.
Ogilvie Building, Toronto.
Flett, Lowndes Building, Toronto.

CORRESPONDENCE, Etc. Correspondence invited—let us submit estimate.

OTIS-FENSOM ELEVATOR COMPANY, LIMITED

MANUFACTURERS OF

PASSENGER AND FREIGHT ELEVATORS,

DUMB WAITERS, ESCALATORS, INCLINED FREIGHT ELEVATORS, AND PATENTED GRAVITY PACKAGE CONVEYORS.

HEAD OFFICES: OTIS-FENSOM BUILDING, 50 BAY STREET, TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA. WORKS: HAMILTON, ONT.

GENERAL. In presenting the accompanying layouts of elevators, our object is to place in the hands of architects and engineers who have the preparing of plans for buildings exact and reliable data which will enable them to make proper provision for the reception of the elevator equipment, thus insuring from the start a proper installation without having to make expensive alterations when the building is about completed in order to obtain same.

ADDITIONAL LAYOUTS. Owing to space limitations, we are only able to give a few carefully selected standard layouts of Belt-Driven, Direct-Connected Freight Elevators and of Drum Type Passenger Elevators, but we are prepared to furnish any architect with a complete set, comprising all our standard elevator layouts, for his office reference files on request.

The drawings submitted are carefully prepared along the lines of established standard practice, and it is only necessary, therefore, to select the type of elevator required, and provide in the plans the required clearances at top and bottom, in the hatch and the space required for the machinery.

STANDARDIZING ELEVATOR CONSTRUCTION. We have taken considerable pains to standardize elevator construction, as from our past experience we have repeatedly felt this would be of great benefit to the architect, in that the cost of installation could be materially reduced and deliveries facilitated if standard sizes were adopted; at the outset it would enable the architect, in preparing his plans, to provide the necessary accommodation, instead of the troublesome necessity of altering plans later on. We, as the manufacturers, could then make the parts in large quantities, instead of a few at a time, as is now rendered necessary owing to the innumerable varying conditions. This would enable us to ship promptly from stock when required.

We are convinced that those interested will see the great advantage to all concerned by the use of standard layouts and standard sizes. We, therefore, suggest to those who have the preparing of plans for buildings in which elevators are required, that they do their part to co-operate with us in attaining this very desirable end.

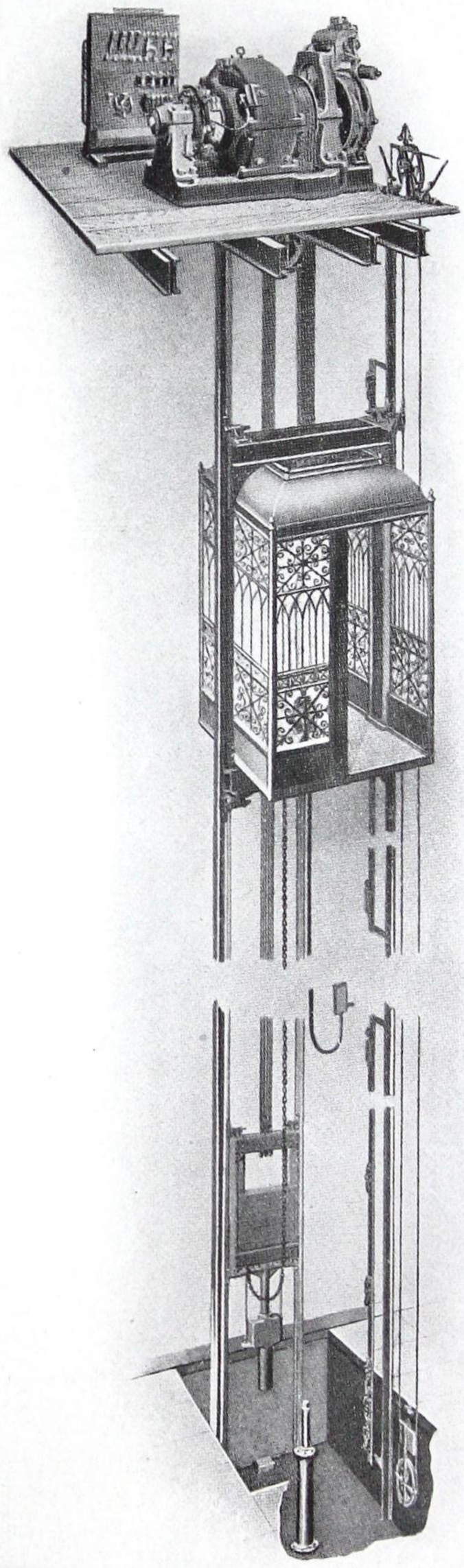


ILLUSTRATION. The Elevator Equipment illustrated on this page is the Otis 1 : 1 Gearless Traction Elevator, similar to the equipment in the Singer Building, Woolworth Building, Bankers Trust, and other large New York sky-scrapers, and the following Canadian Buildings are equipped with this type of elevator:—Eastern Townships Bank, Montreal; Transportation Building, Montreal; Customs House, Ottawa; Dominion Bank, Toronto; Royal Bank, Toronto; Fort Garry Hotel, Winnipeg; Calgary Herald Building, Calgary; McLeod Building, Edmonton; Dominic Burns Building, Vancouver.

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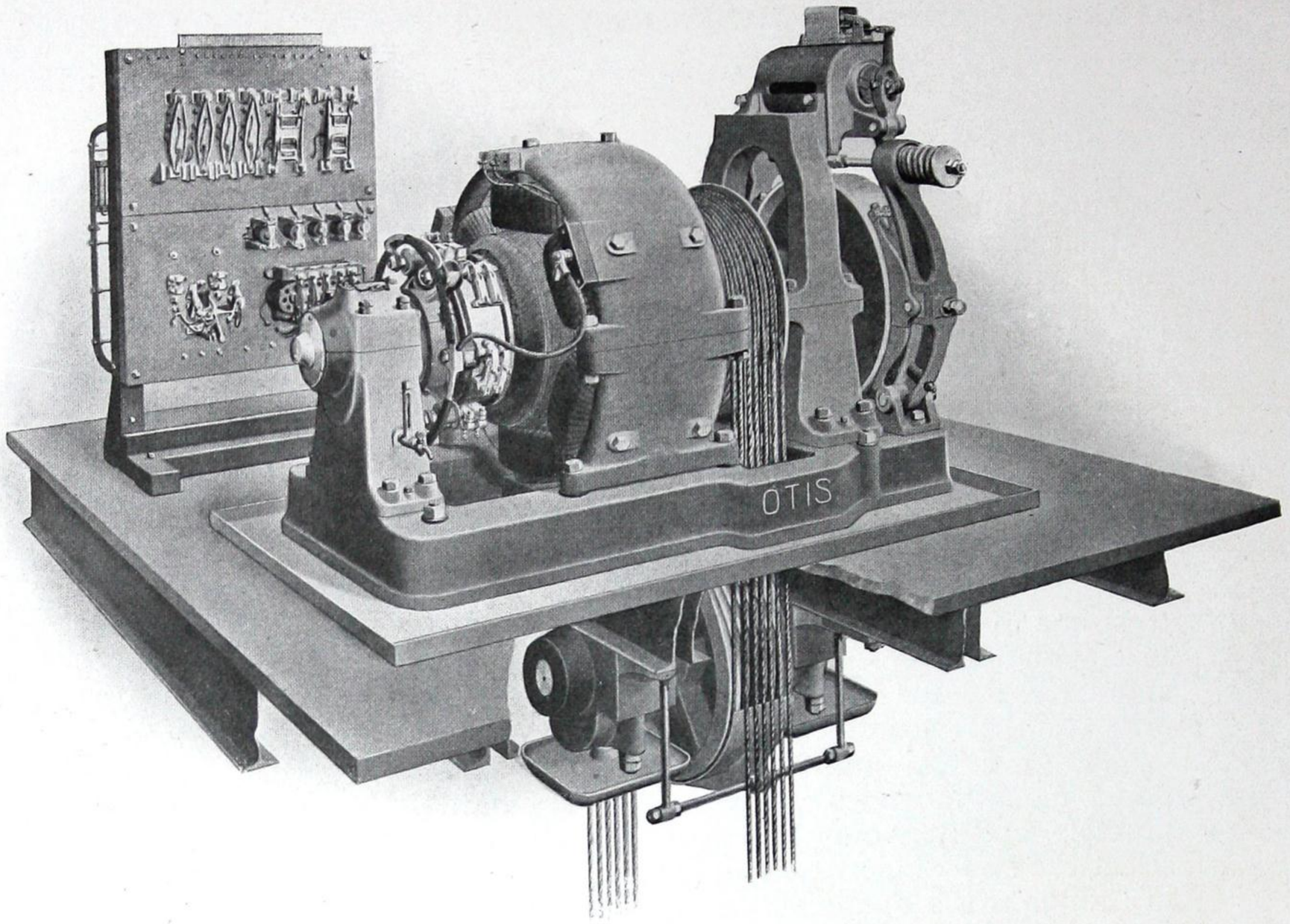
OTIS-FENSOM ELEVATOR COMPANY, LIMITED

HEAD OFFICES:

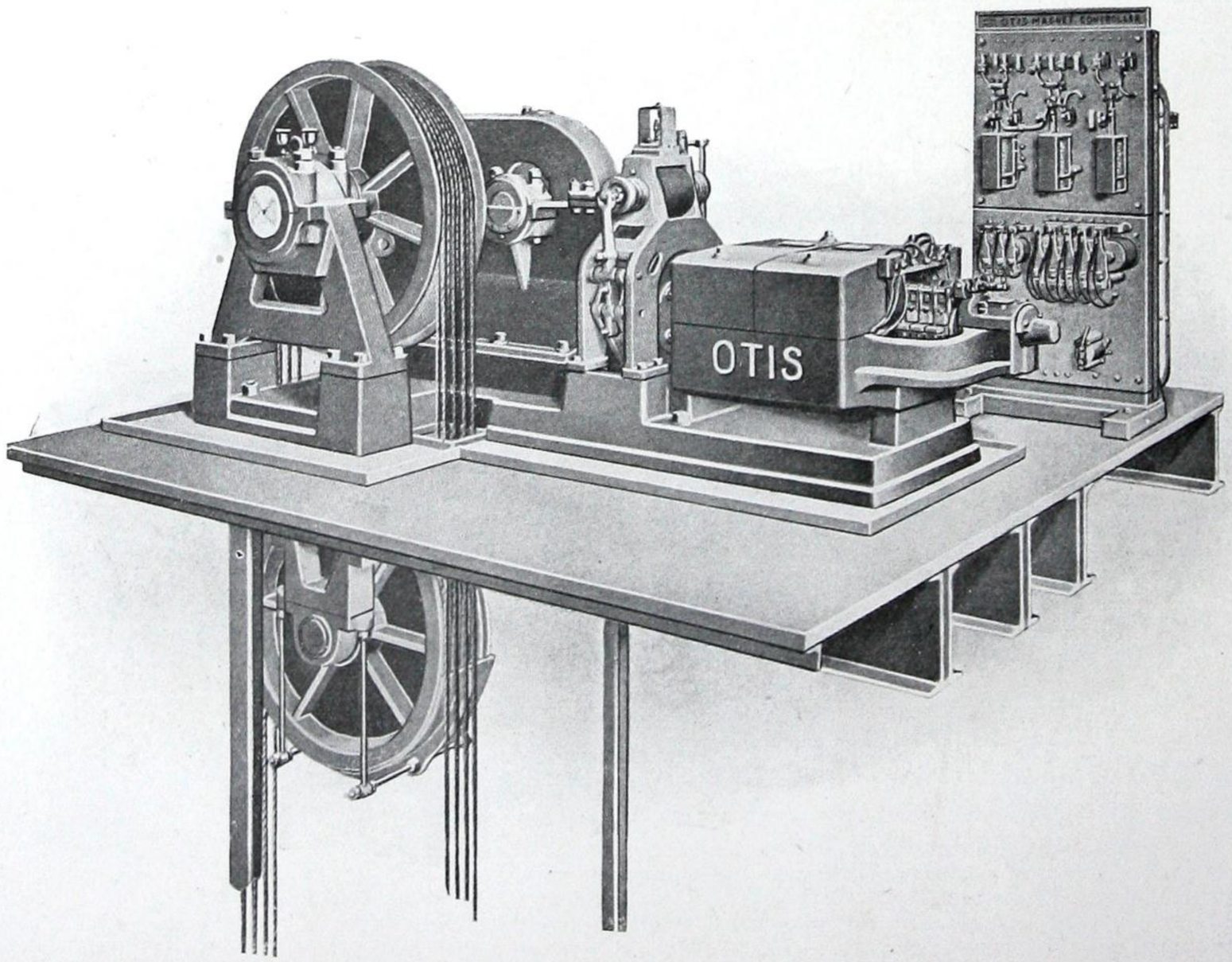
OTIS-FENSOM BUILDING, 50 BAY STREET,

TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA.



OTIS 1 : 1 TRACTION ELEVATOR, OVERHEAD TYPE, DIRECT CURRENT, SWITCH CONTROL.



OTIS DUPLEX GEARED TRACTION ELEVATOR, OVERHEAD TYPE, DIRECT CURRENT, SWITCH CONTROL.

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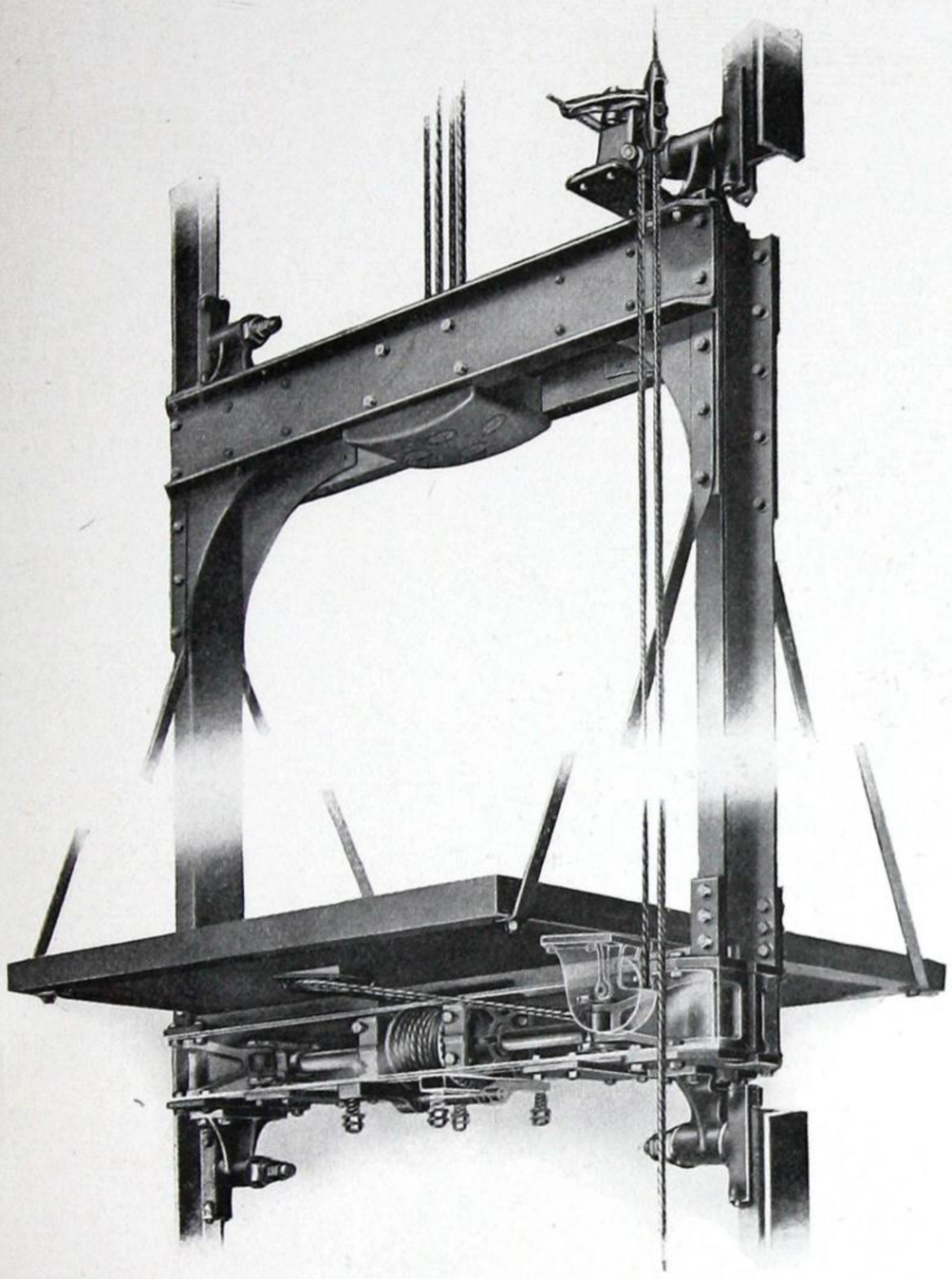
OTIS-FENSOM ELEVATOR COMPANY, LIMITED

HEAD OFFICES:

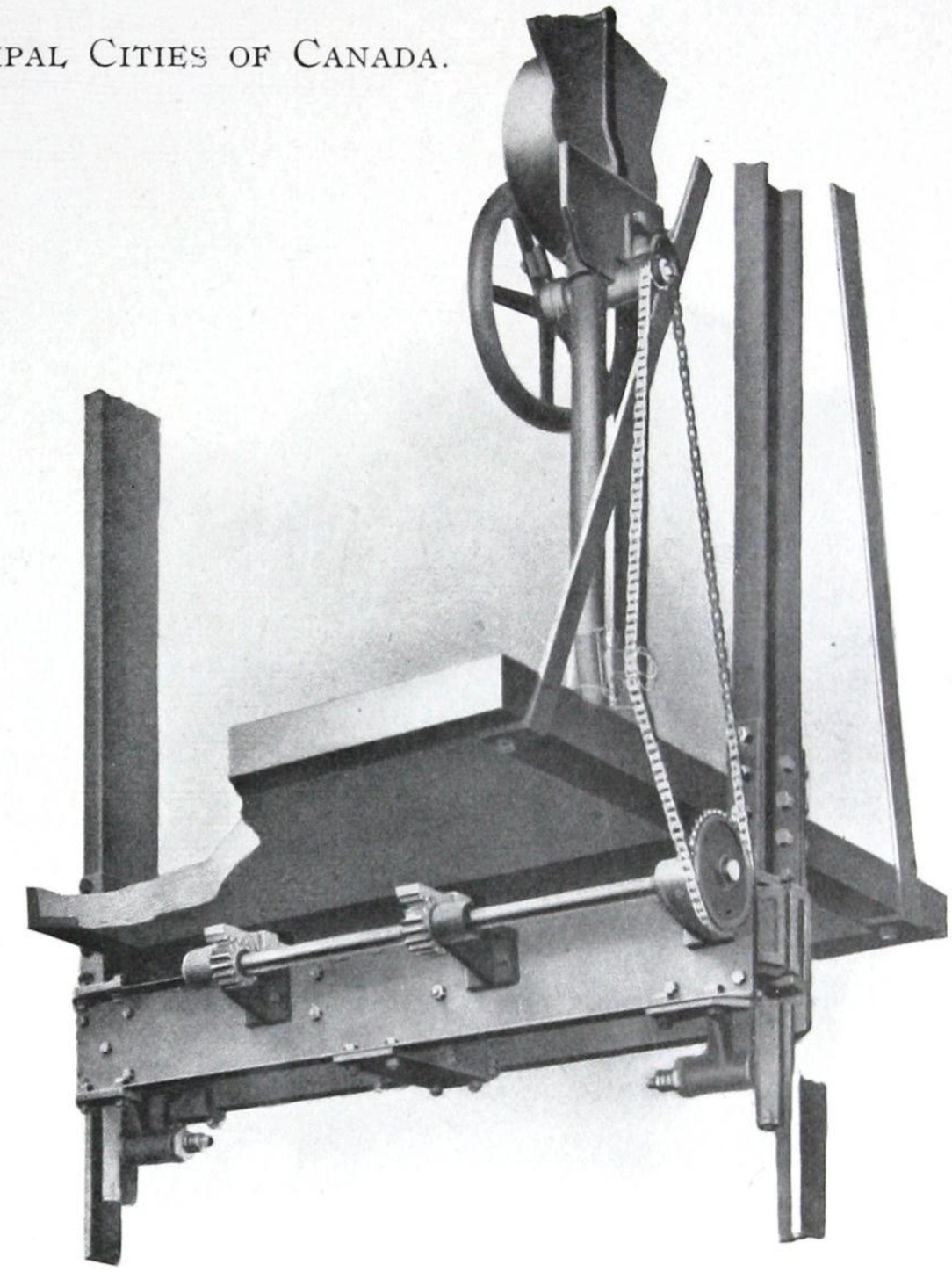
OTIS-FENSOM BUILDING, 50 BAY STREET,

TORONTO, ONT.

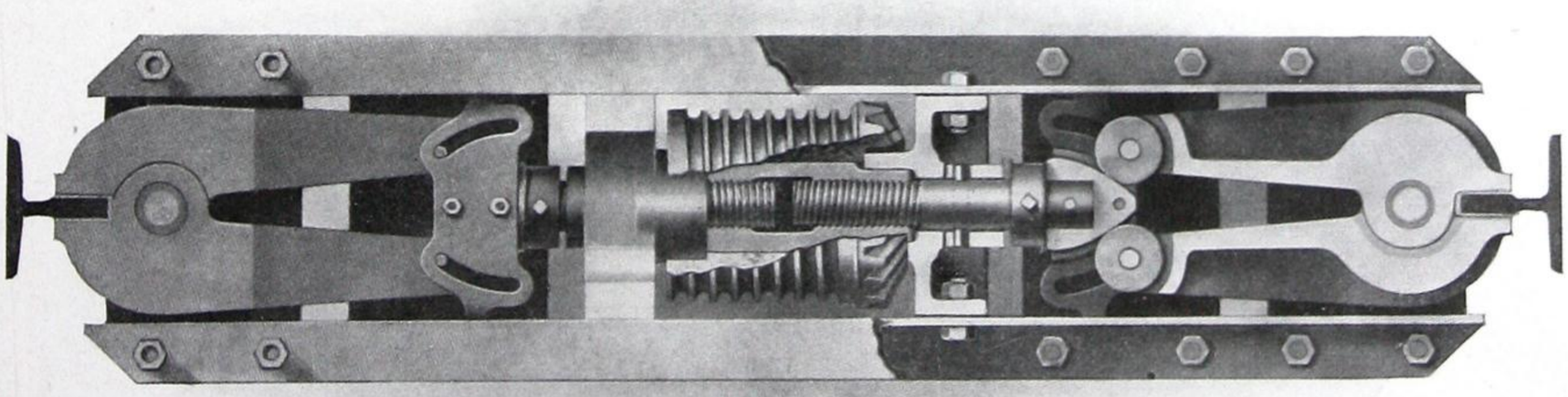
OFFICES IN ALL PRINCIPAL CITIES OF CANADA.



OTIS PASSENGER PLATFORM, WITH RELEASING CARRIER AND WEDGE CLAMP SAFETY, THE LATTER MOUNTED UNDERNEATH THE CAR, WITH ITS CHANNEL IRON FRAME REMOVED TO SHOW CONSTRUCTION DETAILS.



OTIS PASSENGER PLATFORM WITH EMERGENCY DEVICE. THIS SAFETY IS OPERATED ORDINARILY BY A SPEED GOVERNOR, BUT AN EMERGENCY CONNECTION, USED ON A TRACTION ELEVATOR, CAN BE OPERATED BY THE ATTENDANT, SHOULD OCCASION ARISE, BY MEANS OF A WHEEL LOCATED NEAR CAR SWITCH.



PLAN VIEW OF WEDGE CLAMP SAFETY DEVICE, WITH PARTS REMOVED TO SHOW CONSTRUCTION.

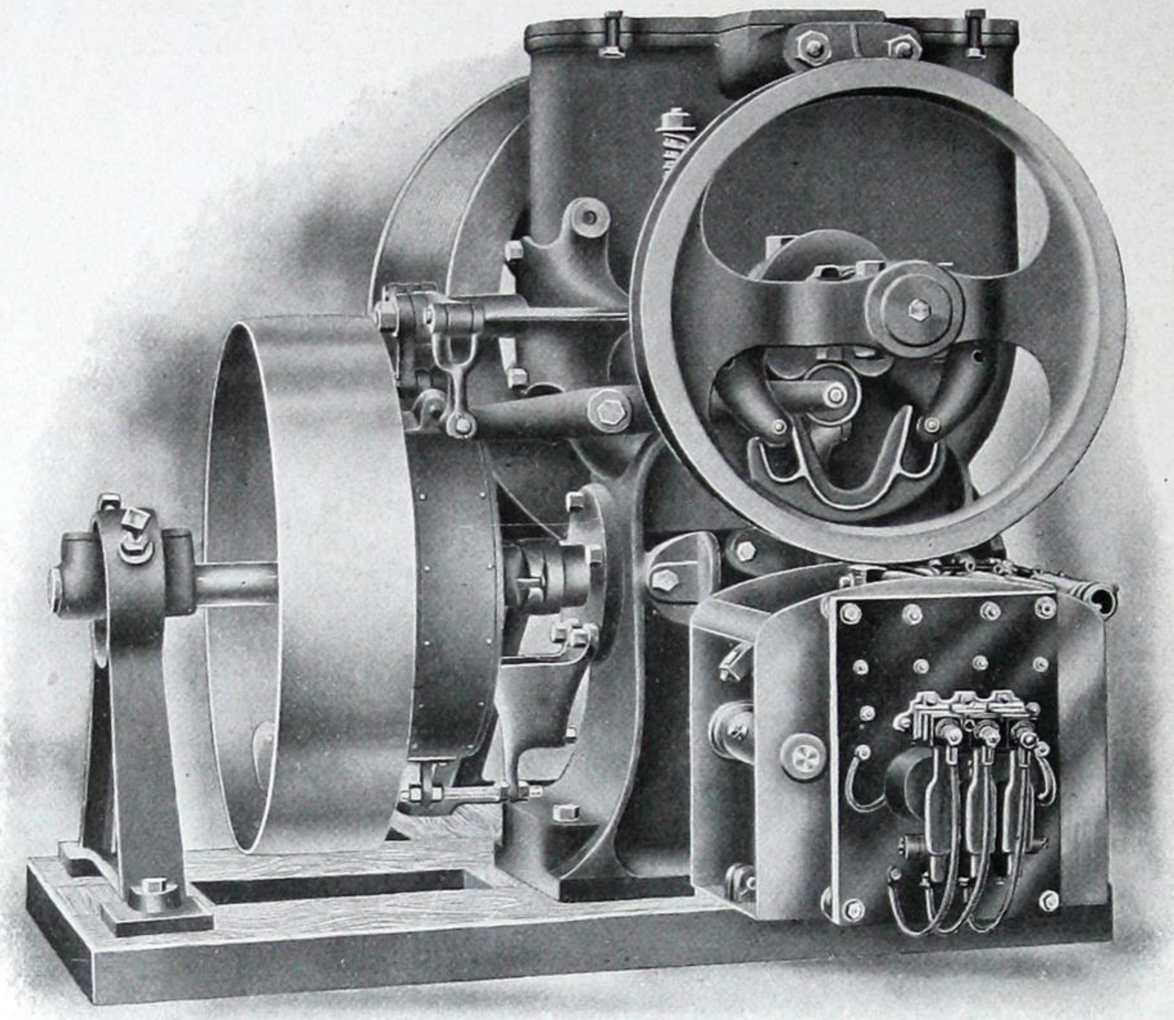
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OTIS-FENSOM ELEVATOR COMPANY, LIMITED

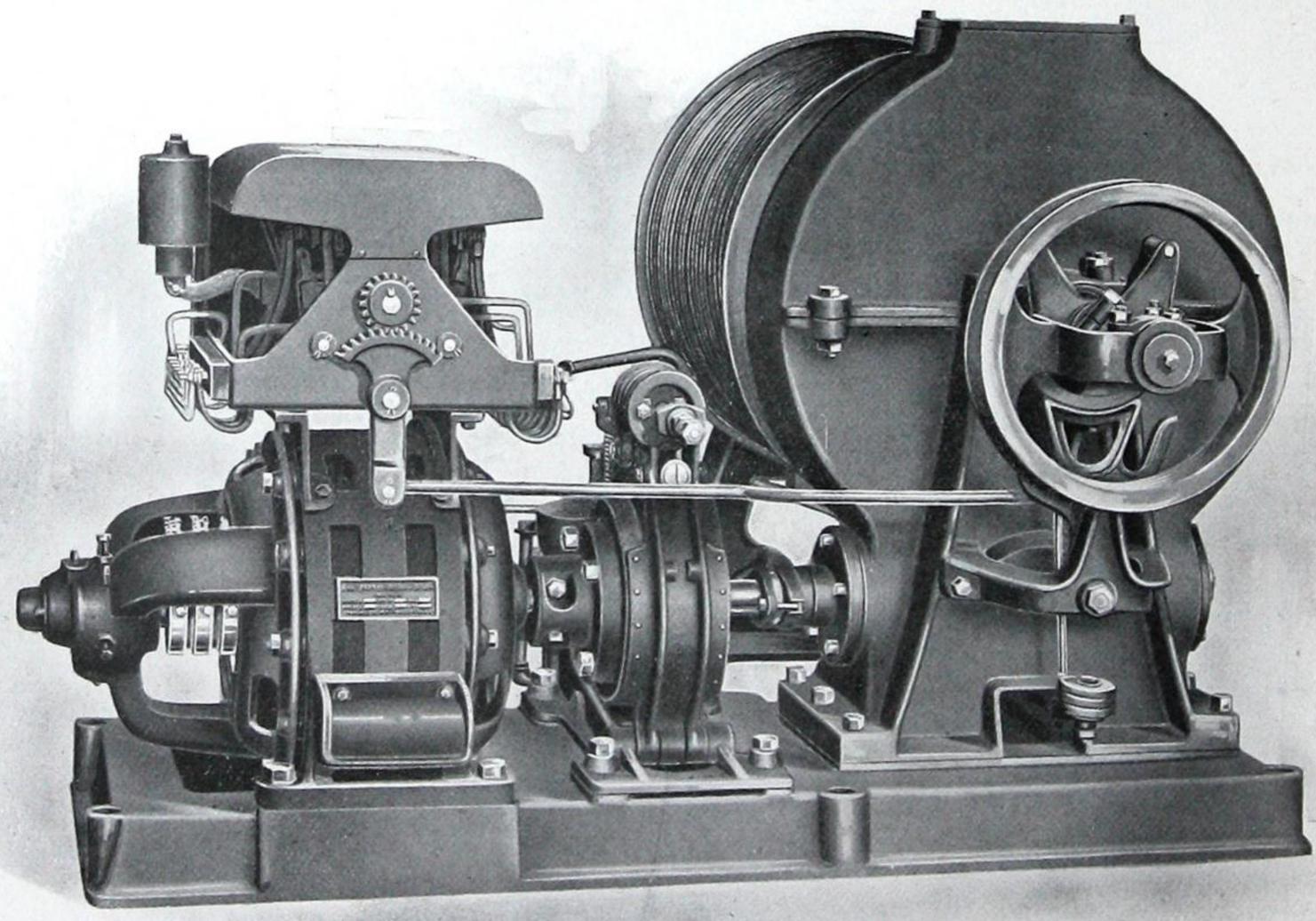
HEAD OFFICES:

OTIS-FENSOM BUILDING, 50 BAY STREET,
TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA.

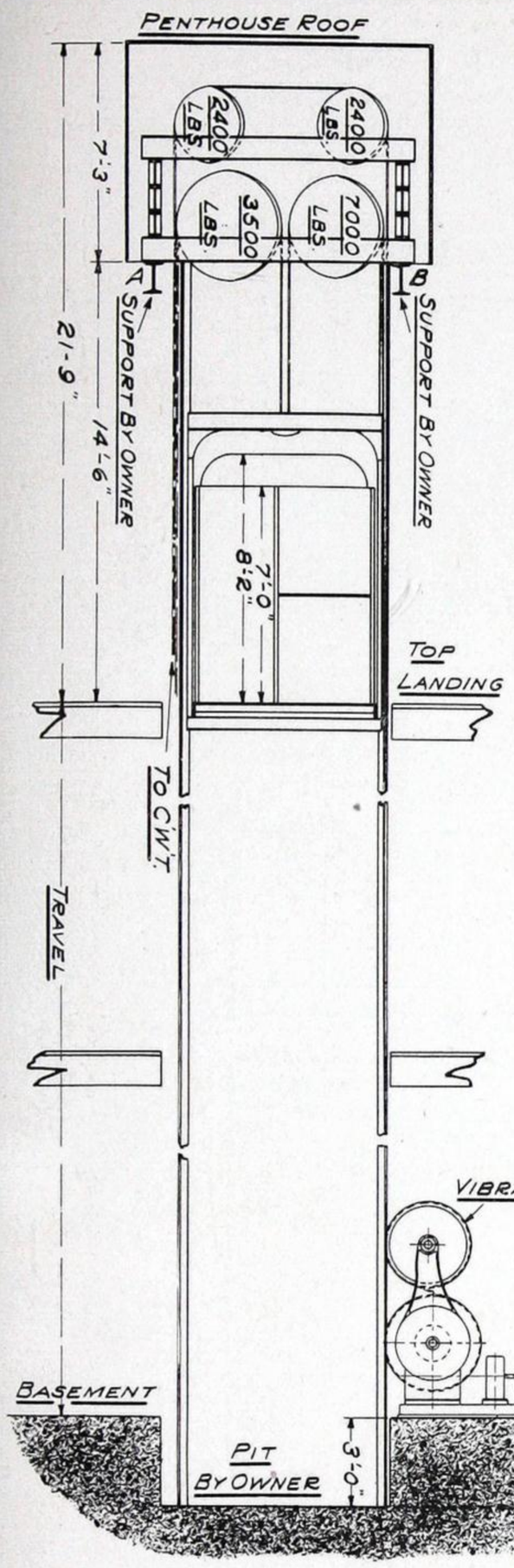


OTIS WORM GEARED, FLOOR TYPE, SINGLE BELTED, ELECTRIC FREIGHT ELEVATOR MACHINE. DIRECT CURRENT CONTROLLER IS SHOWN, BUT WILL BE SUBSTITUTED BY ALTERNATING WHERE REQUIRED.



OTIS WORM GEARED, DIRECT CONNECTED, ELECTRIC FREIGHT ELEVATOR MACHINE, ALTERNATING CURRENT TYPE, EQUIPPED WITH MAGNET BRAKE. DIRECT CURRENT MOTOR, CONTROLLER AND BRAKE SUBSTITUTED WHERE REQUIRED.

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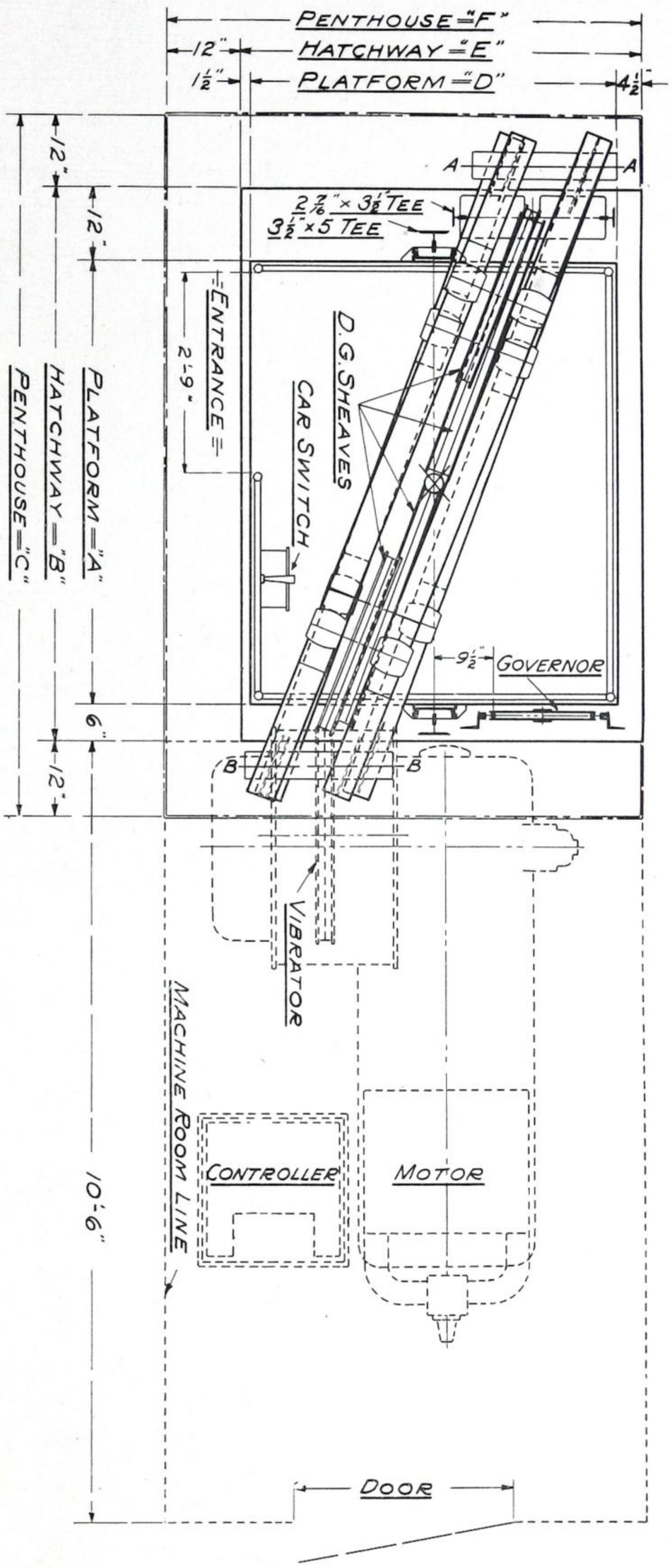


TYPE "A31 H" DIR. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 1300 LBS. AT 200 FT. PER MIN.							
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	DIAM. OF DRUM
5'-0" × 5'-0"	5'-0"	6'-6"	8'-6"	5'-0"	5'-6"	6'-6"	38"
							38"

MACHINE CAPACITY 2000 LBS. AT 250 FT. PER MIN.							
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM
5'-0" × 5'-0"	5'-0"	6'-6"	8'-6"	5'-0"	5'-6"	6'-6"	19"
6'-0" × 5'-0"	6'-0"	7'-6"	9'-6"	6'-0"	6'-6"	7'-6"	25"
6'-0" × 6'-0"	6'-0"	7'-6"	9'-6"	6'-0"	6'-6"	7'-6"	

	MAXIMUM CAR TRAVEL
	80 FT.
	130 FT.



NOTE:- WHEN FIGURING FOR SUPPORTS USE 8000 LBS. FIBRE STRESS FOR STEEL SUPPORTS MARKED A A - B B BY OWNER

LAYOUT NO. HTB 200

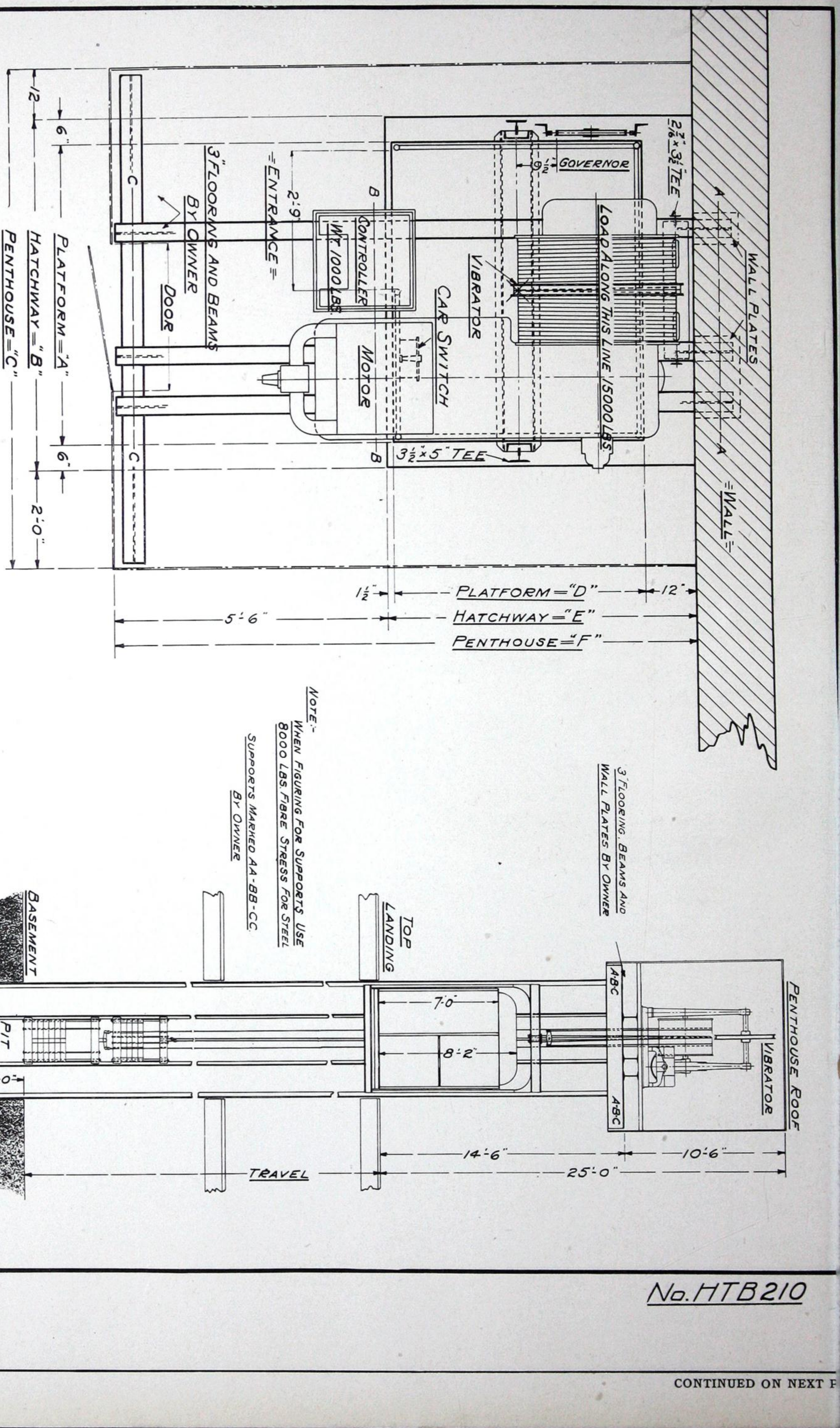
STANDARD DRUM TYPE PASSENGER ELEVATOR,

OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO —"— CANADA

No. HTB 200

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TYPE "A 31/H" DIR. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 1300 LBS. AT 200 FT. PER MIN.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 5'-0"	5'-0"	6'-0"	9'-0"	5'-0"	6'-1½"	11'-7½"

MACHINE CAPACITY 2000 LBS. AT 250 FT. PER MIN.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 5'-0"	5'-0"	6'-0"	9'-0"	5'-0"	6'-1½"	11'-7½"
6'-0" × 5'-0"	6'-0"	7'-0"	10'-0"	5'-0"	6'-1½"	11'-7½"
6'-0" × 6'-0"	6'-0"	7'-0"	10'-0"	6'-0"	7'-1½"	12'-7½"

DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
38"	19"	50 FT.
38"	25"	90 FT.

LAYOUT NO HTB 210

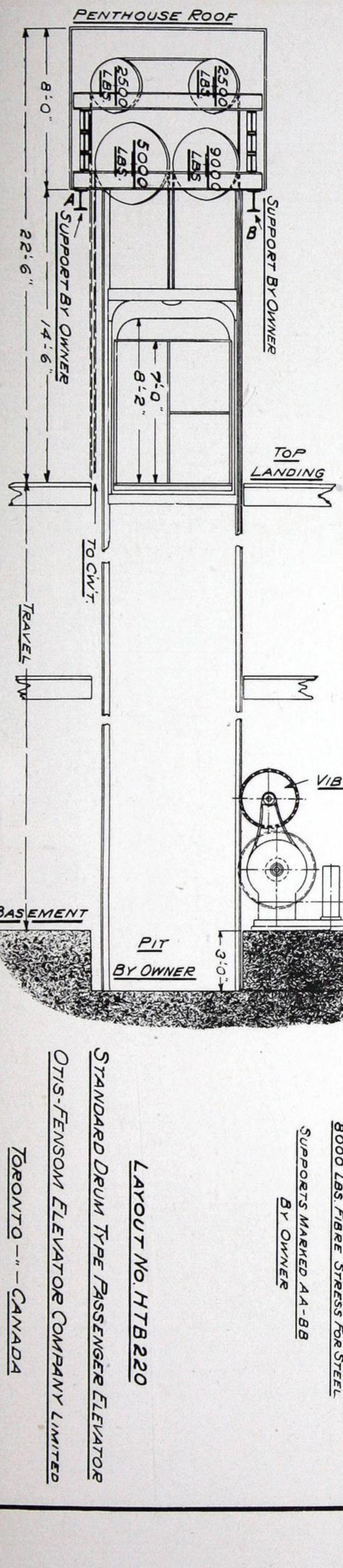
STANDARD DRUM TYPE PASSENGER ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO — CANADA

No. HTB 210

CONTINUED ON NEXT P



MACHINE CAPACITY 2000 LBS. AT 300 FT. PER MIN.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
5'-0" × 5'-0"	5'-0"	6'-7"	8'-7"	5'-0"	5'-6"	6'-6"	300 F.P.M.	44"	19"	90 FT.
6'-0" × 5'-0"	6'-0"	7'-7"	9'-7"	5'-0"	5'-6"	6'-6"			25"	150 FT.
6'-0" × 6'-0"	6'-0"	7'-7"	9'-7"	6'-0"	6'-6"	7'-6"	250 F.P.M.	36"	19"	70 FT.
									25"	120 FT.

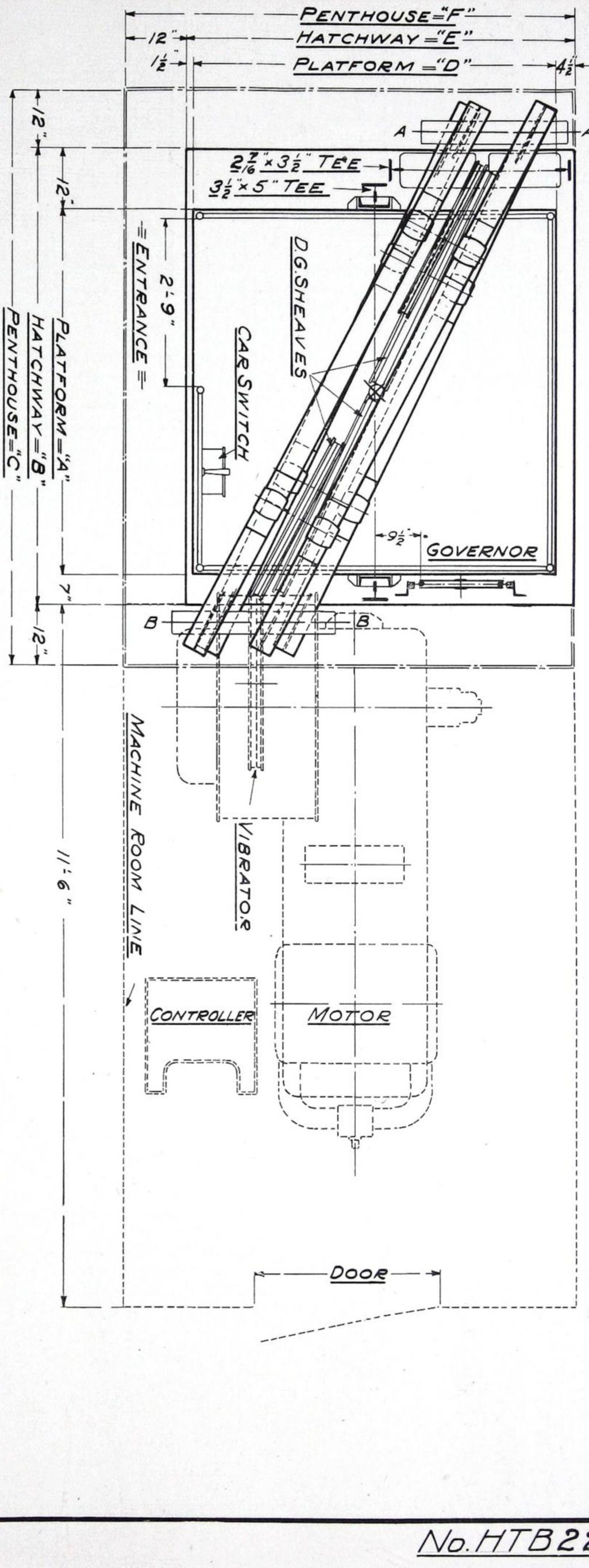
MACHINE CAPACITY 2400 LBS. AT 250 FT. PER MIN.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
5'-0" × 5'-0"	5'-0"	6'-7"	8'-7"	5'-0"	5'-6"	6'-6"	300 F.P.M.	44"	19"	70 FT.
6'-0" × 5'-0"	6'-0"	7'-7"	9'-7"	5'-0"	5'-6"	6'-6"			25"	120 FT.
6'-0" × 6'-0"	6'-0"	7'-7"	9'-7"	6'-0"	6'-6"	7'-6"	250 F.P.M.	36"	19"	60 FT.
									25"	90 FT.

TYPE "A4/H" DIR. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 3200 LBS AT 250 FT. PER MIN.

MACHINE CAPACITY 2800 LBS. AT 300 FT. PER MIN.



NOTE:- WHEN FIGURING FOR SUPPORTS USE 8000 LBS. FIBRE STRESS FOR STEEL.

SUPPORTS MARKED A A - B B BY OWNER

LAYOUT No. HTB 220

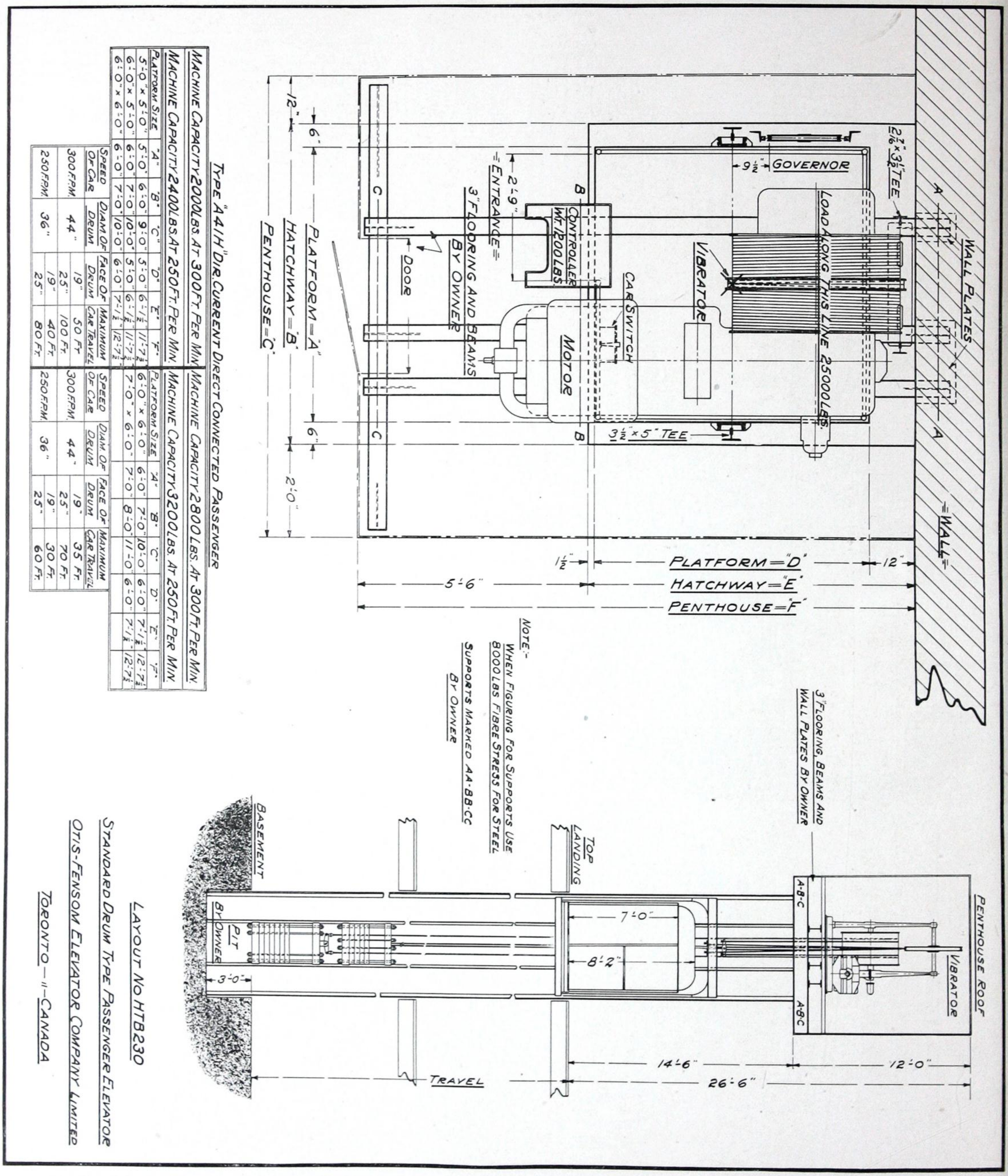
STANDARD DRUM TYPE PASSENGER ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO — " — CANADA

No. HTB 220

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NOTE:-
WHEN FIGURING FOR SUPPORTS USE 8000 LBS FIBRE STRESS FOR STEEL

SUPPORTS MARKED AA-BB-CC BY OWNER

TYPE "A41H" DIR. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 2000 LBS. AT 300 FT. PER MIN.

MACHINE CAPACITY 2400 LBS. AT 250 FT. PER MIN.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
5'-0" x 5'-0"	5'-0"	6'-0"	9'-0"	5'-0"	6'-1/2"	11'-7 1/2"	300 F.P.M.	44"	19"	50 FT.
6'-0" x 5'-0"	6'-0"	7'-0"	10'-0"	5'-0"	6'-1/2"	11'-7 1/2"			25"	100 FT.
6'-0" x 6'-0"	6'-0"	7'-0"	10'-0"	6'-0"	7'-1/2"	12'-7 1/2"	250 F.P.M.	36"	19"	40 FT.
									25"	80 FT.

MACHINE CAPACITY 2800 LBS. AT 300 FT. PER MIN.

MACHINE CAPACITY 3200 LBS. AT 250 FT. PER MIN.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
6'-0" x 6'-0"	6'-0"	7'-0"	10'-0"	6'-0"	7'-1/2"	12'-7 1/2"	300 F.P.M.	44"	19"	35 FT.
7'-0" x 6'-0"	7'-0"	8'-0"	11'-0"	6'-0"	7'-1/2"	12'-7 1/2"			25"	70 FT.
							250 F.P.M.	36"	19"	30 FT.
									25"	60 FT.

LAYOUT NO HTB230

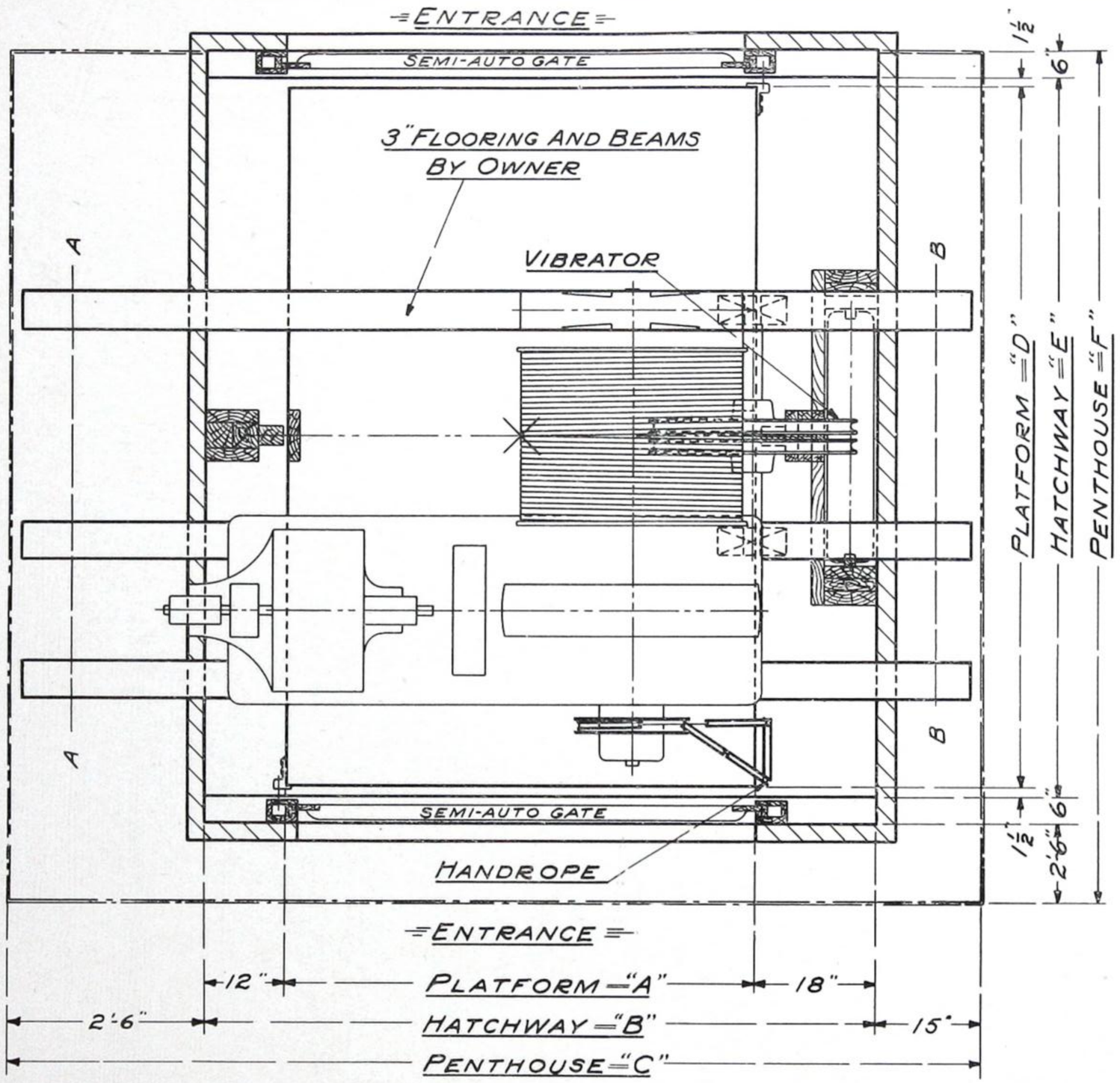
STANDARD DRUM TYPE PASSENGER ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

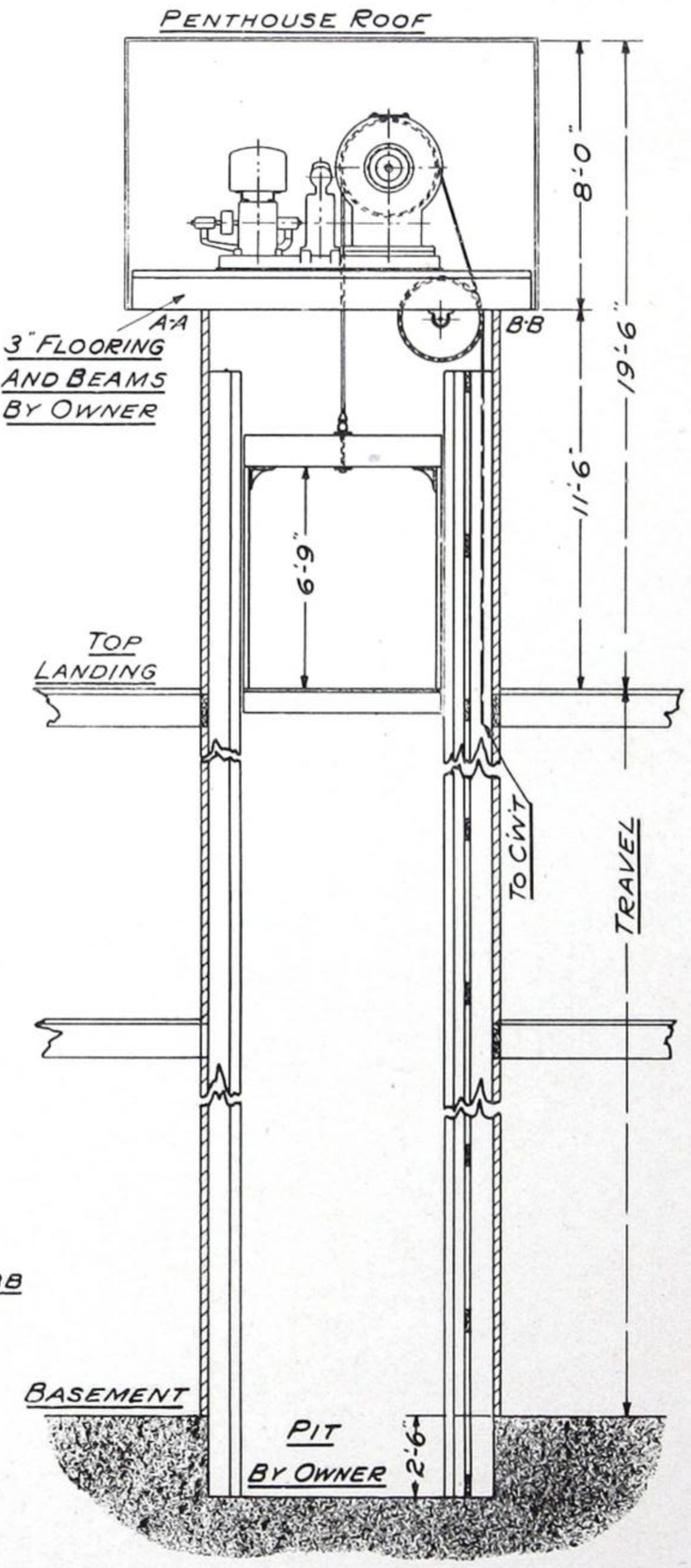
TORONTO — II — CANADA

No. HTB230

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NOTE:-
SUPPORTS MARKED AA-BB
BY OWNER



TYPE "A30A" DIR. CURRENT DIRECT CONNECTED FREIGHT

MACHINE CAPACITY 3000 AND 4000 LBS.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 6'-0"	5'-0"	7'-6"	11'-3"	6'-0"	6'-3"	9'-9"
6'-0" × 7'-0"	6'-0"	8'-6"	12'-3"	7'-0"	7'-3	10'-9"
6'-0" × 8'-0"	6'-0"	8'-6"	12'-3"	8'-0"	8'-3"	11'-9

SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL 5/8 CABLES
100 F.P.M.	34"	15"	35'-0"
		22"	70'-0"
		26"	90'-0"
75 F.P.M	30"	15"	25'-0"
		22"	60'-0"
		26"	80'-0"

MACHINE CAPACITY 5000 AND 6000 LBS.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
6'-0" × 7'-0"	6'-0"	8'-6"	12'-3"	7'-0"	7'-3"	10'-9"
6'-0" × 9'-0"	6'-0"	8'-6"	12'-3"	9'-0"	9'-3"	12'-9"
7'-0" × 10'-0"	7'-0"	9'-6"	13'-3"	10'-0"	10'-3"	13'-9

SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL 3/4 CABLES	MAXIMUM CAR TRAVEL 7/8 CABLES
75 F.P.M	30"	15"	20'-0"	15'-0"
		22"	55'-0"	40'-0"
		26"	75'-0"	60'-0"
50 F.P.M	30"	15"	20'-0"	15'-0"
		22"	55'-0"	40'-0"
		26"	75'-0"	60'-0"

LAYOUT NO HTB110

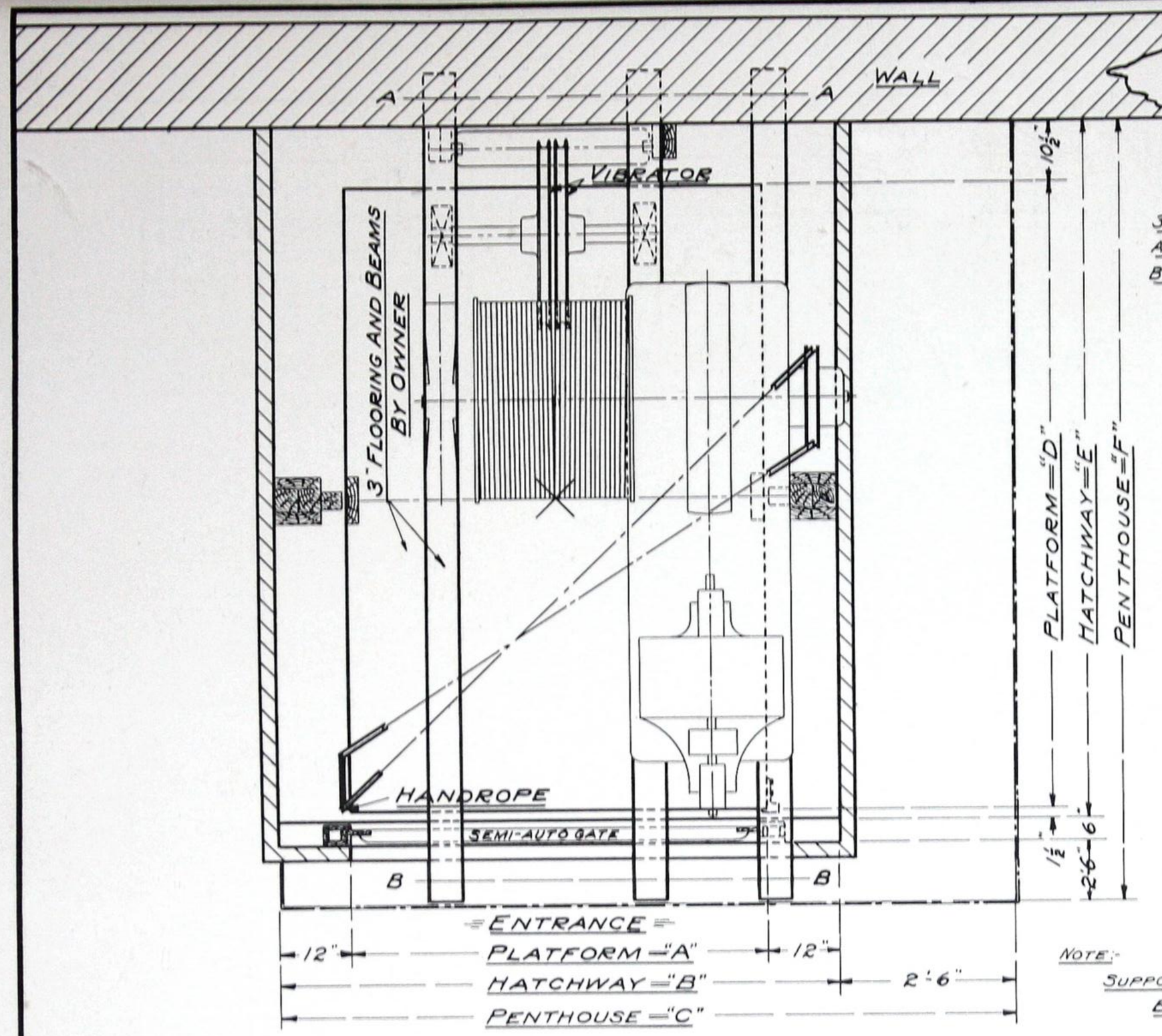
STANDARD DRUM TYPE FREIGHT ELEVATOR

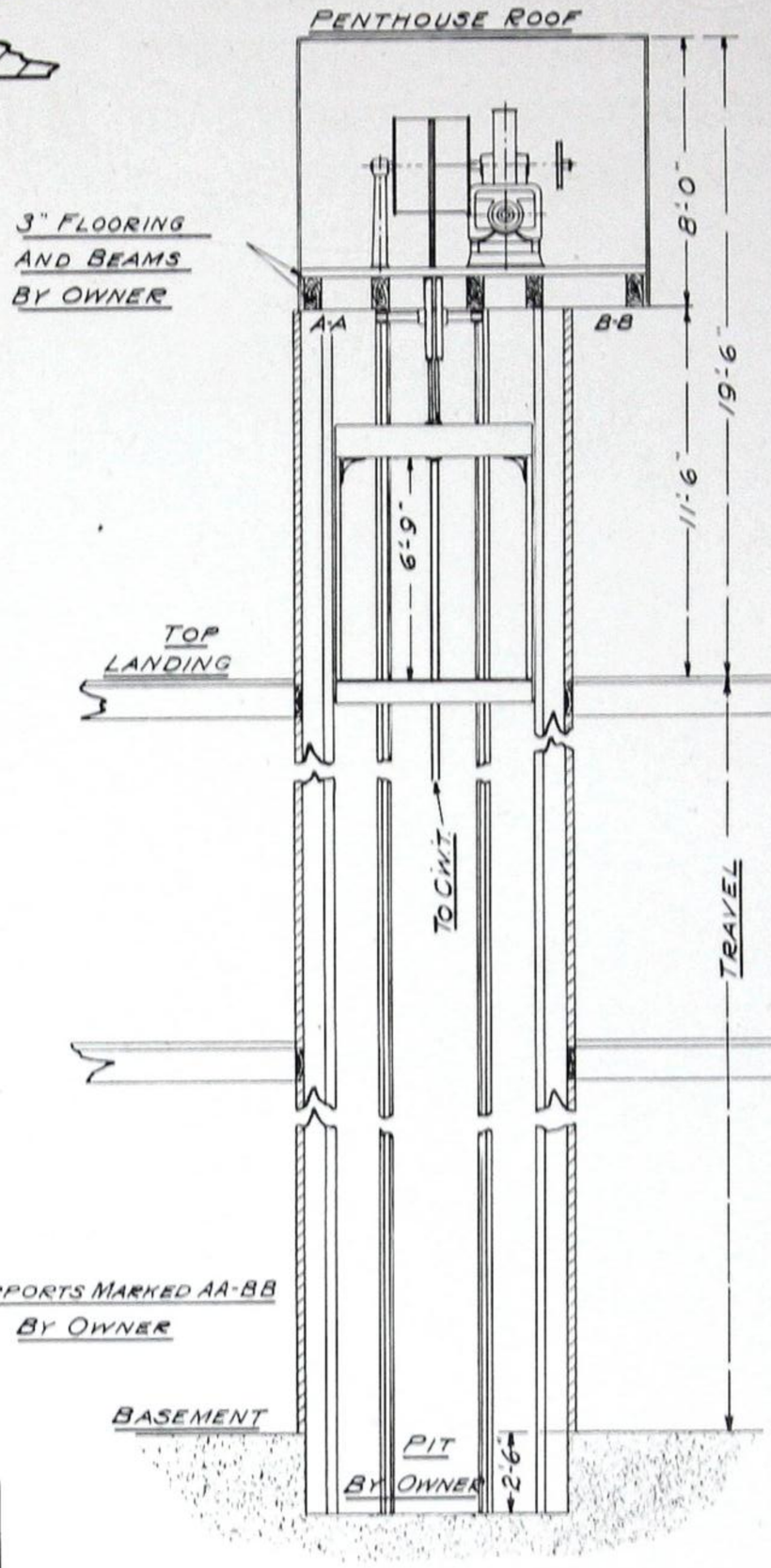
OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO — " — CANADA

No. HTB110

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NOTE:-
SUPPORTS MARKED AA-BB
BY OWNER

No. HTB130

TYPE "A30A" DIR. CURRENT DIRECT CONNECTED FREIGHT

MACHINE CAPACITY 3000 AND 4000 LBS.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 6'-0"	5'-0"	7'-0"	9'-6"	6'-0"	7'-0"	10'-0"
6'-0" × 7'-0"	6'-0"	8'-0"	10'-6"	7'-0"	8'-0"	11'-0"
6'-0" × 8'-0"	6'-0"	8'-0"	10'-6"	8'-0"	9'-0"	12'-0"

SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL ⅝" CABLES
100 F.P.M.	34"	15"	35'-0"
		22"	70'-0"
		26"	90'-0"
75 F.P.M.	30"	15	25'-0"
		22	60'-0"
		26	80'-0"

MACHINE CAPACITY 5000 AND 6000 LBS.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
6'-0 × 7'-0"	6'-0"	8'-0"	10'-6"	7'-0"	8'-0"	11'-0"
6'-0" × 9'-0"	6'-0"	8'-0"	10'-6"	9'-0"	10'-0"	13'-0"
7'-0" × 10'-0"	7'-0"	9'-0	11'-6"	10'-0"	11'-0"	14'-0"

SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL ¾ CABLES	MAXIMUM CAR TRAVEL ⅝ CABLES
75 F.P.M.	30"	15"	20'-0"	15'-0"
		22"	55'-0"	40'-0
		26"	75'-0"	60'-0"
50 F.P.M.	30"	15"	20'-0"	15'-0"
		22"	55'-0"	40'-0"
		26"	75'-0"	60'-0"

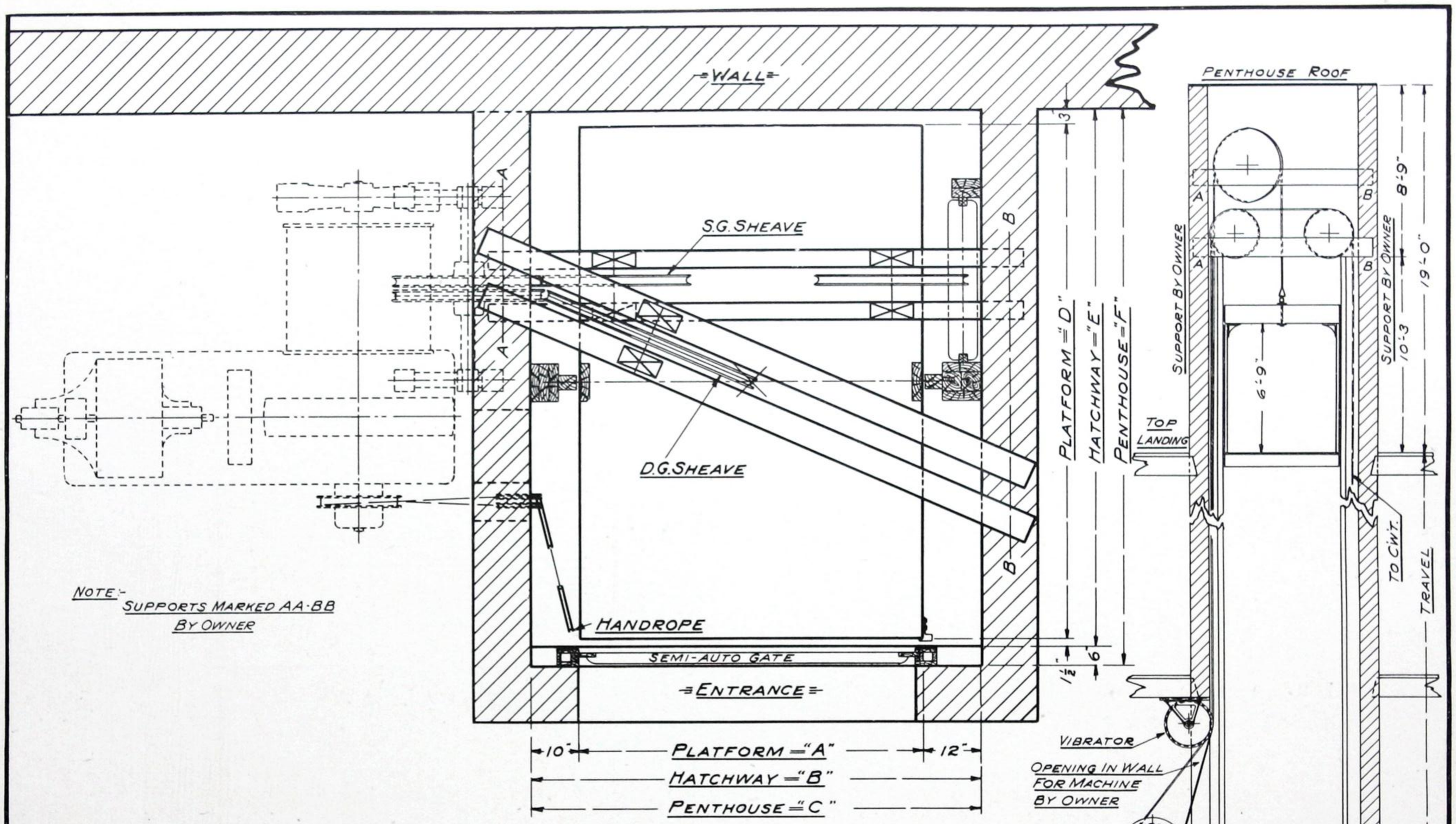
LAYOUT NO. HTB 130

STANDARD DRUM TYPE FREIGHT ELEVATOR

OTIS FENSOM ELEVATOR COMPANY LIMITED

TORONTO — 11 — CANADA

CONTINUED ON NEXT PAGE



NOTE:- SUPPORTS MARKED AA-BB BY OWNER

No. HTB150

TYPE "A30A" DIR. CURRENT DIRECT CONNECTED FREIGHT

MACHINE CAPACITY 3000 AND 4000 LBS.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 6'-0"	5'-0"	6'-10"	6'-10"	6'-0"	6'-4½"	6'-10½"
6'-0" × 7'-0"	6'-0"	7'-10"	7'-10"	7'-0"	7'-4½"	7'-10½"
6'-0" × 8'-0"	6'-0"	7'-10"	7'-10"	8'-0"	8'-4½"	8'-10½"

SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL 5/8" CABLES	
100 F.P.M.	34"	15"	40'-0"	
		22"	80'-0"	
		26"	100'-0"	
75 F.P.M.	30"	15"	30'-0"	
		22"	70'-0"	
		26"	90'-0"	

MACHINE CAPACITY 5000 AND 6000 LBS.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
6'-0 × 7'-0"	6'-0"	7'-10"	7'-10"	7'-0"	7'-4½"	7'-10½"
6'-0" × 9'-0"	6'-0"	7'-10"	7'-10"	9'-0"	9'-4½"	9'-10½"
7'-0" × 10'-0"	7'-0"	8'-10"	8'-10"	10'-0"	10'-4½"	10'-10½"

SPEED OF CAR	DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL 3/4" CABLES	MAXIMUM CAR TRAVEL 7/8" CABLES
75 F.P.M.	30"	15"	20'-0"	15'-0"
		22"	60'-0"	45'-0"
		26"	80'-0"	65'-0"
50 F.P.M.	30"	15"	20'-0"	15'-0"
		22"	60'-0"	45'-0"
		26"	80'-0"	65'-0"

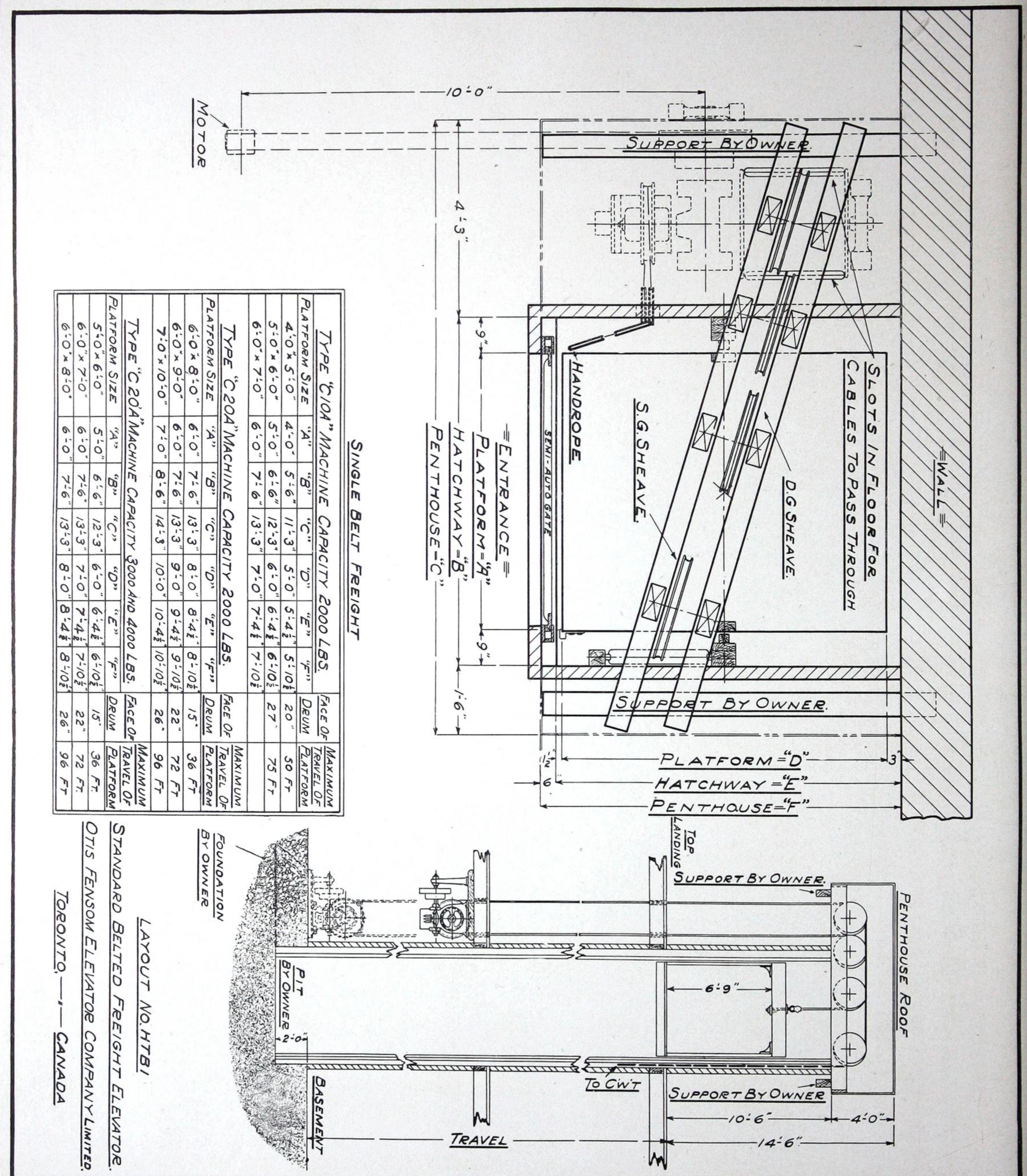
LAYOUT No. HTB150

STANDARD DRUM TYPE FREIGHT ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO —"— CANADA

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SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
4'-0" × 5'-0"	4'-0"	5'-6"	11'-3"	5'-0"	5'-4½"	5'-10½"	20"	50 FT
5'-0" × 6'-0"	5'-0"	6'-6"	12'-3"	6'-0"	6'-4½"	6'-10½"	27"	75 FT
6'-0" × 7'-0"	6'-0"	7'-6"	13'-3"	7'-0"	7'-4½"	7'-10½"		

TYPE "C20A" MACHINE CAPACITY 2000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3"	8'-0"	8'-4½"	8'-10½"	15"	36 FT
6'-0" × 9'-0"	6'-0"	7'-6"	13'-3"	9'-0"	9'-4½"	9'-10½"	22"	72 FT
7'-0" × 10'-0"	7'-0"	8'-6"	14'-3"	10'-0"	10'-4½"	10'-10½"	26"	96 FT

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
5'-0" × 6'-0"	5'-0"	6'-6"	12'-3"	6'-0"	6'-4½"	6'-10½"	15"	36 FT.
6'-0" × 7'-0"	6'-0"	7'-6"	13'-3"	7'-0"	7'-4½"	7'-10½"	22"	72 FT.
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3"	8'-0"	8'-4½"	8'-10½"	26"	96 FT

LAYOUT NO. HTB1

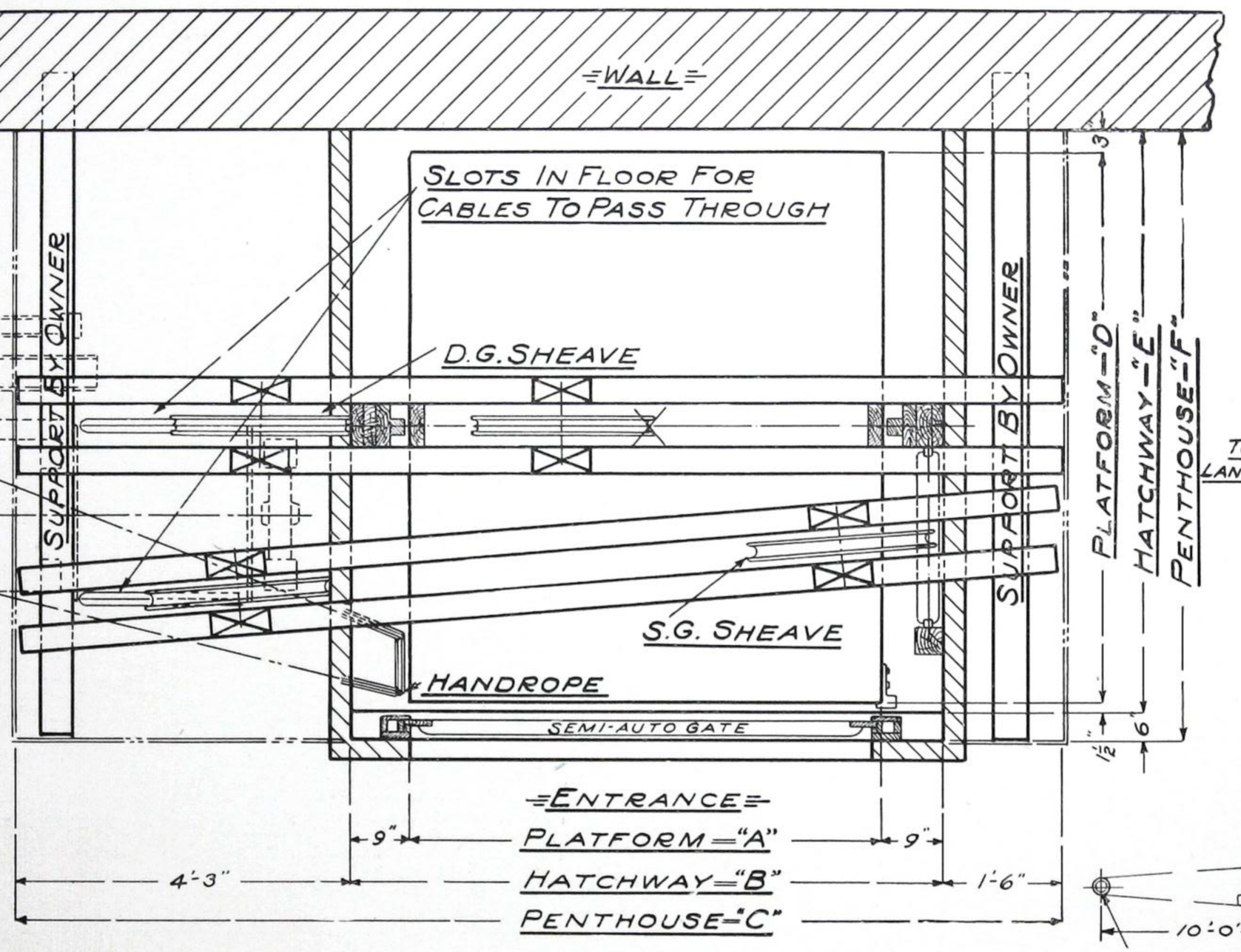
STANDARD BELTED FREIGHT ELEVATOR.

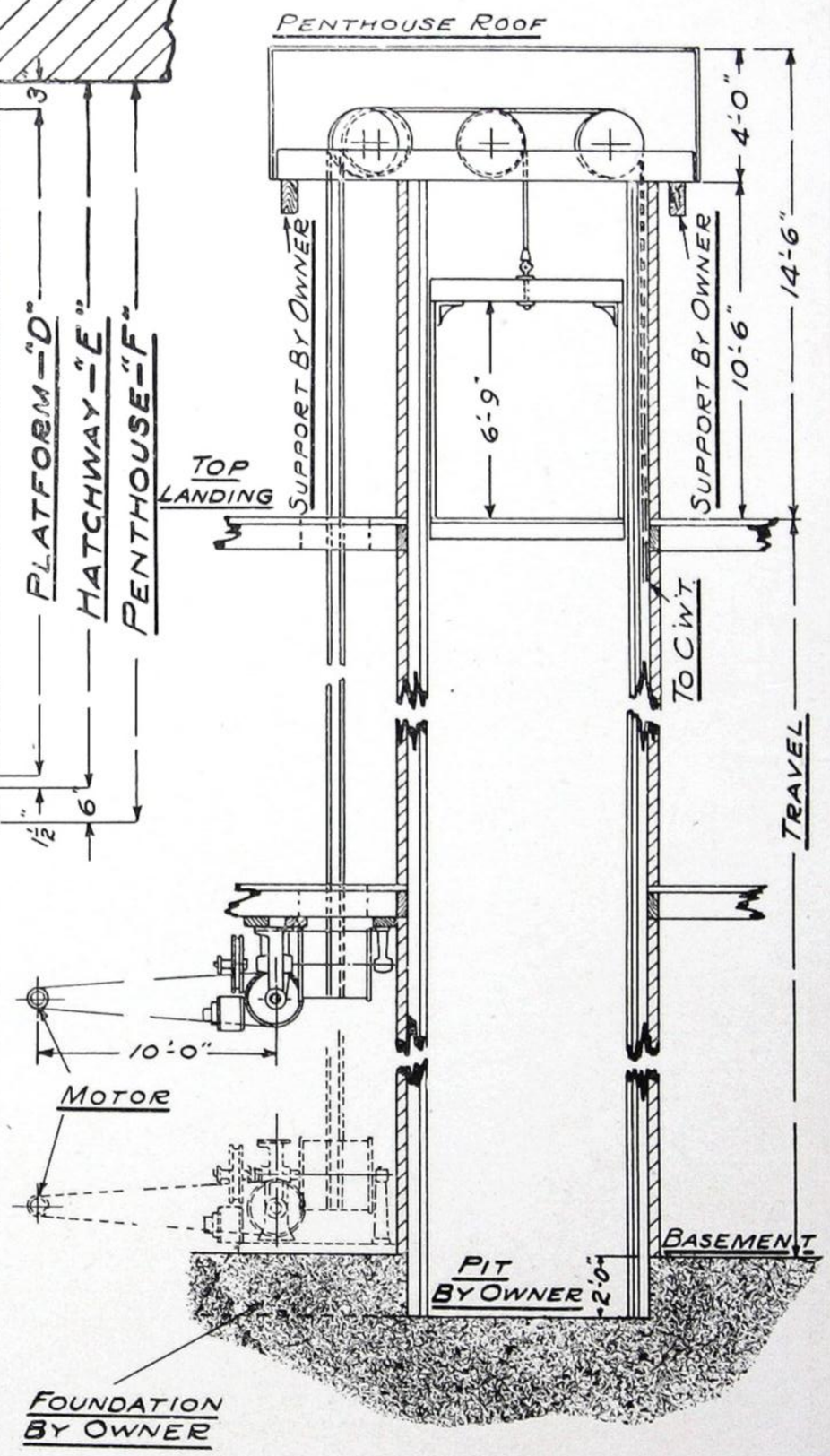
OTIS FENSOM ELEVATOR COMPANY LIMITED.

TORONTO, — CANADA

No. HTB1

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No. HTB3

SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
4'-0" × 5'-0"	4'-0"	5'-6"	11'-3"	5'-0"	5'-4½"	5'-10½"	20"	50 FT.
5'-0" × 6'-0"	5'-0"	6'-6"	12'-3"	6'-0"	6'-4½"	6'-10½"	27"	75 FT.
6'-0" × 7'-0"	6'-0"	7'-6"	13'-3"	7'-0"	7'-4½"	7'-10½"		
TYPE "C20A" MACHINE CAPACITY 2000 LBS							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3"	8'-0"	8'-4½"	8'-10½"	15"	36 FT.
6'-0" × 9'-0"	6'-0"	7'-6"	13'-3"	9'-0"	9'-4½"	9'-10½"	22"	72 FT.
7'-0" × 10'-0"	7'-0	8'-6"	14'-3"	10'-0"	10'-4½"	10'-10½"	26"	96 FT.
TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
5'-0" × 6'-0"	5'-0"	6'-6"	12'-3"	6'-0"	6'-4½"	6'-10½"	15"	36 FT
6'-0" × 7'-0"	6'-0"	7'-6"	13'-3"	7'-0"	7'-4½"	7'-10½"	22"	72 FT.
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3"	8'-0"	8'-4½"	8'-10½"	26"	96 FT.

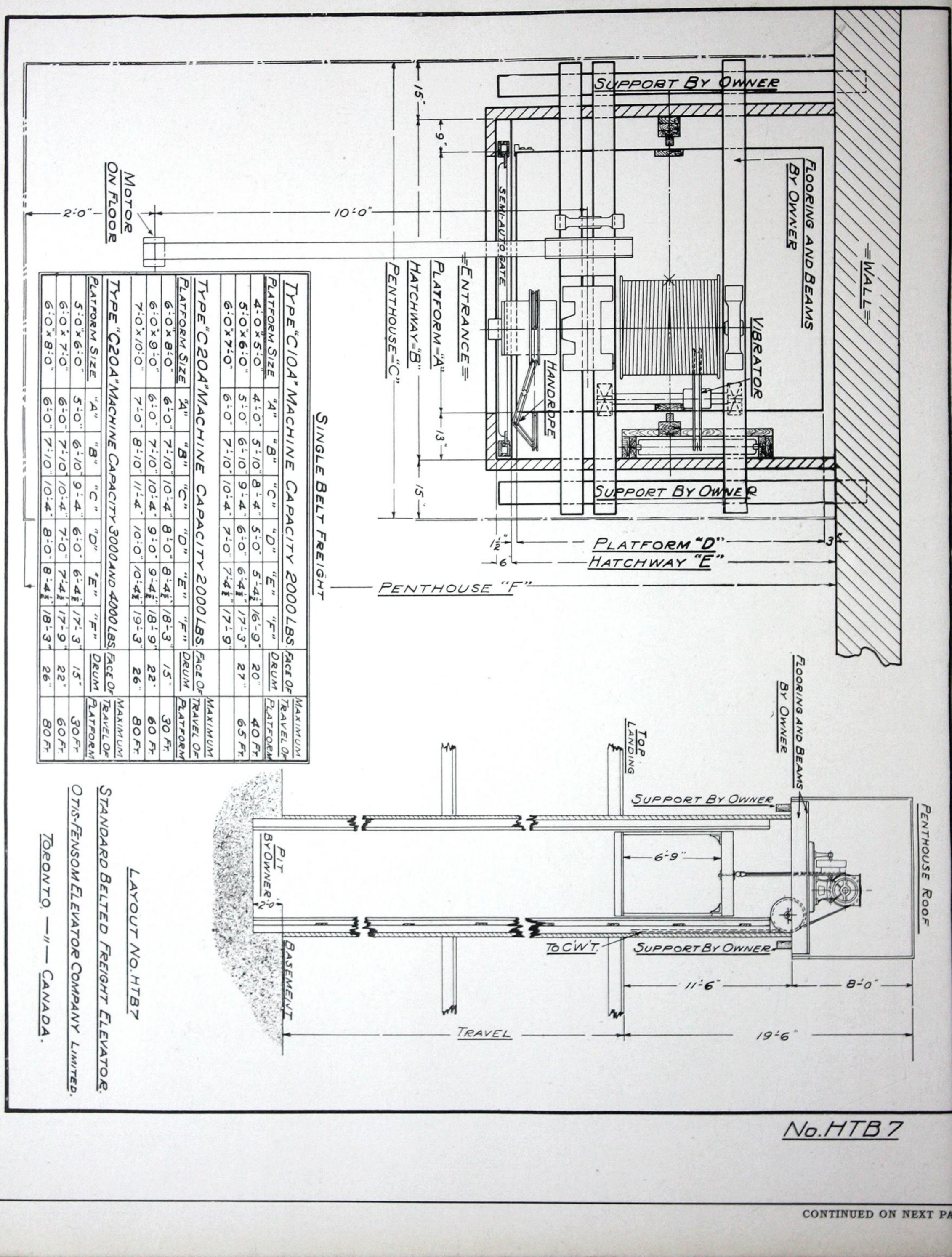
LAYOUT NO. HTB3

STANDARD BELTED FREIGHT ELEVATOR.

OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO, —"— CANADA.

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TYPE "C10A" MACHINE CAPACITY 2000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
4'-0" × 5'-0"	4'-0"	5'-10"	8'-4"	5'-0"	5'-4½"	16'-9"	20"	40 FT.
5'-0" × 6'-0"	5'-0"	6'-10"	9'-4"	6'-0"	6'-4½"	17'-3"	27"	65 FT.
6'-0" × 7'-0"	6'-0"	7'-10"	10'-4"	7'-0"	7'-4½"	17'-9"		

TYPE "C20A" MACHINE CAPACITY 2000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
6'-0" × 8'-0"	6'-0"	7'-10"	10'-4"	8'-0"	8'-4½"	18'-3"	15"	30 FT.
6'-0" × 9'-0"	6'-0"	7'-10"	10'-4"	9'-0"	9'-4½"	18'-9"	22"	60 FT.
7'-0" × 10'-0"	7'-0"	8'-10"	11'-4"	10'-0"	10'-4½"	19'-3"	26"	80 FT.

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
5'-0" × 6'-0"	5'-0"	6'-10"	9'-4"	6'-0"	6'-4½"	17'-3"	15"	30 FT.
6'-0" × 7'-0"	6'-0"	7'-10"	10'-4"	7'-0"	7'-4½"	17'-9"	22"	60 FT.
6'-0" × 8'-0"	6'-0"	7'-10"	10'-4"	8'-0"	8'-4½"	18'-3"	26"	80 FT.

SINGLE BELT FREIGHT

LAYOUT NO. HTB7

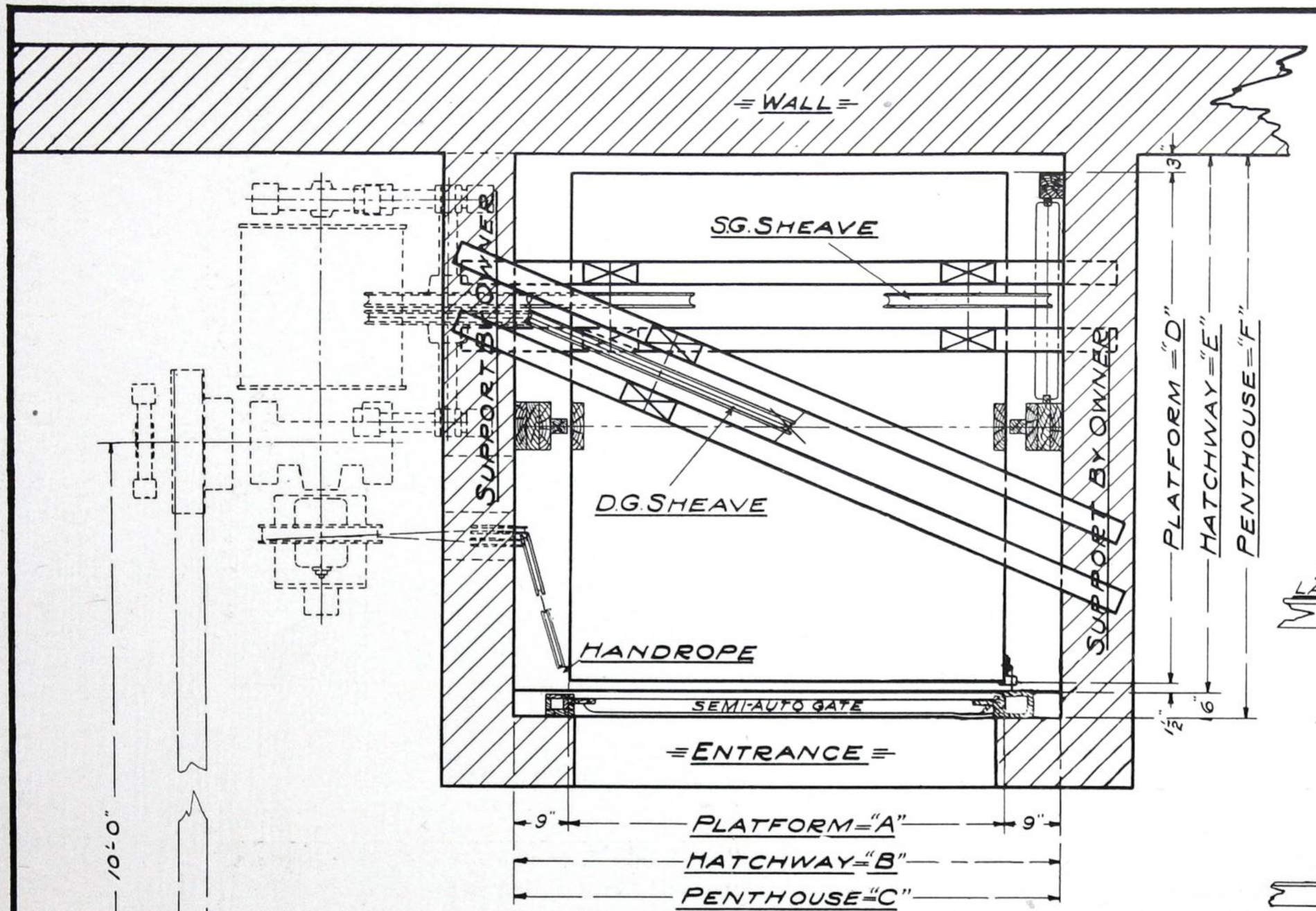
STANDARD BELTED FREIGHT ELEVATOR.

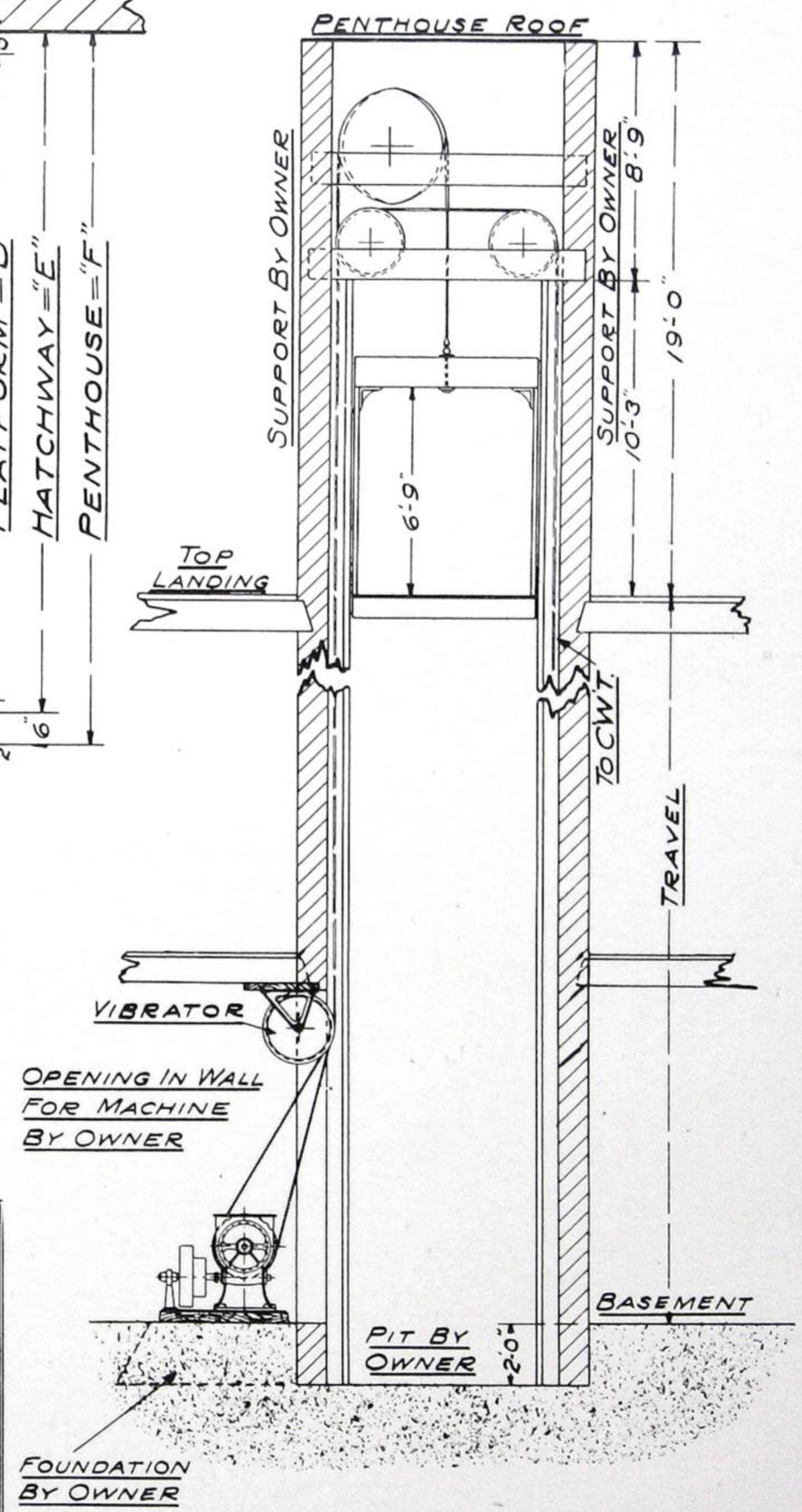
OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO, — " — CANADA.

No. HTB 7

CONTINUED ON NEXT PAGE





SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
4'-0" x 5'-0"	4'-0"	5'-6"	5'-6"	5'-0"	5'-4½"	5'-10½"	20"	45 FT
5'-0" x 6'-0"	5'-0"	6'-6"	6'-6"	6'-0"	6'-4½"	6'-10½"	27"	70 FT.
6'-0" x 7'-0"	6'-0"	7'-6"	7'-6"	7'-0"	7'-4½"	7'-10½"		

TYPE "C20A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
6'-0" x 8'-0"	6'-0"	7'-6"	7'-6"	8'-0"	8'-4½"	8'-10½"	15"	30 FT.
6'-0" x 9'-0"	6'-0"	7'-6"	7'-6"	9'-0"	9'-4½"	9'-10½"	22"	65 FT.
7'-0" x 10'-0"	7'-0"	8'-6"	8'-6"	10'-0"	10'-4½"	10'-10½"	26"	85 FT.

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
5'-0" x 6'-0"	5'-0"	6'-6"	6'-6"	6'-0"	6'-4½"	6'-10½"	15"	30 FT.
6'-0" x 7'-0"	6'-0"	7'-6"	7'-6"	7'-0"	7'-4½"	7'-10½"	22"	65 FT.
6'-0" x 8'-0"	6'-0"	7'-6"	7'-6	8'-0"	8'-4½"	8'-10½"	26"	85 FT.

LAYOUT No. HTB9

STANDARD BELTED FREIGHT ELEVATOR.

OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO, — " — CANADA.

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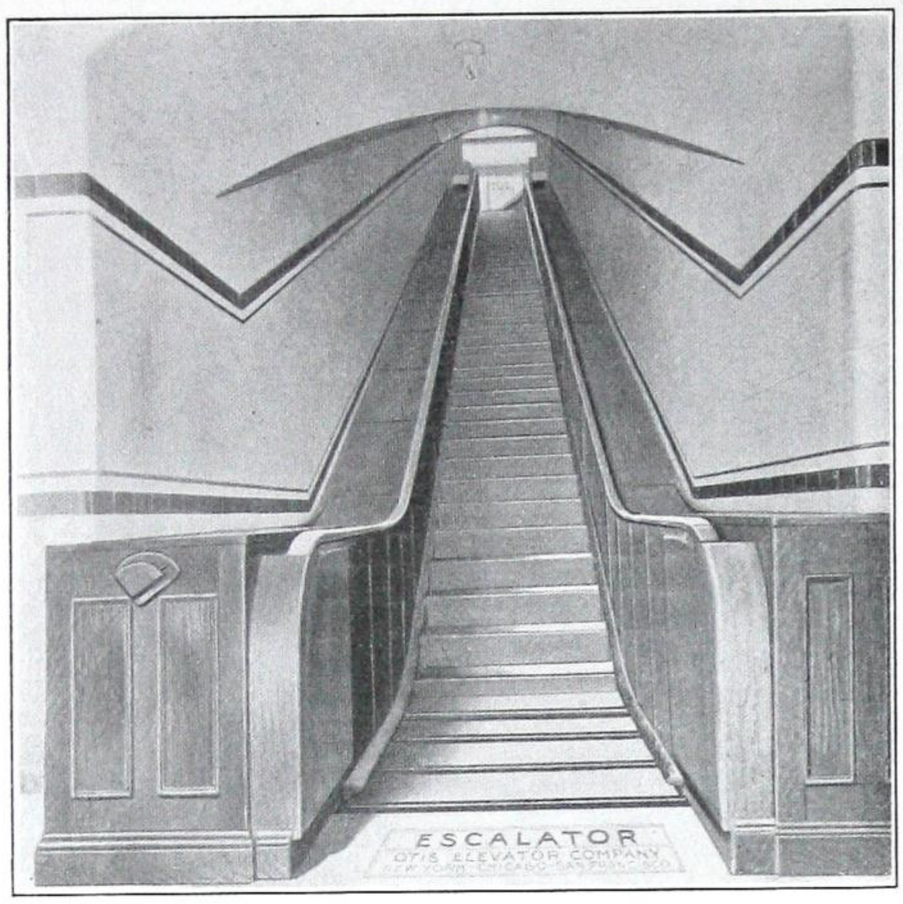
OTIS-FENSOM ELEVATOR CO., LIMITED

MANUFACTURERS OF

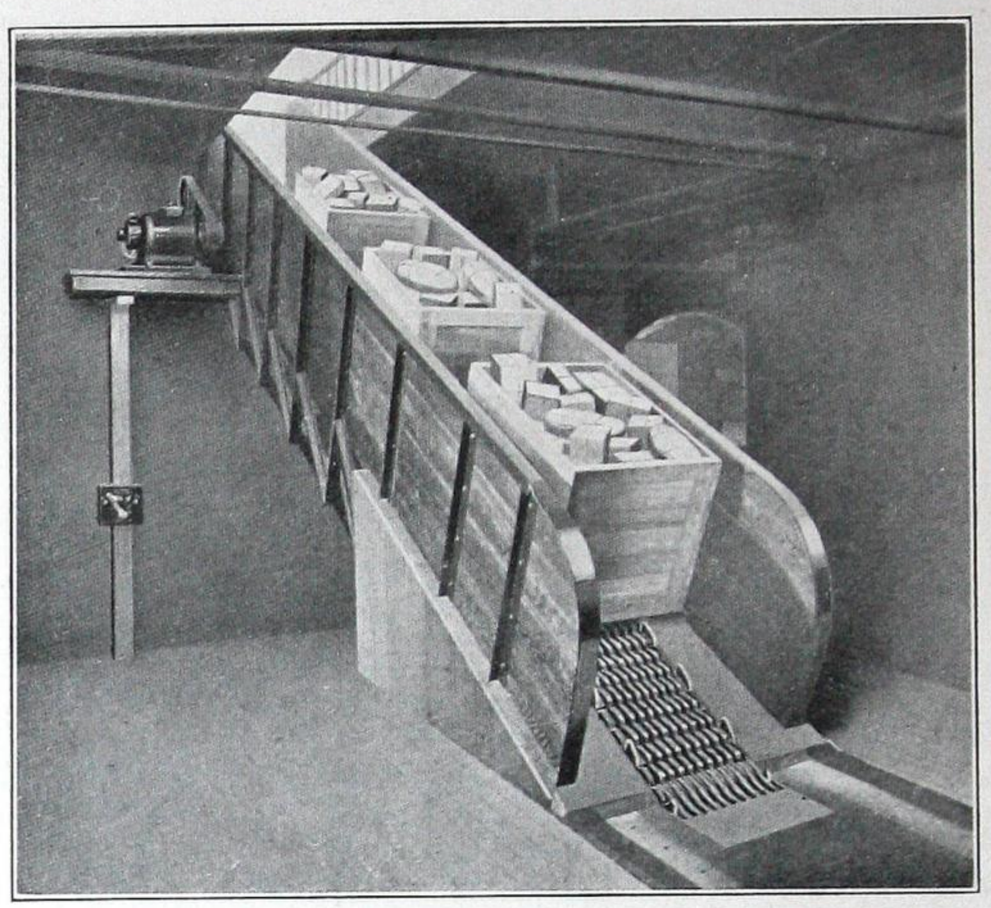
PASSENGER ESCALATORS AND INCLINED FREIGHT ELEVATORS.

OTIS-FENSOM BUILDING, 50 BAY STREET,
TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA.



PASSENGER ESCALATOR.



INCLINED FREIGHT ELEVATOR.

PASSENGER ESCALATORS.

Where rapid and continuous inter-floor conveyance is required, the excessive demands upon the platform elevator may be greatly relieved by the installation of an Otis-Fensom Escalator. It operates continuously in either direction, there being no stops to take on or let off passengers. The capacity of an escalator is practically unlimited, and it continues to deliver passengers on the floor above while taking them on at the floor below. It is readily seen that to conserve time and prevent congestion at the terminals, passengers must be handled continuously, and not intermittently.

The above cut illustrates the Otis-Fensom Step Type Passenger Escalator, and the operation is simplicity itself. Starting in a moving platform on a line with the floor it travels forward, forming itself into a perfect stairway; this stairway moves upward to the higher level, where the passengers step off on to the floor. Moving hand rails are provided at the side, and on reaching the top, passengers are gradually and safely edged off on to the floor without the slightest risk of accident or inconvenience.

This type of equipment is now in use in many of the leading Department Stores, Mills and Factories, as well as in Railroad, Subway and Elevated Stations. The advantages of this method of handling large crowds of people are self-evident.

INCLINED FREIGHT ELEVATORS.

For rises up to 15 feet, the Inclined Freight Elevator possesses many unique advantages. No time or power is lost in starting or stopping to load or unload. The machinery is easy of access and accidents are unknown, and where the handling of merchandise is continuous, congestion is relieved by the use of one of these equipments, as a truckman bringing his loaded truck to the incline, the flange or lug of the elevator engages with the truck, and the man, truck and load are transported from level to level without physical effort. It will be noted that the Inclined Elevator has a capacity of continuously carrying as many trucks as can be loaded on its length, and there is no waiting, as it is always ready to receive a fresh load no matter how quickly it follows on the last load placed upon it.

This type of equipment is made for various conditions, one particularly useful type being the Dock Inclined Elevator, where it is necessary to meet the variation in heights of vessels due to tides and draught. The upper socket is centered on a hinge at the top of the incline, enabling the lower end of the elevator to be raised or lowered at will.

We will be pleased to furnish, without obligation, full particulars regarding installation and cost.

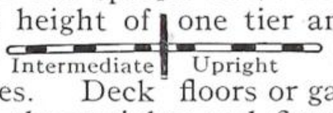
SNEAD & CO. IRON WORKS, LIMITED

CANADIAN OFFICE, 59 YONGE STREET,
TORONTO, ONTARIO.

Address all communications to GENERAL OFFICE AND WORKS, JERSEY CITY, N.J., U.S.A.

PRODUCTS. Sole makers of the "SNEAD STANDARD STACK," "GREEN-SNEAD BOOKSTACK," SNEAD NEWSPAPER STACK, BRACKET BOOKSTACKS, METAL SHELVING for all purposes, METAL AND GLASS MUSEUM CASES, "SNEAD JOINERY STAIRS," ARCHITECTURAL AND ORNAMENTAL IRON AND BRONZE WORK, ELEVATOR ENCLOSURES, GRILLES, STORE FRONTS, LAMPS, MARQUEES, RAILINGS, "MACDONALD ROLLER RAMMING MOULDING MACHINES," PATTERN DRAWING MACHINES, FOUNDRY EQUIPMENT.

FACILITIES. We were the pioneers in the manufacture of Library Bookstacks. Our experienced stack designers are at the service of architects planning stack installations. **Catalogue** describing bookstack and library construction and giving many plans and illustrations of libraries sent on request; technical information also furnished free.

DESCRIPTION. The Snead Standard Stack is installed throughout the Library of Congress at Washington and the New York Public Library. The simple construction fits it for use, not only in large, but also in smaller libraries, with but a single or a few stack tiers (stories), and also for offices and private libraries requiring merely plain wall shelving. The interchangeability of parts and the adaptable construction allows the stack, in case of remodelling, to be reset and extended both horizontally and vertically. Stack consists of solid or open work cast iron and steel uprights extending full width of ranges and spaced shelf length apart by fixed shelves at top and bottom. The adjustable shelves are preferably of the special OPEN BAR construction, light, resilient and free from dust-collecting surfaces. The uprights are each the height of one tier and may be bolted one above the other to obtain a stack of any number of stories. The uprights ( in section) occupy no available book room, and are entirely free from filth-collecting hollow spaces. Deck floors or galleries between tiers give direct access to all shelves. The deck floor construction is carried by the uprights and firmly anchored to the walls of the stack room. Floors of rooms above (without concentrated loads) are economically carried on stack construction. Cover plates at top protect books from dust and injury, and cornice gives a neat finish. Open work construction of uprights and shelves, and slits in the deck floors allow stack to be heated and ventilated as one great room. The system can be adapted to meet any requirements of architectural plan and design.

Adjustable shelves are completely finished at shop with baked black rubber japan. Fixed metal parts are preferably finished after erection with air drying enamel; baked enamel is unsuitable, as it cannot be renewed in place. Maximum distribution of light is obtained by using open work construction where possible and finishing fixed parts in white.

METAL SHELVING. Our products cover shelving for special requirements and conditions, and for all purposes where fireproof storage and durability are essential.

PRICES. Cost of stacks depends largely upon arrangement and varies from 50 cents to $1.00 or more per lineal foot of shelving. Specifications, drawings and estimates furnished free on request. Bookstacks are built on contract. Four or five months should be allowed for the completion of an ordinary stack of about 100,000 volumes capacity.

BOOK CAPACITIES.

Average per lineal foot of shelf.

Patent Specifications	2 volumes
Law, Public Documents and Bound Periodicals	6 volumes
Medicine and Science	7 volumes
Reference and General Literature	8 volumes
Economics and Fiction	9 volumes
Circulating Books	9 to 10 volumes

STANDARD DIMENSIONS.

(Special sizes built to order if quantity warrants).

Shelf widths—For books, 8 inches usually, also 10 inches and 12 inches; for newspapers, 22 inches.
Shelf lengths—3 feet average, varied to suit conditions.
Tier heights—7 feet and 7 feet 6 inches.
Aisle widths—Main, 2 feet 6 inches to 5 feet; Minor, about 28 inches minimum, 30 to 36 inches average.

WEIGHTS.

Uprights and shelves, 7 to 10 lbs. per cu. ft.
Books, 20 to 25 lbs. per cu. ft.
Deck framing, 5 lbs. per sq. ft.
Deck flooring, ¾-inch glass, 10 lbs. per sq. ft.
Deck flooring, 1¼-inch marble, 18 lbs. per sq. ft.



Snead Standard Stack, Ontario Legislative Library, Toronto. George W. Gouinlock, Architect. Similar Stacks made without ledge if desired.

REFERENCES.

Some typical Snead Stack Installations in Canada.

Ontario Legislative Library, Toronto	George W. Gouinlock, Architect.
Alberta Legislative Library, Edmonton	John Chalmers, Engr.
Toronto Public Reference Library	Wickson & Gregg and A. H. Chapman, Architects.
Ottawa Public Library	Edgar L. Horwood, Architect.
McGill University Medical Library, Montreal	Brown & Vallance, Architects.
Victoria College Library, Toronto	Sproatt & Rolph, Architects.
Calgary Public Library	Hodgson, Bates & Burnett, Architects.
Regina Public Library	Story & Van Egmond, Architects.
Bibliotheque St. Sulpice, Montreal	Eugene Payette, Architect.
Hamilton Public Library	A. W. Peene, Architect.
Fort William Public Library	Hood & Scott, Architects.
Moose Jaw Public Library	Reid & McAlpin, Architects.
Knox College Library, Toronto	Chapman & McGiffin, Architects.
British Columbia Provincial Library, Victoria	F. M. Rattenbury, Architect.
Saskatchewan Legislative Library, Regina	Edw. & W. S. Maxwell, Architects.
Calgary Court House, Calgary, Alberta	Richard R. Blakey, Provincial Architect.
Edmonton Court House, Edmonton, Alberta	Richard R. Blakey, Provincial Architect.

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PRODUCTS. CAST IRON, WROUGHT IRON and BRONZE for every Ornamental and Architectural Purpose.

We also manufacture FIRE ESCAPES, PLAIN STAIRS, IRON DOORS, PLAIN FENCES and ABIWAY PAVEMENT LIGHTS and SKYLIGHTS. (See next page.)

Special designs furnished, if desired, for every description of work.

In our new plant, which contains 100,000 square feet of floor space, we have every facility for handling large contracts and for turning out every description of work in the shortest and best manner.



Interior of Head Office, Bank of Toronto.
Carrere & Hastings and E. G. Bird, Architects.
Cast Bronze Railings, Window Frames and Glazed Dome. Dome contains fifteen tons of Bronze Metal.

CONTINUED ON NEXT PAGE

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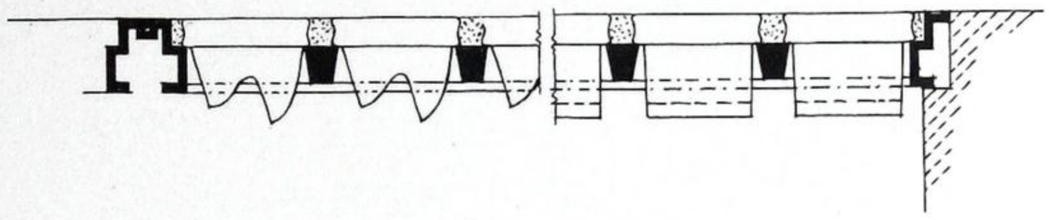
PRODUCTS.

ABIWAY PAVEMENT LIGHTS AND SKYLIGHTS.

We make Abiway Pavement Lights in various designs of glass and frame construction.

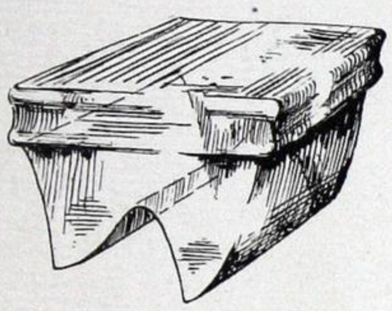
Good pavement light work depends largely upon the skill with which the glass is set in cement.

Good glass allows more light to pass through than cheap glass.

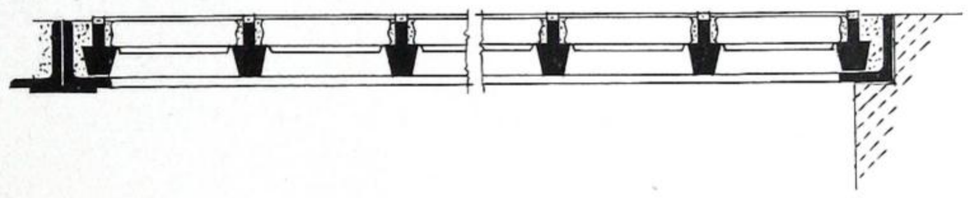


FRAMES IN CAST IRON, WITH NON-SLIP BORDERS.

We can cover surface of iron frames with lead-filled safety tread, if desired.

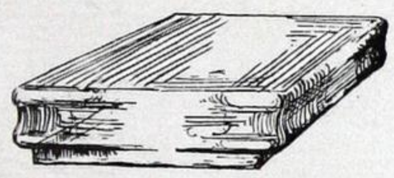


SQUARE DOUBLE PRISM FOR CAST IRON FRAMES.

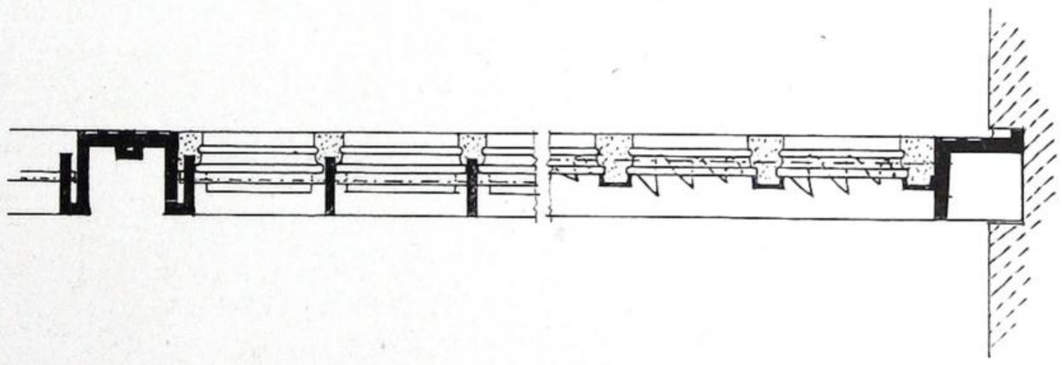


FRAMES IN CAST IRON, WITH STEEL ANGLE BORDERS, NON-SLIP RIBS IN CAST IRON.

We can combine prism glass and plain glass in the same frames to suit any arrangement.

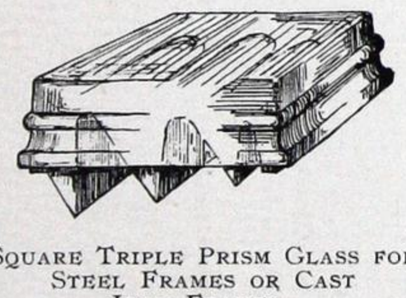


PLAIN SQUARE FLAT GLASS FOR CAST IRON FRAMES.

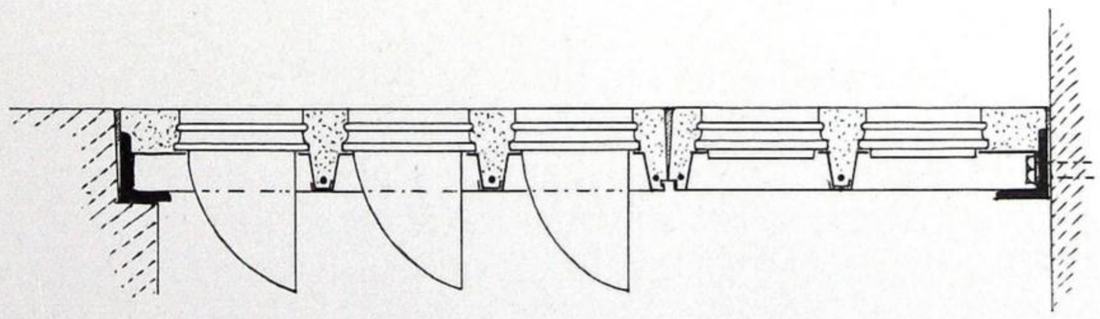


FRAMES IN STEEL BARS, WITH CAST IRON NON-SLIP BORDERS.

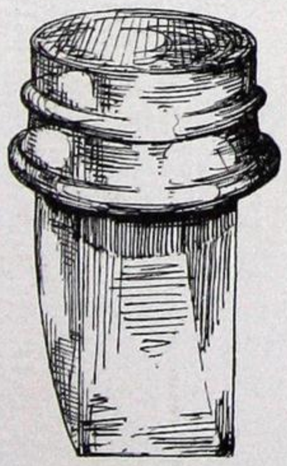
We can insert lead strip in concrete between glass to help insure non-slipping quality, if desired.



SQUARE TRIPLE PRISM GLASS FOR STEEL FRAMES OR CAST IRON FRAMES.



FRAMES IN REINFORCED CONCRETE, WITH PERMANENT GALVANIZED IRON CENTERING ON STEEL ANGLE SUPPORTS

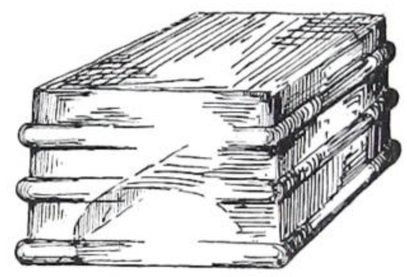


ROUND SINGLE PRISM GLASS FOR REINFORCED CONCRETE.

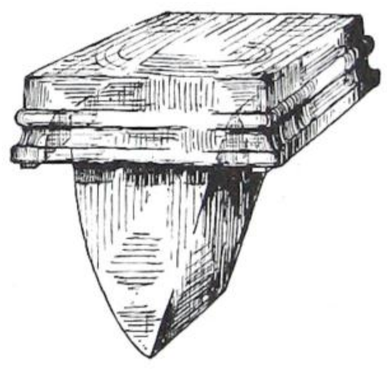
There are no better pavement lights than Abiway.

We use only the very best glass obtainable.

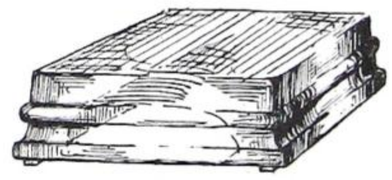
We guarantee our work against leakage.



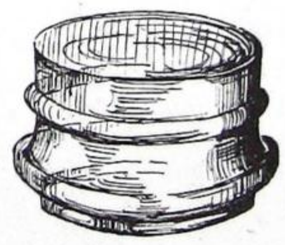
PLAIN SQUARE GLASS FOR REINFORCED CONCRETE.



SQUARE SINGLE PRISM GLASS FOR STEEL FRAMES OR CAST IRON FRAMES.



PLAIN SQUARE GLASS FOR STEEL FRAMES OR CAST IRON FRAMES.



PLAIN ROUND GLASS FOR REINFORCED CONCRETE.

THE ROBERT MITCHELL CO., LIMITED

(ESTABLISHED 1851.)

OFFICE AND FACTORY: BEL-AIR AVENUE, ST. HENRI,

MONTREAL, QUE.

PRODUCTS. ORNAMENTAL IRON, BRASS AND BRONZE WORK, INCLUDING BANK AND OFFICE FITTINGS, STAIR RAILS, TUBE RAILS, MEMORIAL TABLETS, BRONZE STORE FRONTS, OUTSIDE LANTERNS, AND STANDARDS IN BRONZE AND WROUGHT IRON, FIRE BASKETS, ANDIRONS, FENDERS, CURBS, FIRE SCREENS, ETC. HAND-FORGED COPPER, BRASS AND IRON. FINE BRASS CASTINGS.

We also manufacture IRON FENCES AND GATES as illustrated below.

PLANT. We have an extensive modern plant and experienced workmen, and are thus enabled to take care of the largest contracts in our line and make prompt deliveries.



These gates, 15 ft. high and 13 ft. 7 in. wide, are part of a fence 700 ft. long and 12 ft. high, erected by us for the late Geo. Tuckett, of Hamilton. Stewart & Whitton, Architects, Hamilton.

FACILITIES. We have increased our facilities for the manufacture and erection of Ornamental Iron Work and intend giving special attention to this department for the coming year.

We invite Architects and others to submit their designs for our prices. For ordinary work we have a great number of designs and photos of work done by us, which will be at the disposal of architects and engineers. Our designing and engineering staff is also at their service.

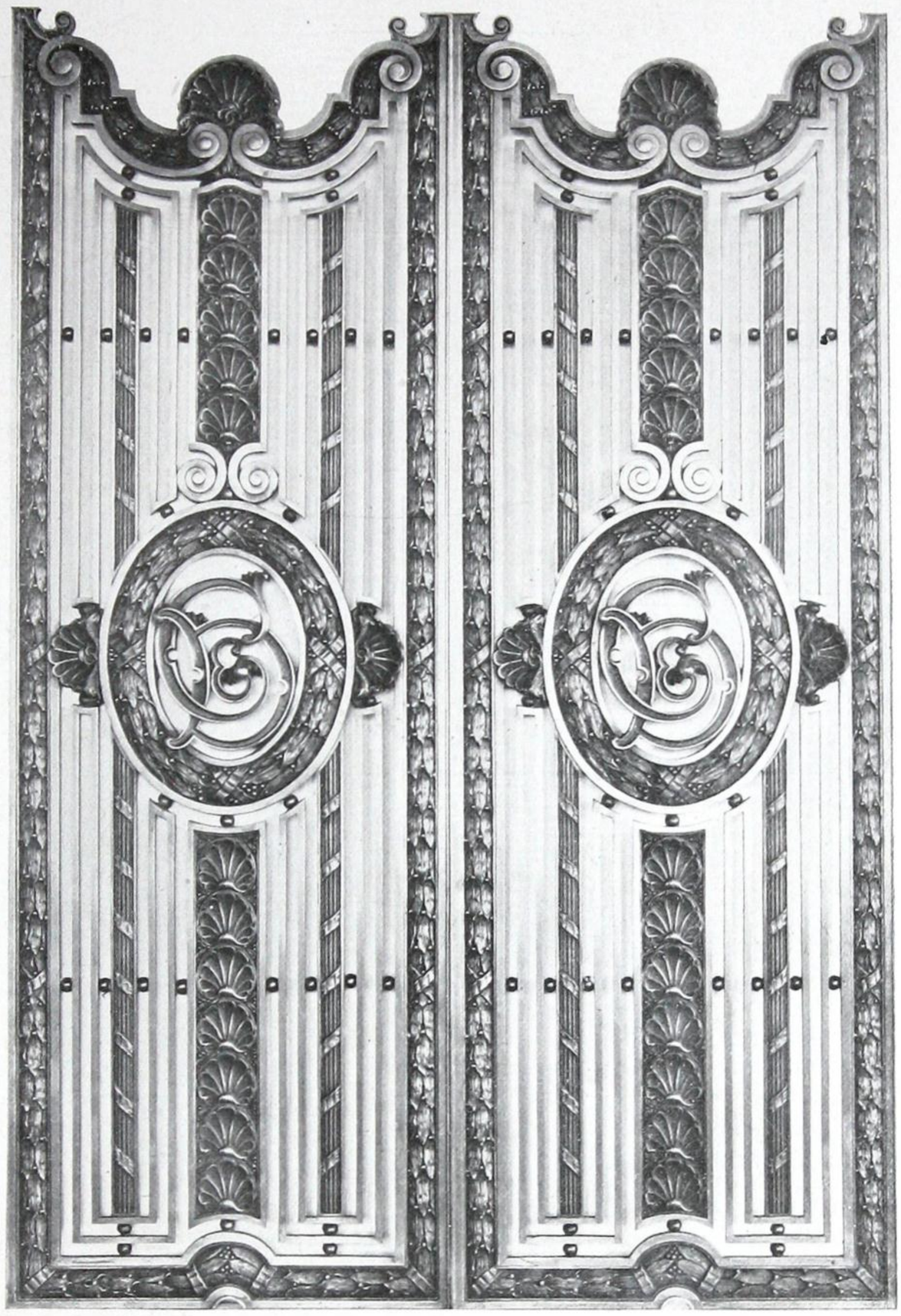
The following work is now on hand:

BUILDING.	CITY.	ARCHITECT.
Bank, British North America	Montreal	Barrot, Blackader & Webster.
Reford Building	Montreal	Ross & McDonald.
Versailles Building	Montreal	Ross & McDonald.
C.P.R. Station	Vancouver	Barrot, Blackader & Webster.
Sir R. Forget, Residence	Montreal	Marchand & Haskell.

CONTINUED ON NEXT PAG

BANK AND OFFICE FITTINGS.

We have special facilities for furnishing Bronze and Brass Fittings for Banks and Offices, and shall be pleased to submit designs or photos of work done.



The above Bronze Door Grilles are installed at City and District Savings Bank, Montreal, Que.

WORK EXECUTED.

The following are a few of the representative bank and office buildings which have been fitted up or lighted by us. We shall be pleased to co-operate with architects by furnishing information on standard bank work or quote prices on designs submitted by them.

BUILDING.	CITY.	ARCHITECT.
Imperial Bank	Edmonton, Alta.	Percy Barnes.
Banque d'Hochelaga	Montreal, Que.	A. H. Lapierre.
Banque d'Hochelaga	Ottawa, Ont.	A. H. Lapierre.
Banque d'Hochelaga and several Branches.	Three Rivers, Que.	A. H. Lapierre.
La Caisse d'Economie	Quebec, Que.	R. P. Lemay.
City and District Savings Bank and several Branches.	Montreal, Que.	A. H. Lapierre.
Bank of Montreal and several Branches.	Montreal, Que.	Peden & McLaren, Assoc. Archts.
Royal Bank of Halifax	Montreal, Que.	Kenneth G. Rea.
Royal Bank of Halifax	Halifax, N.S.	Kenneth G. Rea.
Molsons Bank	Revelstoke, B.C.	Byers & Anglin.
Royal Bank	Saskatoon	Kenneth G. Rea.
Royal Bank	Edmonton	Kenneth G. Rea.

THE DENNIS WIRE & IRON WORKS CO., LIMITED

HEAD OFFICE AND WORKS:
LONDON, ONT.

PRODUCTS. The famous D-L STANDARD ALL-STEEL LOCKERS, CABINETS, BINS AND SHELVING, ORNAMENTAL IRON AND BRONZE.

METAL LOCKERS. The advantages of Metal Lockers for factories, stores, clubs, gymnasiums, hotels, schools and other institutions are now universally recognized.

Steel Lockers provide security against petty theft, minimize risk from fire, promote order, tidiness and system, encourage cleanliness and hygienic conditions. They economize space and effect a saving of time, money and their contents.

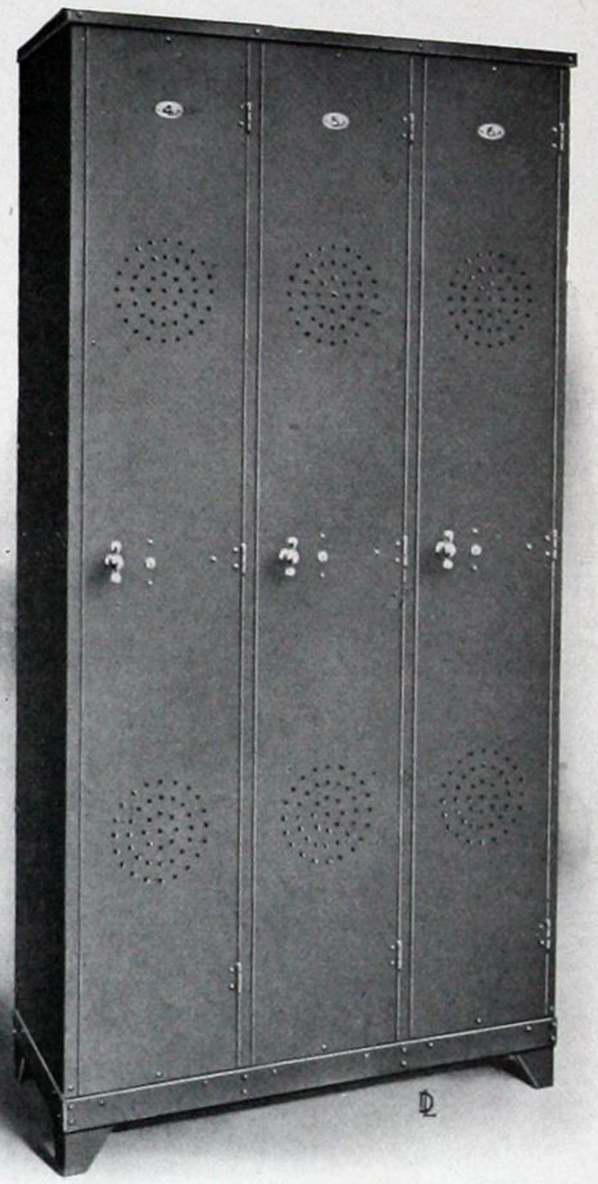
D-L Standard Lockers are made from high-grade steel sheets. Cold rolled, close annealed, dead flat, patent levelled. The partitions and backs are solid steel sheets. Doors are either sheet steel perforated or expanded metal.

Expanded metal or wire partitions are not recommended. Separating the clothing in adjoining lockers by Solid Steel Partitions is more sanitary and preferable in every way. The solid steel sheets make a more rigid and more durable construction.

In a locker the door is a most important feature. Each door in all our lockers has three hinges and three-way locking device, so that the door is secured at six points. Doors are framed with steel angles and have reinforcing plates at top and bottom—adding to the appearance of the door and preventing it from "getting out of square."

The unit system is employed in the construction of D-L Standard Lockers. Each section is accurately made and punched to templates. When shipped knocked down, they can be assembled without any difficulty whatever and at minimum expense. It is a simple matter to re-arrange one of our locker installations should occasion arise.

Our locker legs are 6 inches in height and are adjustable, so that uneven floors can be provided for.

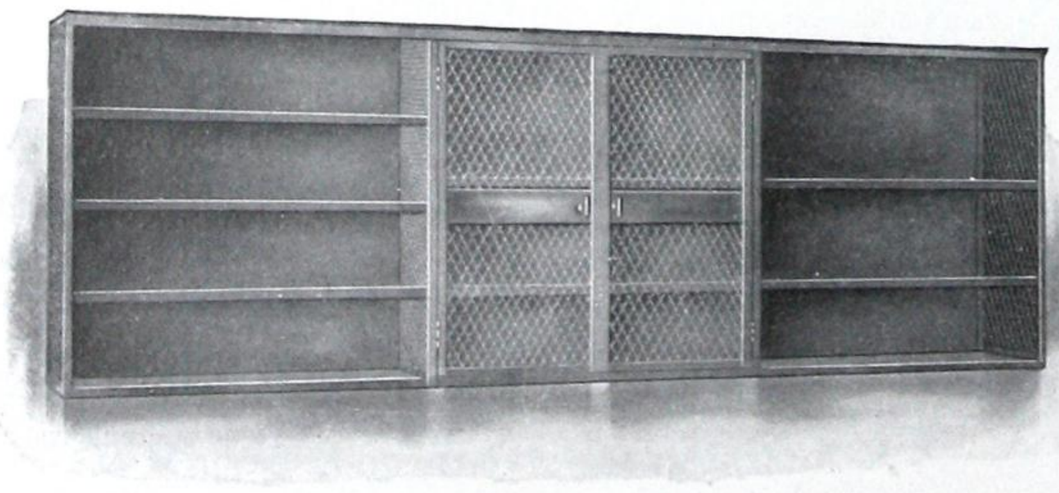


THE ABOVE ILLUSTRATION IS OF OUR STYLE D 35 STEEL LOCKER.

Note smooth effect of front. Reinforcing plates, angle steel frames, etc., are all on the *inside* of the door, presenting a plain, smooth surface, capable of receiving a superior finish. Doors in this type are made of special polished "steel furniture" stock.

FACILITIES. For years we have been the largest manufacturers of Metal Lockers and Steel Shelving in Canada. We have made a close, careful, and ceaseless study of their varied features of construction and design, and have gathered together a force of expert workmen, skilled in this branch of sheet metal working; our equipment is modern and efficient, specially installed, and used for one purpose—the manufacture of high-class Steel Lockers and Shelving.

PORTFOLIO. Ask for our portfolio of Locker and Shelving Illustrations, etc., entitled "SECURITY."



STEEL SHELVING.

We make Steel Shelving and Bins to suit any requirements.
Steel Shelving is fireproof and effects great economy in space.
Built on the unit system, sections can be added as requirements expand.



ILLUSTRATING OUR METAL CABINETS, STYLE D 20.

We design and make Metal Cabinets suitable for all requirements. They are used in factories, stock rooms, wholeale and retail storerooms, railroad stores, etc.

CONTINUED ON NEXT PAGE

THE DENNIS WIRE & IRON WORKS CO., LIMITED

HEAD OFFICE AND WORKS: - LONDON, ONT.
TORONTO OFFICE: 36 LOMBARD ST.

AGENCIES:

VANCOUVER—WM. N. O'NEIL & CO. OTTAWA—STANDARD SUPPLIES, LIMITED. HALIFAX, N.S.—FRANK A. GILLIS & CO.
CALGARY, ALTA.—CANADIAN EQUIPMENT & SUPPLY CO.

PRODUCTS. Manufacturers of ORNAMENTAL IRON, BRONZE AND WIRE WORK of every description, including: RAILINGS, GRILLES AND METAL WICKETS for Banks, Offices, etc., IRON AND BRONZE GATES, BRONZE TABLETS, COMPLETE IRON STAIRS, ELEVATOR ENCLOSURES, MARQUISES, BALCONIES, CHURCH METAL WORK, FIRE ESCAPES, CRESTINGS, WIRE WINDOW GUARDS AND SCREENS, METAL STORE FRONTS, STEEL WINDOW SASH, JAIL CELLS, STABLE FITTINGS, and the Famous D. L. STANDARD STEEL LOCKERS AND SHELVING.

ILLUSTRATIONS. The accompanying illustrations will convey an idea of the artistic qualities of our work.

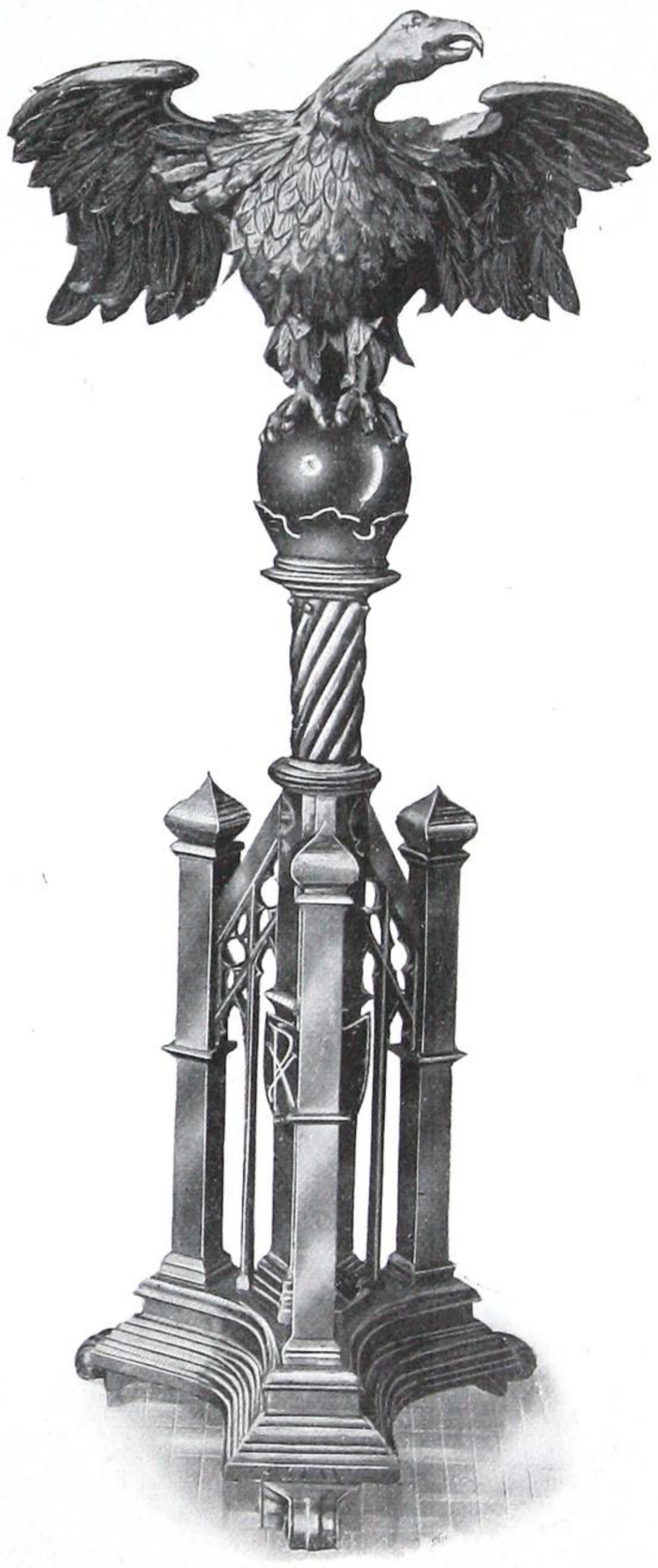
BANK AND OFFICE FITTINGS. In Fig. 2 may be seen one of our many artistic designs of Ornamental Bank and Office Counter Railings. We furnished this pattern for the Bank of Toronto at Petrolea, Ontario. Fig. 3 shows an ornamental cast iron railing installed by us in the Jacob A. Jacobs bldg., Montreal. (Messrs. Mitchell & Creighton of Montreal were the architects.)

This railing is of handsome appearance, finished in a black lacquer, and surmounted by a bronze handrail. The rest of the stair railings in this building are of the same design, and were furnished by us.

QUALITY OF OUR PRODUCTS. It has always been our policy to produce only goods of sterling quality. From the selection of material to the last finishing touch, each piece of work receives the painstaking attention which only skilful craftsmen know how to bestow. Our products can be found in every part of Canada, and, if you desire, we will furnish you with lists of our customers.

SPECIAL DETAILS AND DESIGNS. We will furnish full information as to sizes and weights of materials, with preliminary sketches, designs, and full-sized details of ornamental iron work, if desired. Particular attention will be given to the careful execution of your drawings, endeavouring to carry out the work in the spirit, as well as to the letter, of the design.

FACILITIES. Our large, modern factory, devoted exclusively to the production of Ornamental Iron, Bronze and Wire Work, and equipped with every facility for the manufacture of work of the best grade, and a well-organized staff of skilled designers and craftsmen, enables us to promptly execute any work entrusted to us, no matter how large or small the contract may be. Shipments are made in the shortest possible time after the receipt of the order, to any part of the country.



Our Eagle Lectern, in solid brass, is a stock design, No. 10 E. This, with many other items of church ornament in metal, is shown in the section of our "Portfolio of Architectural Details" relating to churches.

OUR SERVICES. We issue a large "PORTFOLIO OF ARCHITECTURAL DETAILS," containing many photographs of our work, with sketches and working drawings of our various designs and details.

While our "Portfolio of Architectural Details" shows many stock patterns, we are always ready to estimate on special designs in accordance with the drawings and specifications of the architect.

We will gladly place our engineering and designing staff at your disposal until a satisfactory solution of your problems in connection with Ornamental Metal Work has been obtained.

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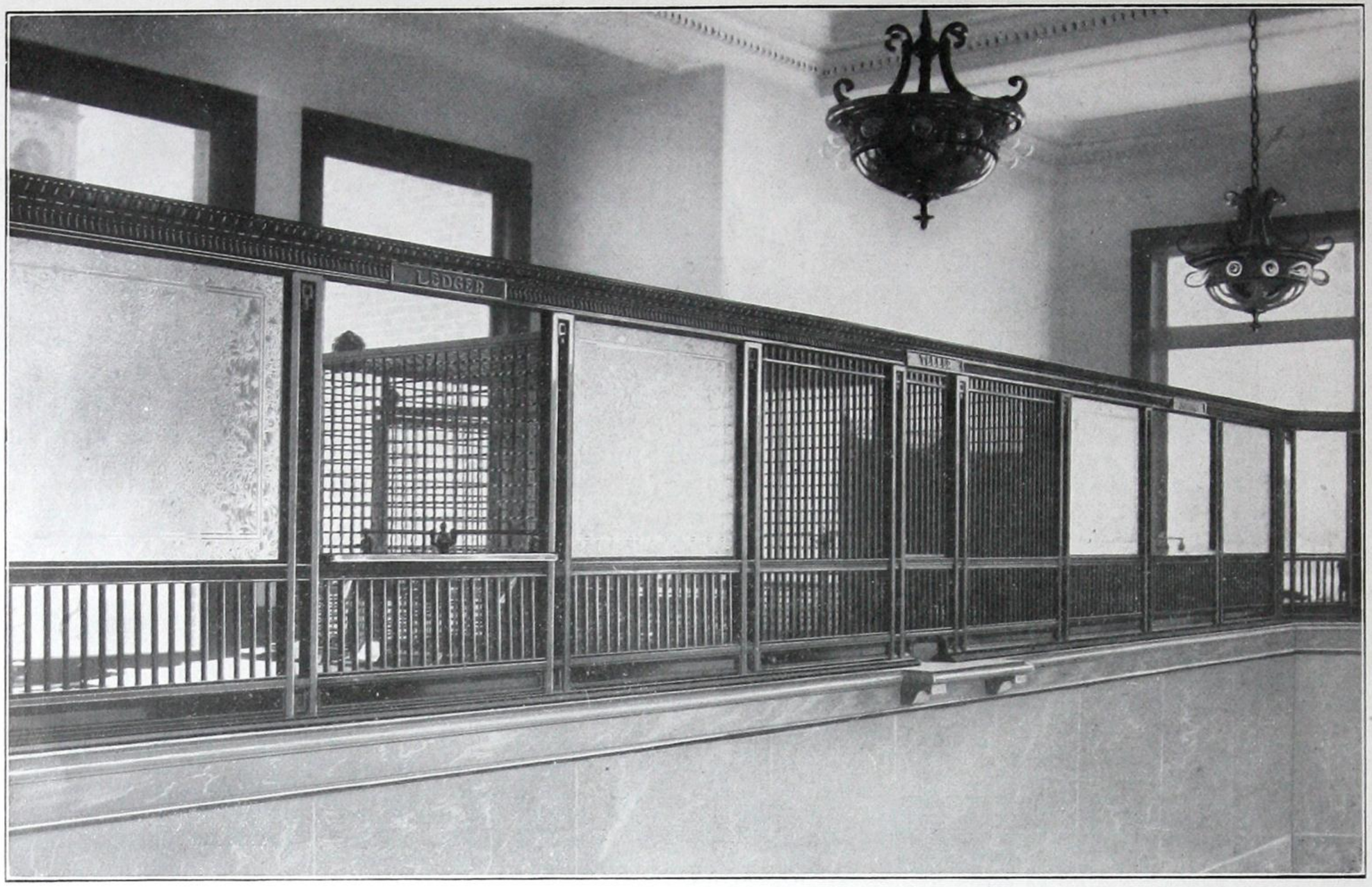


FIG. 2.

Here is shown an application of our design No. 47A referred to on the opposite page. This pattern of Counter Railing can be wrought to advantage in any finish. It has a chaste appearance, combined with excellent qualities of service.

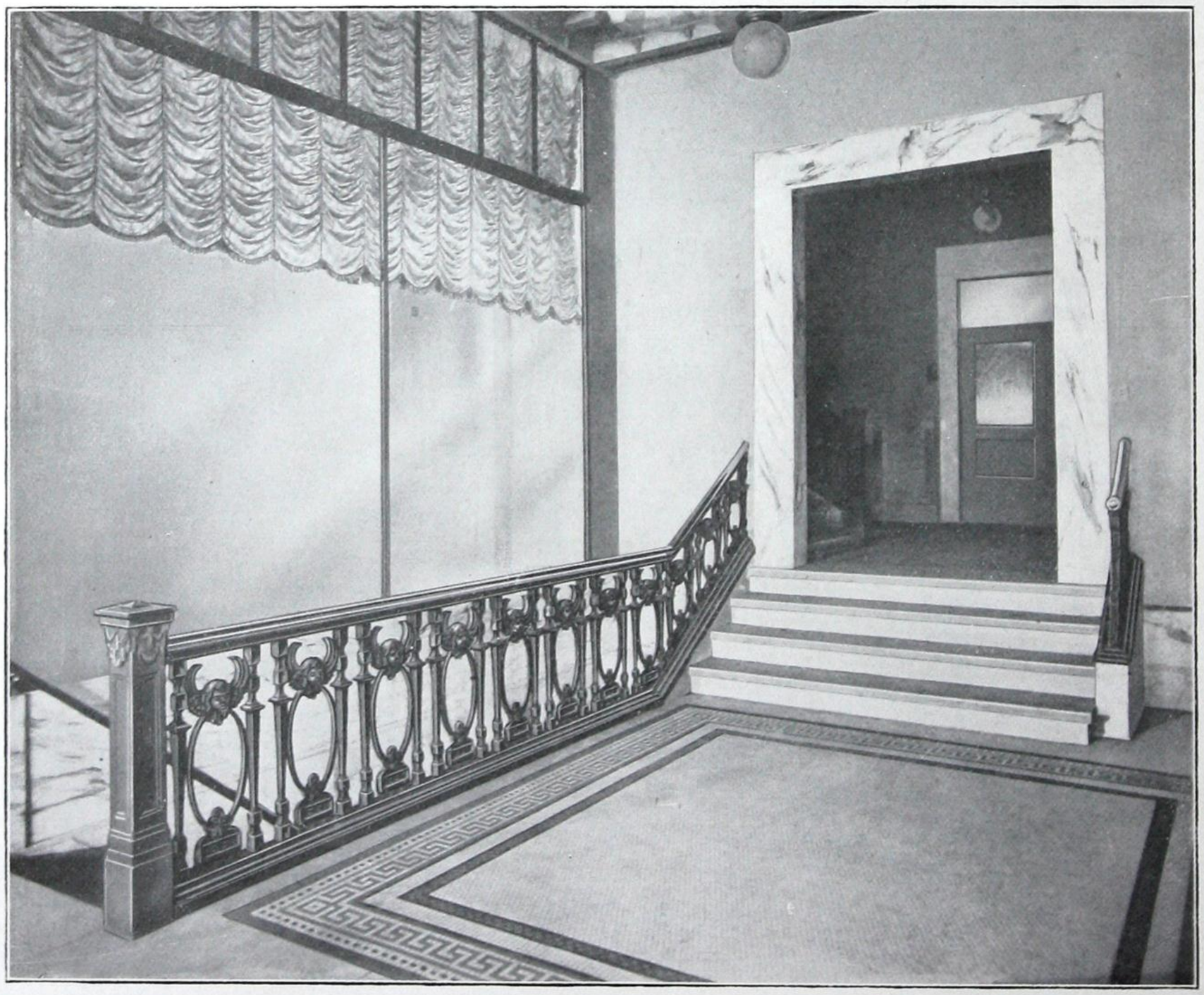


FIG. 3.

The above is an illustration of the cast iron railing referred to under Fig. 3 on opposite page.

THE MANITOBA BRIDGE AND IRON WORKS, LIMITED

LOGAN AVE. WEST,

WINNIPEG, MANITOBA.

"MODERN METHOD" STAIRS.

We are the licensees for the manufacture of "MODERN METHOD" Stairs for Western Canada. They are the strongest and lightest stair made, being all steel construction, adaptable to any form of tread as per illustration. This form of stair is considered by Fire Underwriters safest and best where marble and slate treads are used, because treads are supported by steel plate underneath.

ILLUSTRATION

No. 1. Chequer Steel Plate Tread.

No. 2. Chequer Steel Plate and Mason Tread.

No. 3. Concrete Tread and "Lea" Safety Lead Strip.

No. 4. Slate or Marble Tread.

No. 5. Marble Tread and Riser.

No. 6. Terrano Asphalt or Cement Treads.

CO-OPERATION

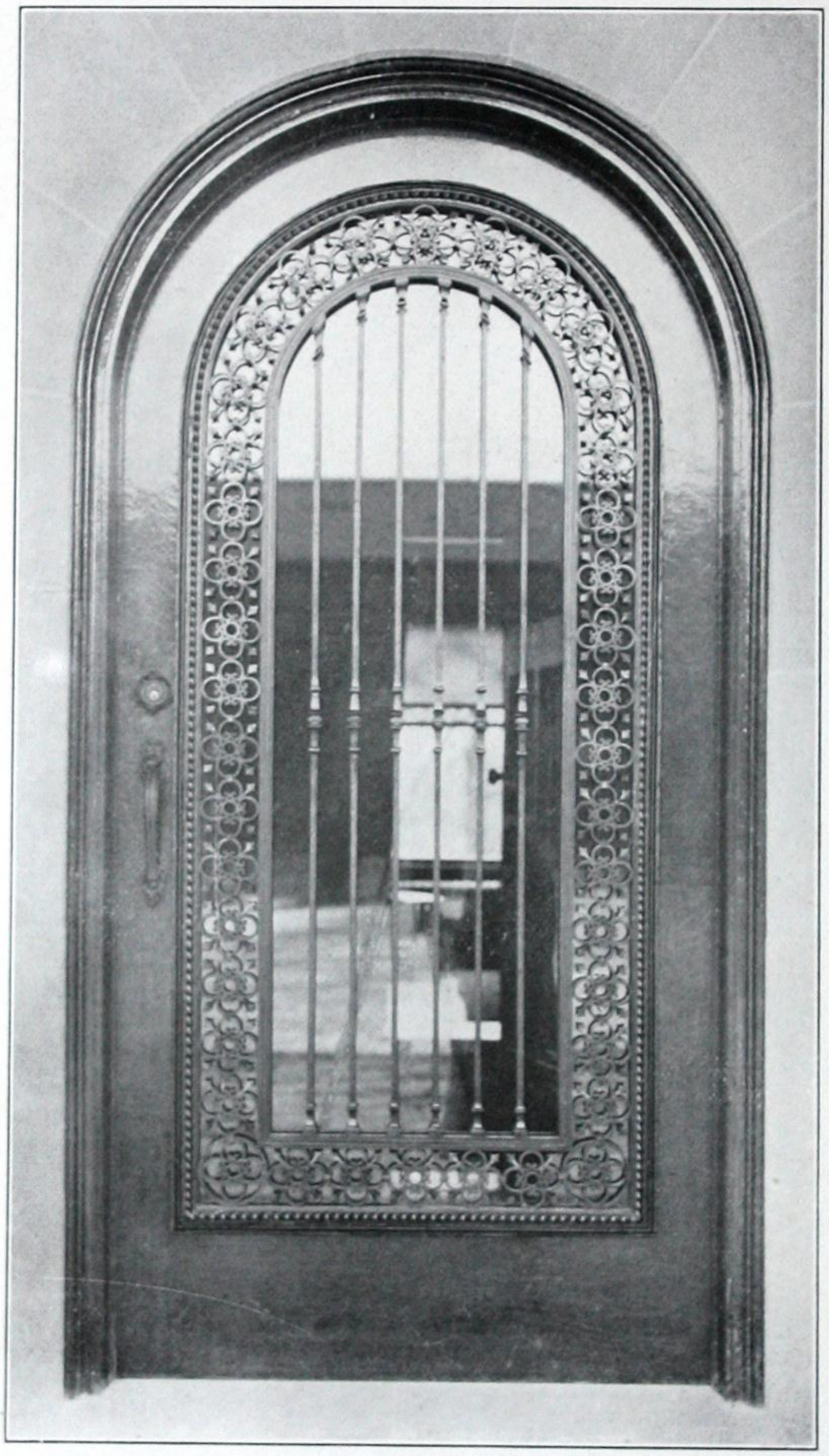
We invite Architects and Engineers to inspect them.

CANADIAN ORNAMENTAL IRON CO.

OFFICE: 86 RIVER STEEET, WORKS: 147 SUMACH STREET,
TORONTO, ONT.

MANAGER: E. J. LEA.

PRODUCTS. We are Designers and Workers in IRON, BRASS, BRONZE and CHASED BRONZE WORK.



GRILLE FOR FRONT DOOR IN WROUGHT IRON.
Wickson & Gregg, Architects.

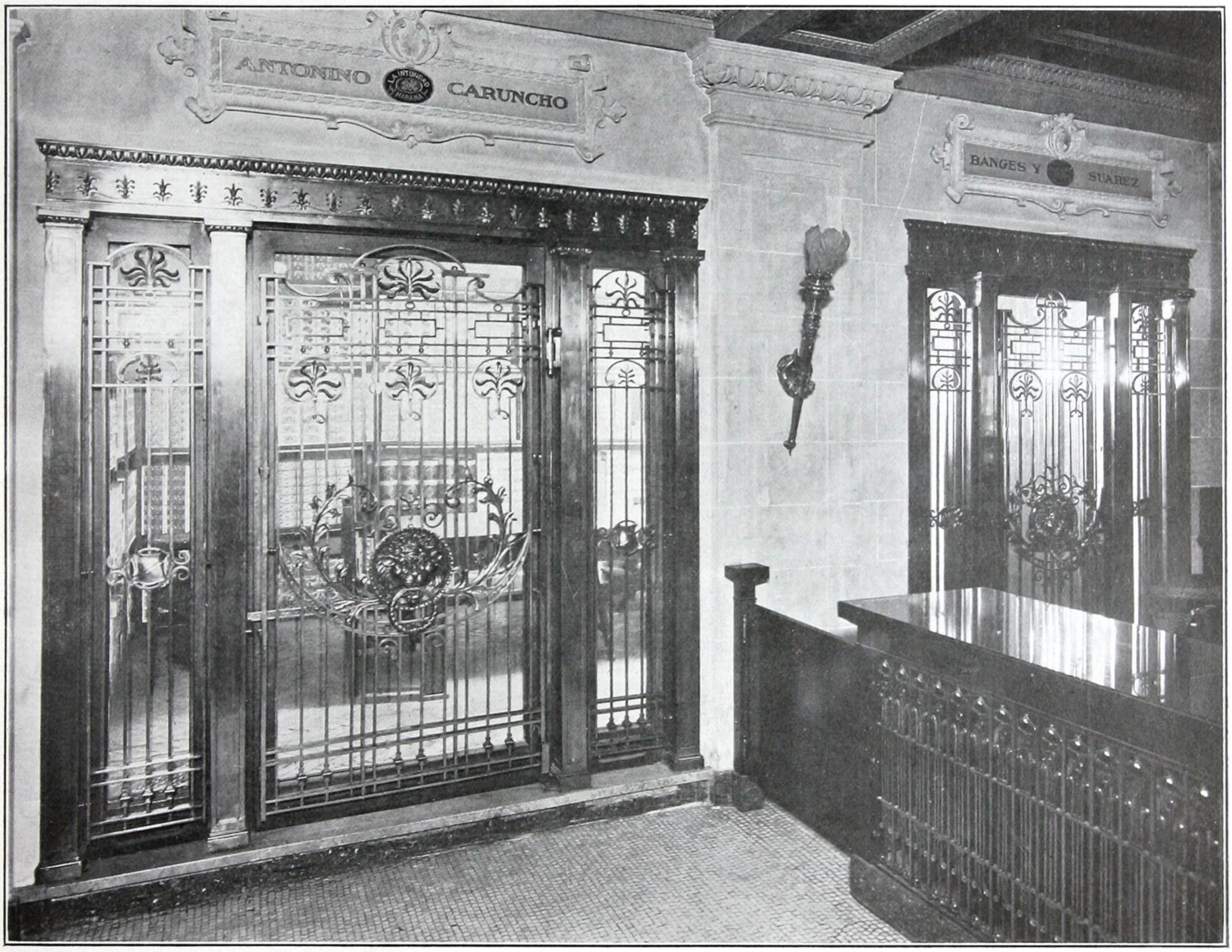
"MODERN METHOD" STAIRS AND STEEL STORE FRONTS. We specialize on "Modern Method Stairs," details of which are shown further on; also Steel Store Fronts.

These stairs are installed in many of the modern buildings in Toronto, Ottawa, Winnipeg, Calgary, Edmonton, and other cities, and are specified by leading architects.

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



SAMPLES OF OUR BRONZE AND BRASS WORK.

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



"MODERN METHOD" STAIRS AND ELEVATOR ENCLOSURE.
WORLD BUILDING, TORONTO.

CONTINUED ON NEXT PAG

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

"MODERN METHOD" STAIRS.

"Modern Method" Stairs are manufactured by machinery especially designed, and, therefore, may be made and erected in less time than any other style of stairs. As time-savers in construction of important buildings, they are invaluable to architects and owners. They are the neatest, lightest and strongest stairs made.



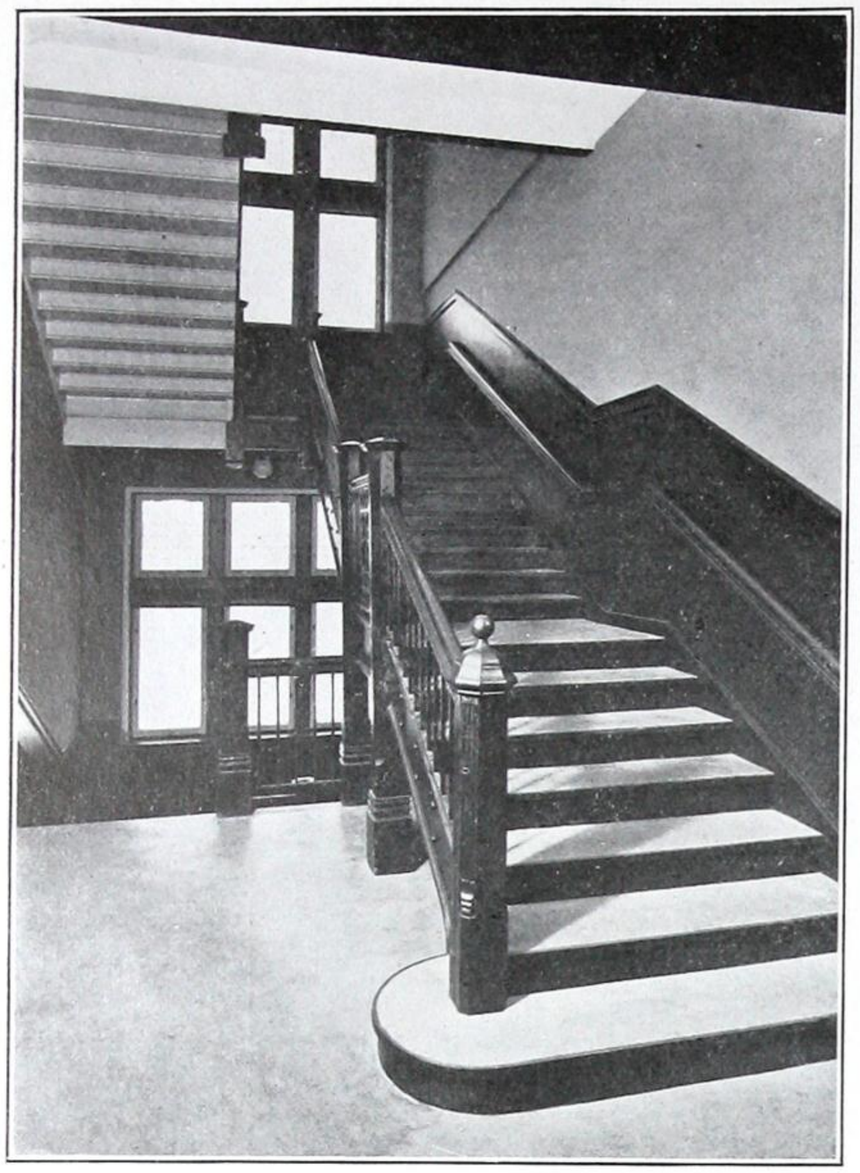
"MODERN METHOD" STAIRS, MARBLE TREADS, INSTALLED IN THE NEW COURT HOUSE, EDMONTON.

NOTE. We have installed "Modern Method" Stairs throughout the Government Building, Edmonton; also City Hall, Edmonton.

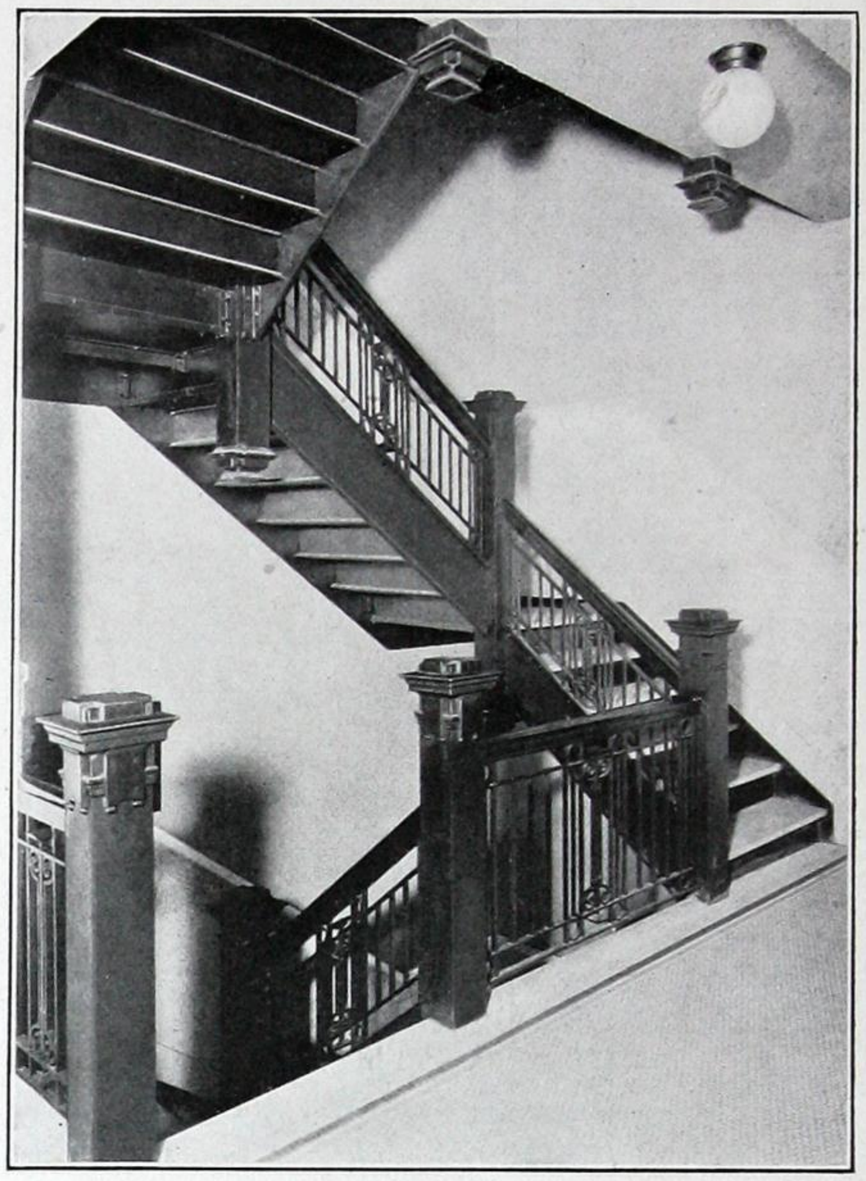
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CANADIAN ORNAMENTAL IRON CO.,

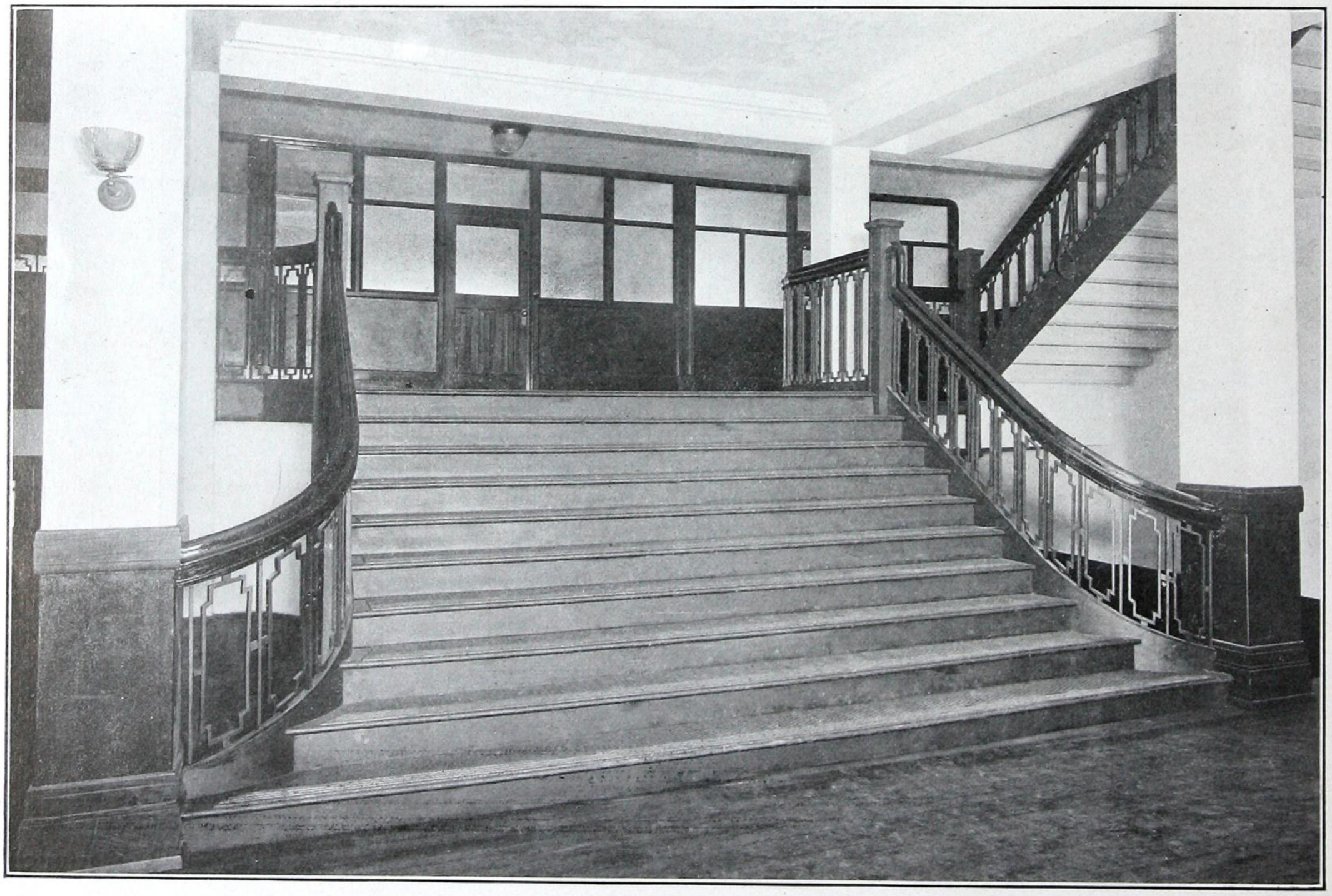
TORONTO, ONT.



ONE OF THE DOZEN SCHOOLS IN EDMONTON EQUIPPED WITH "MODERN METHOD" STAIRS.



"MODERN METHOD" STAIRS,
TORONTO GENERAL TRUSTS BUILDING.

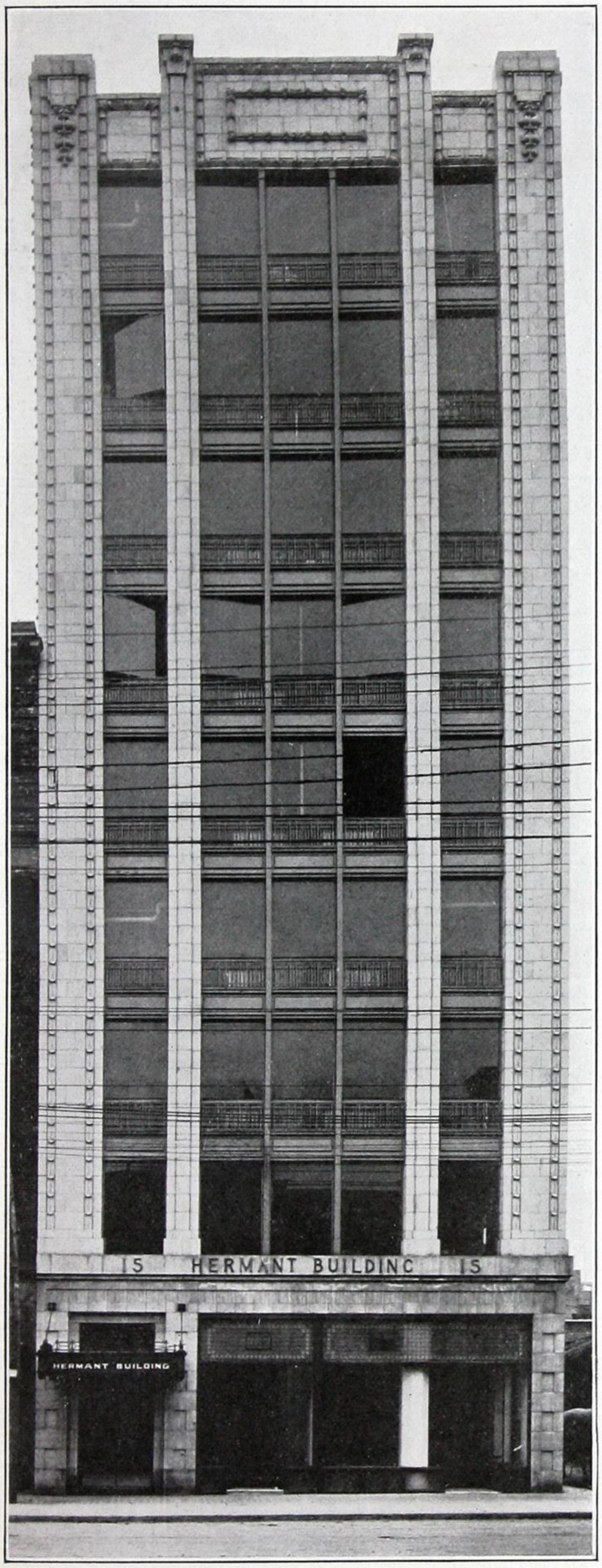


"MODERN METHOD" STAIRS, 16 FT. WIDE, INSTALLED IN THE DUKE OF CONNAUGHT SCHOOL, TORONTO.
ONE OF THE FIFTY SCHOOLS IN TORONTO EQUIPPED WITH OUR STAIRS.

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



HERMANT BUILDING, TORONTO.
Bond & Smith, Architects.



MASON & RISCH BUILDING, TORONTO.
Bond & Smith, Architects.

STEEL FRONTS ERECTED BY US.

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CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

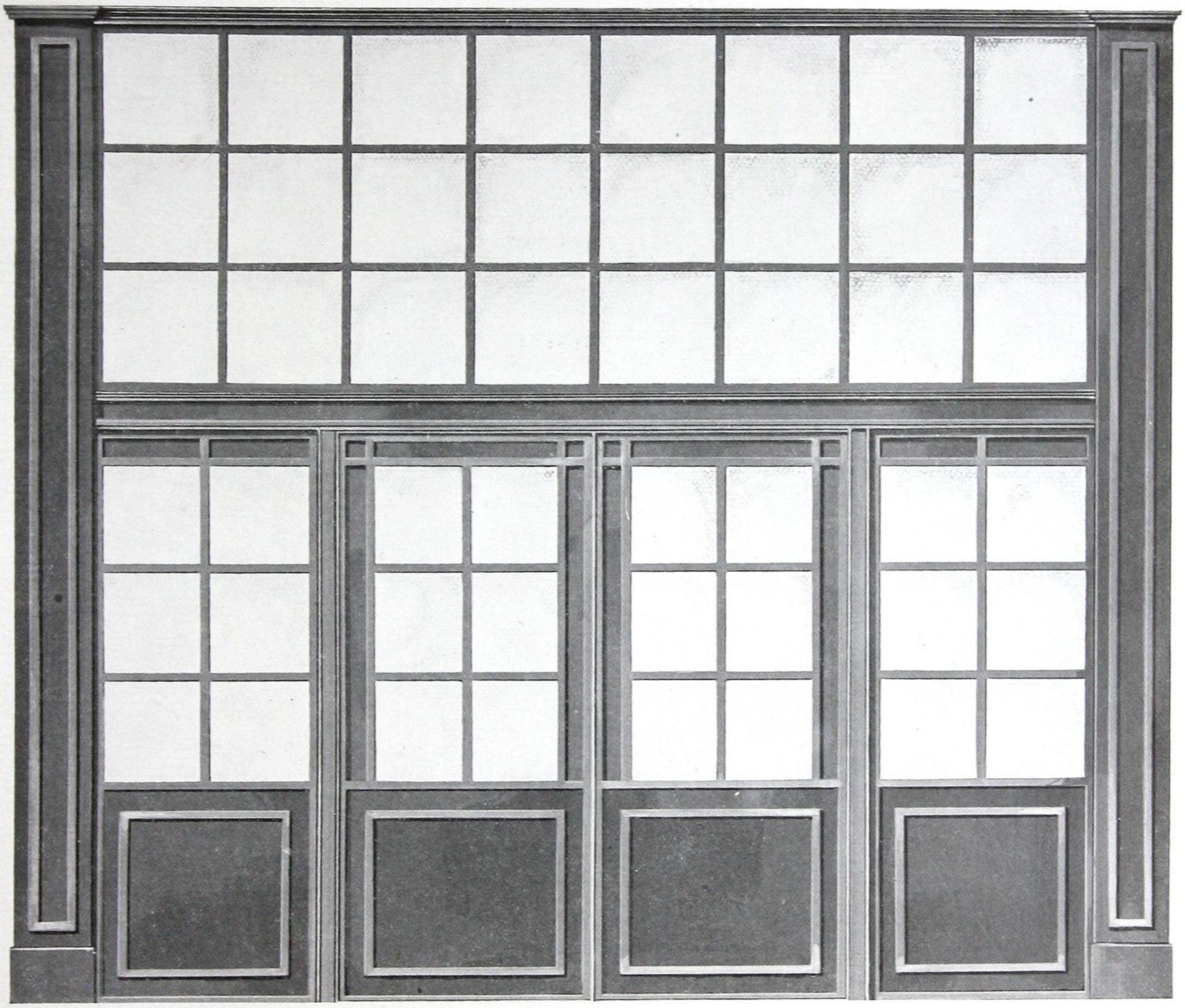


ELEVATOR ENCLOSURE.
A. E. REA BUILDING, OTTAWA. ROSS & MCDONALD, Architects.

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CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



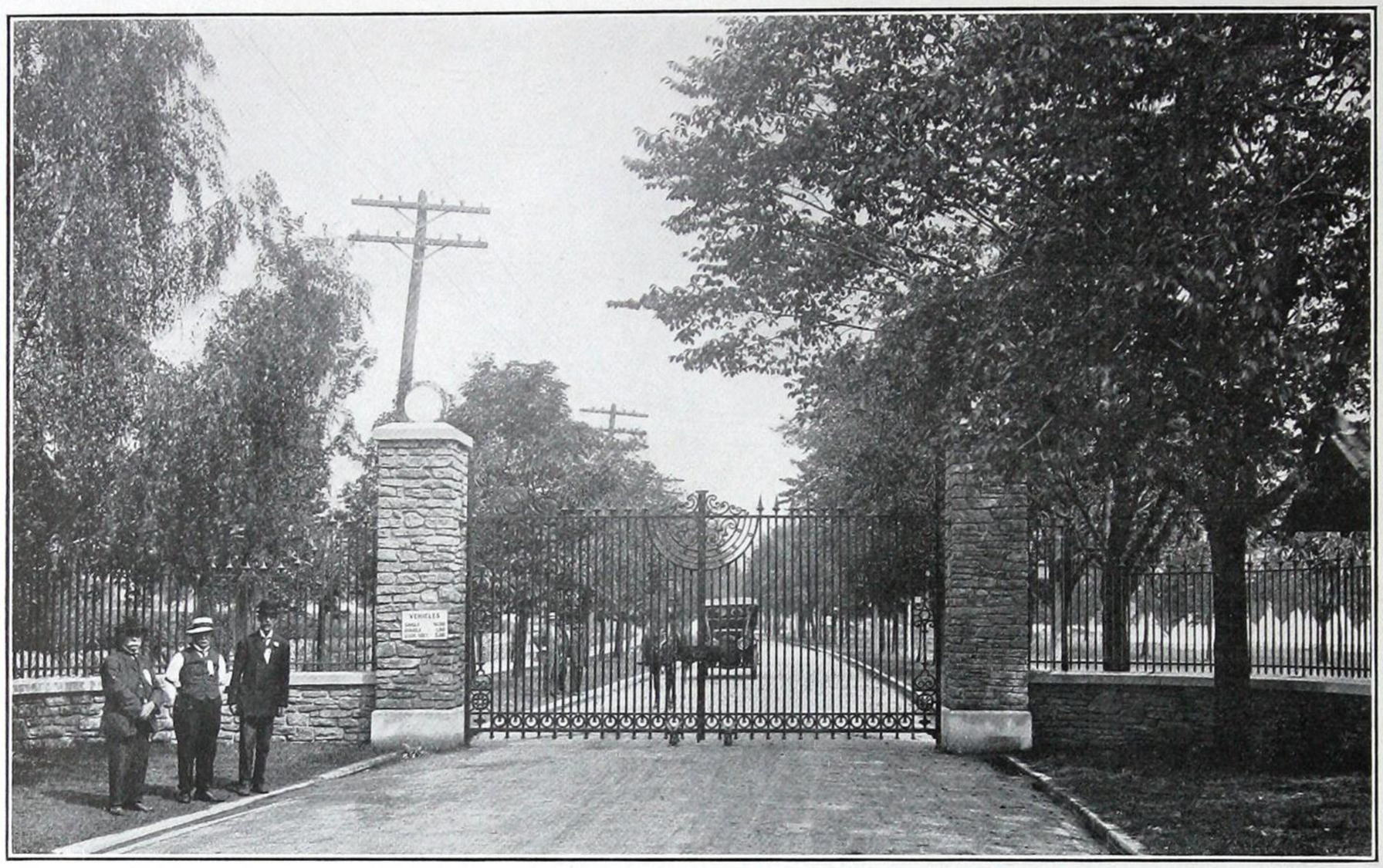
FIREPROOF STAIRS AND ENCLOSURE MADE OF NO. 10 GAUGE SHEET STEEL.

INFORMATION. Details and prices furnished on application.

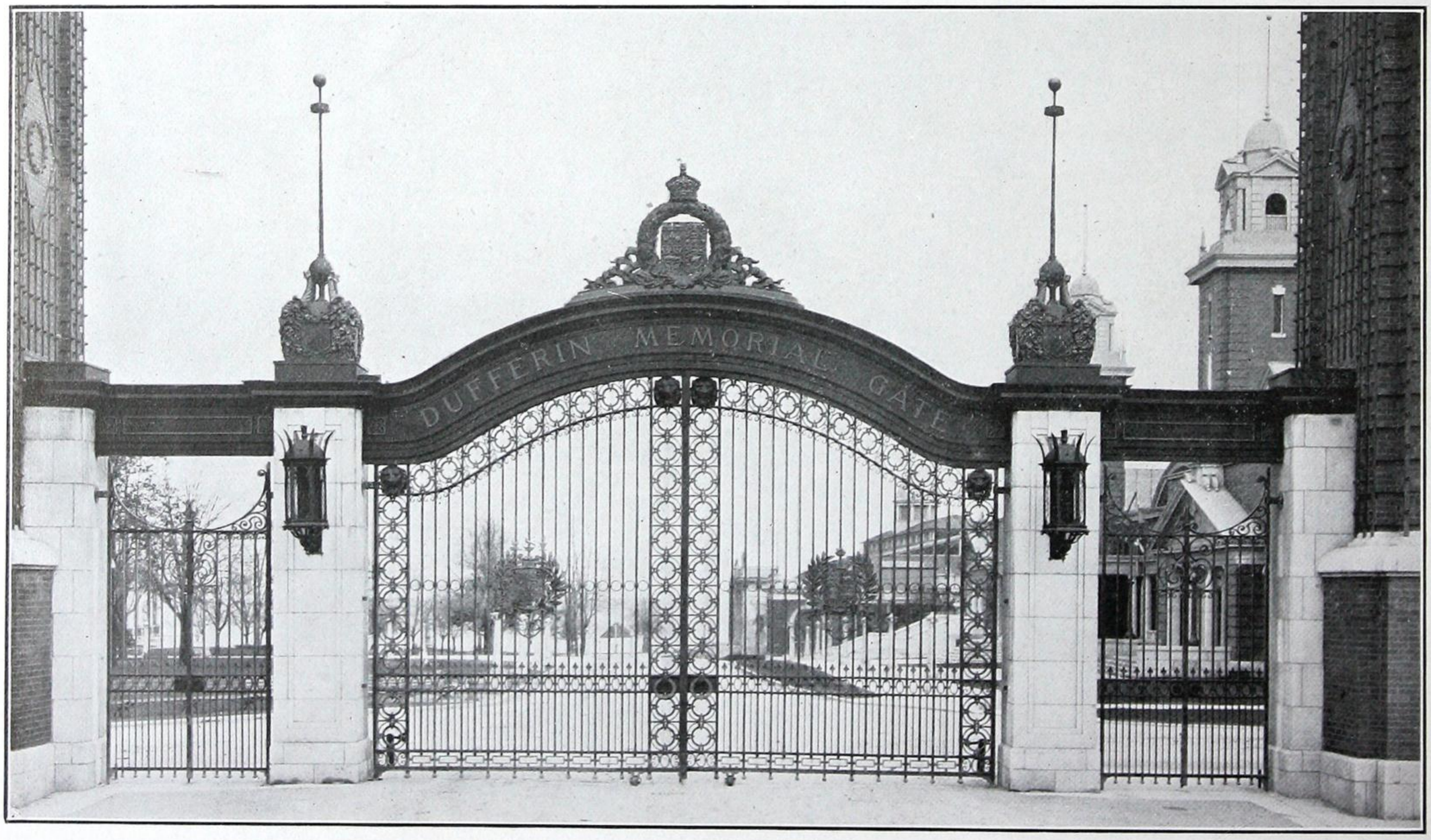
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CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



GATES OF THE CANADIAN NATIONAL EXHIBITION, TORONTO, ONT.

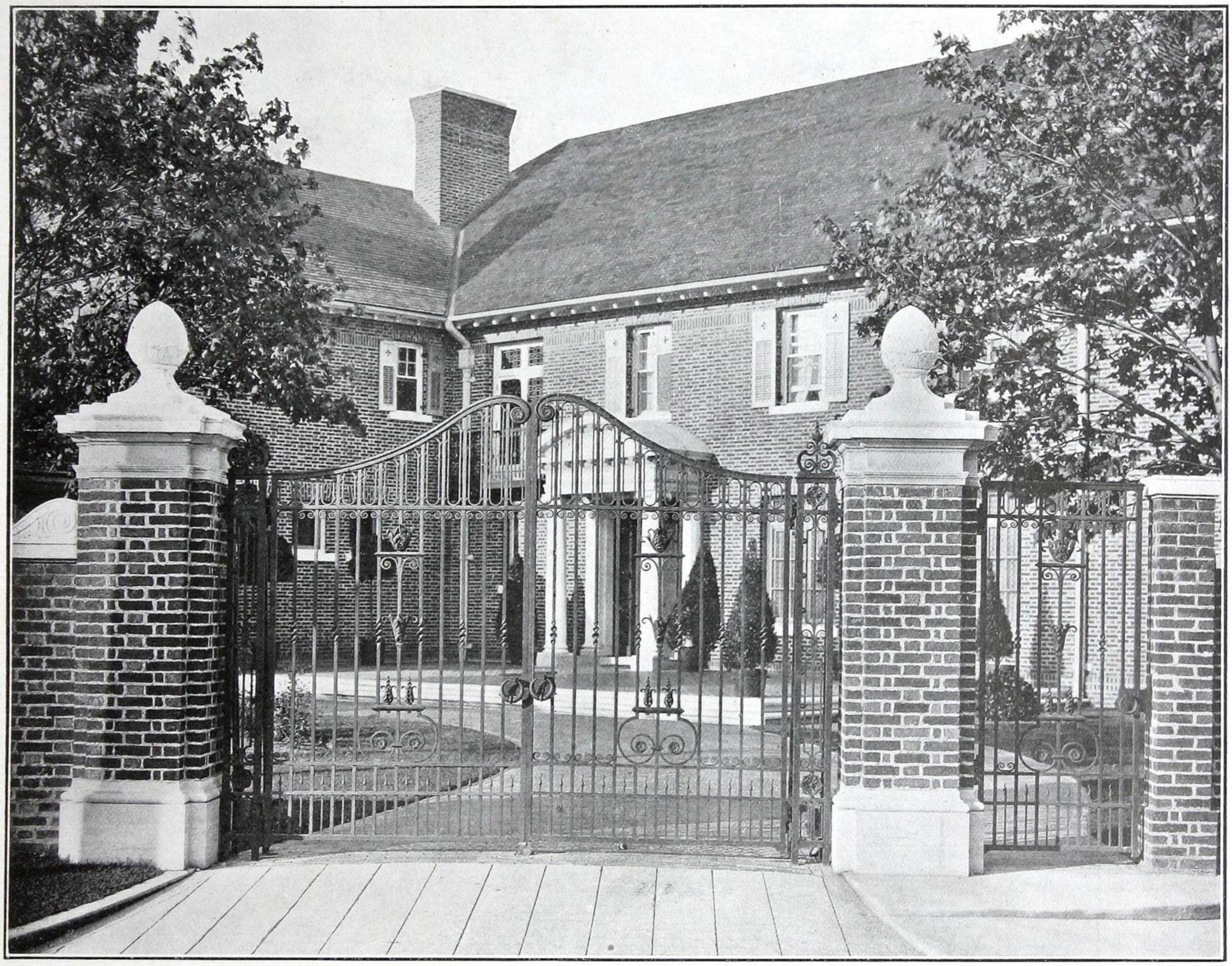


GATES OF THE CANADIAN NATIONAL EXHIBITION, TORONTO, ONT.

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CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



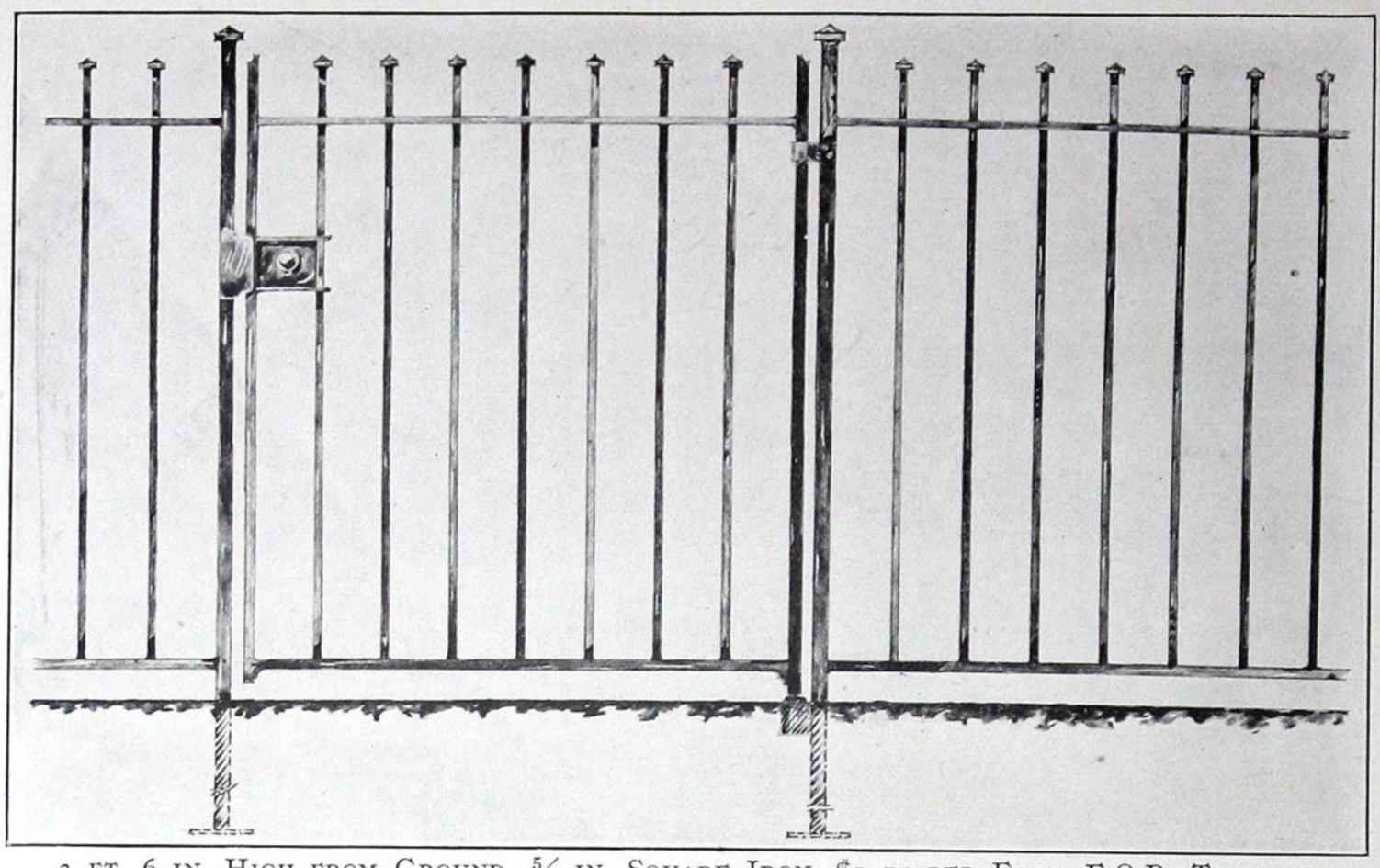
RESIDENCE, GERRARD B. STRATHY, TORONTO.
Eustace G. Bird, Architect.

SPECIAL DESIGNS.

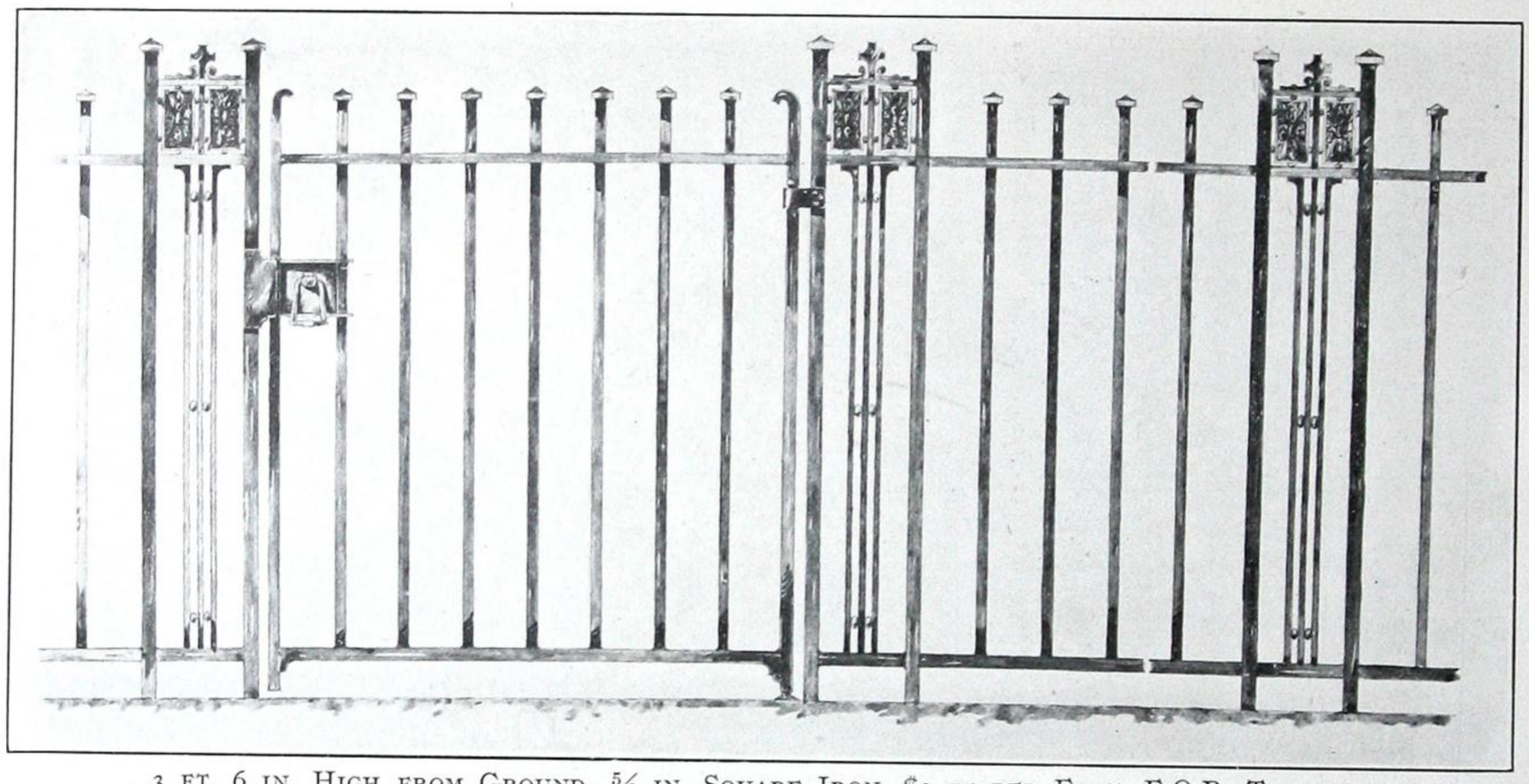
Iron Fencing and Gates furnished.

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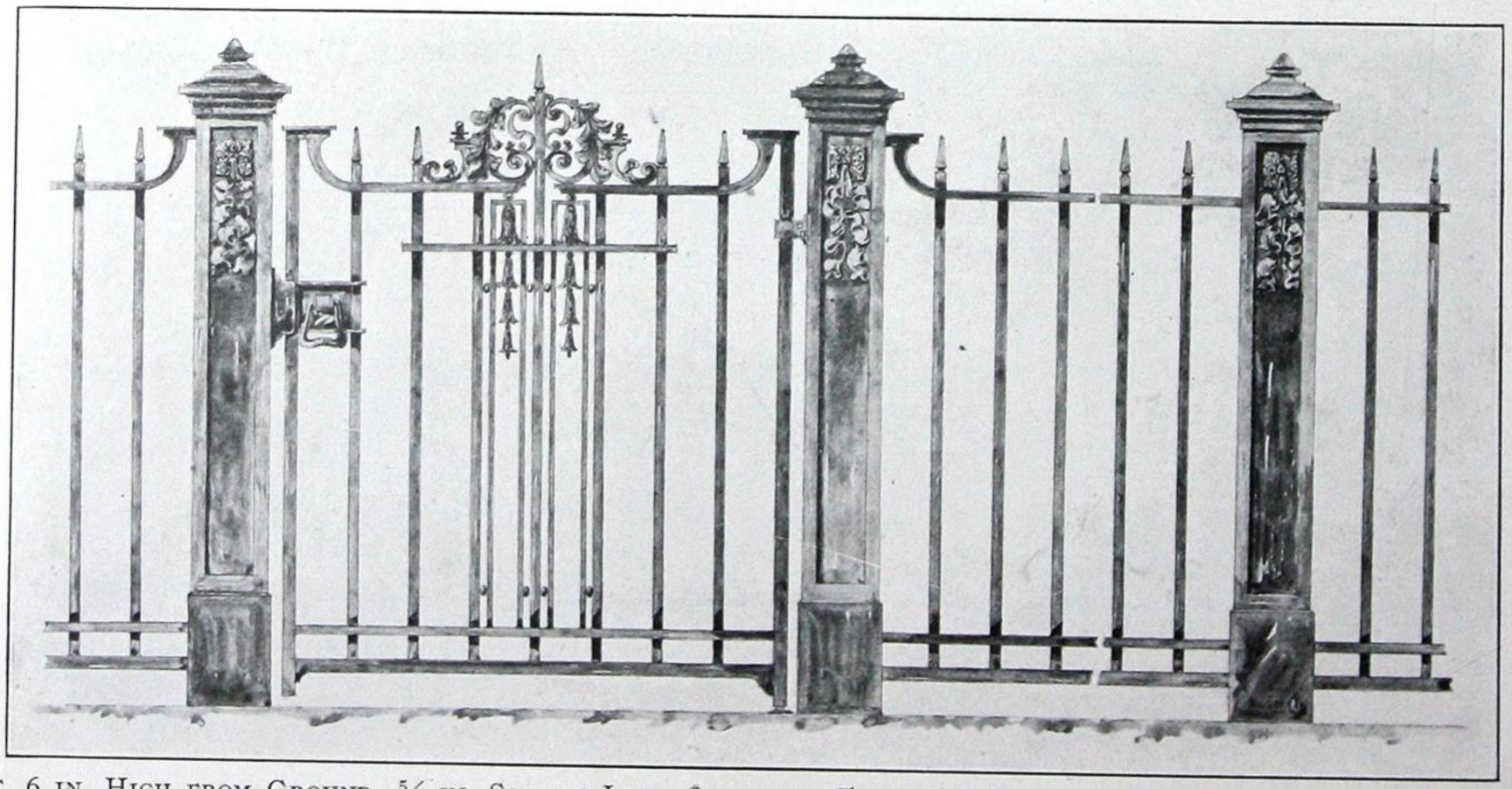
WROUGHT IRON FENCING WITH FORGED ROUND PICKET HEADS.



3 FT. 6 IN. HIGH FROM GROUND, 5/8 IN. SQUARE IRON, $1.75 PER FOOT, F.O.B. TORONTO.
3 " " " " 1/2 " " " 1.50 " " " "



3 FT. 6 IN. HIGH FROM GROUND, 5/8 IN. SQUARE IRON, $2.75 PER FOOT, F.O.B. TORONTO.
3 " " " " 1/2 " " " 2.50 " " " "



3 FT. 6 IN. HIGH FROM GROUND, 5/8 IN. SQUARE IRON, $3.00 PER FOOT, F.O.B. TORONTO.—GATE POSTS, $8.50 EACH.

DOMINION ARCHITECTURAL IRONWORKS, LIMITED

WORKS AND OFFICES: 63 & 65 DALHOUSIE STREET,

MONTREAL.

PRODUCTS. We manufacture and install "MODERN METHOD" STAIRS, FIRE ESCAPES, ELEVATOR ENCLOSURES, GATES, RAILINGS, GRILLES, MARQUISES, METAL LOCKERS, SIDEWALK AND VAULT LIGHTS, METAL SASH, CASEMENTS, STORE FRONTS, STRUCTURAL STEEL WORK. We are also general workers in Brass, Bronze and Ornamental Iron.

Modern Method Stairs are the strongest and lightest stair made, being of all-steel construction, adaptable to any form of tread, such as marble, terrazzo, concrete, etc.

For details regarding the construction of these stairs, see ad. of Canadian Ornamental Iron Co., and also Manitoba Bridge Co., Winnipeg. We are the licensees for the manufacture of "Modern Method" Stairs for Eastern Canada.



THE ABOVE CUT SHOWS A MODERN METHOD STAIR WITH MARBLE TREADS AND ENCLOSED STRINGERS, MAKING A VERY SATISFACTORY JOB.

Owing to the absence of cast iron in the construction of these stairs, the delays unavoidable to pattern making and foundry work are eliminated.

This form of stair construction is considered by Fire Underwriters safest and best where marble and slate treads are used, because the treads are supported by a steel plate underneath.

REFERENCES. We give below a list of buildings with "Modern Method" Stairs installed by us:

"Herald" Building	Montreal.	Allan Munro Colour Co.'s Building	Montreal.
"Regent" Apartments	Montreal.	No. 25 Fire Station	Montreal.
"Marbridge" Apartments	Montreal.	Canadian Fairbanks-Morse Co.'s New Building	Montreal.
"Claridge" Apartments	Montreal.	Canadian Vicker's New Building	Montreal.
"Elgin" Apartments	Montreal.	"Limoilou" School	Limoilou, P.Q.
Canada Sugar Refining Co.'s New Building	Montreal.	Quebec Harbour Commissioners' Office Building	Quebec, P.Q.
Northern Electric and Manufacturing Co.'s New Building	Montreal.	Apartment House	Ottawa.

JOHN WATSON & SON OF MONTREAL, LIMITED

ARCHITECTURAL IRON WORKS,

167 TO 181 WELLINGTON STREET AND 85 TO 101 ANN STREET,
MONTREAL, QUE.

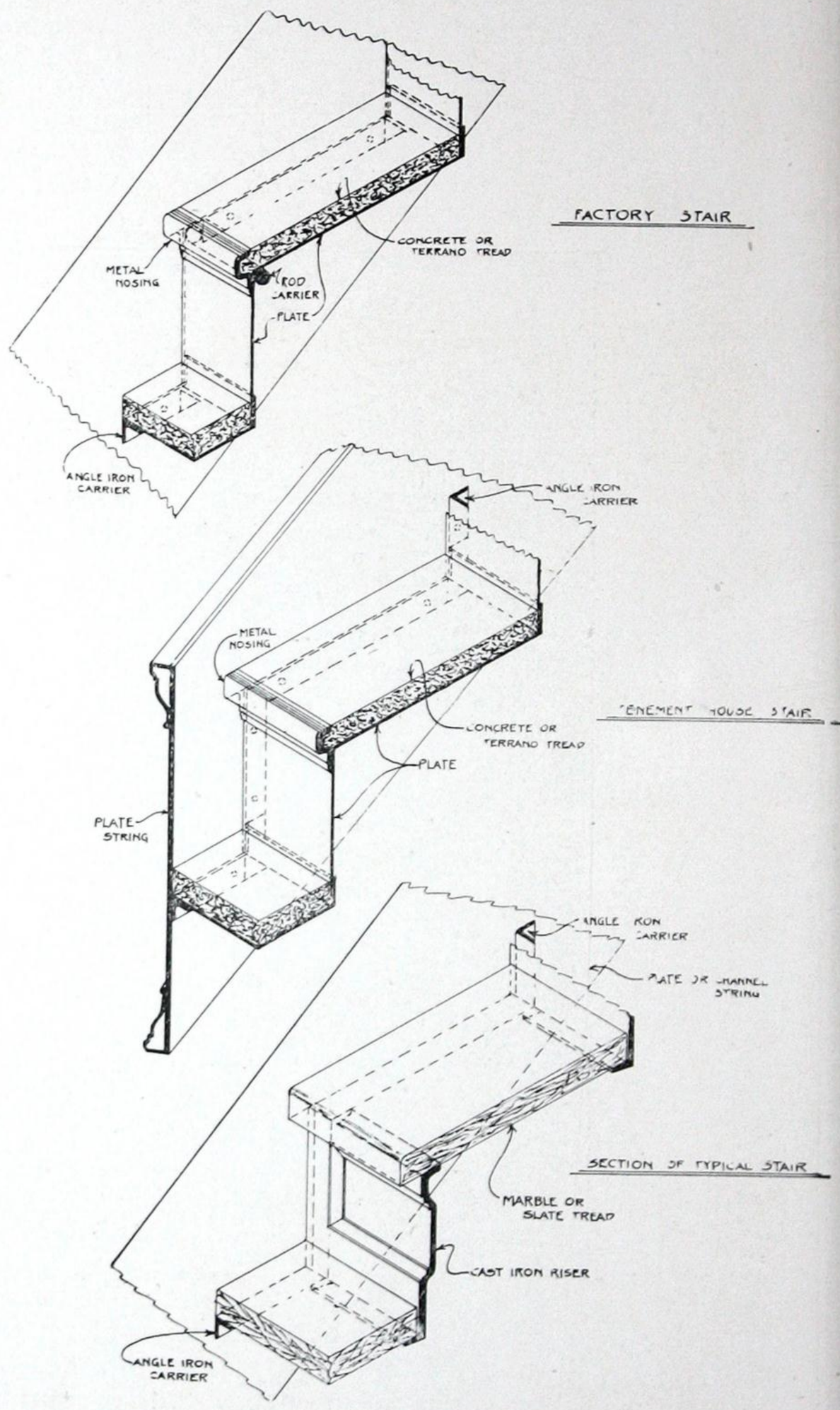
PRODUCTS. We manufacture and install all kinds of ORNAMENTAL IRON WORK for all kinds of buildings, including Stairs, Fire Escapes, Elevator Enclosures, Prism Lights, Marquises, etc.

STAIRS. We make a specialty of Stairs, and can make and erect a flight of stairs in two working days after measurements are taken.

FACILITIES. We have our own Foundry and Pattern Shop, and, consequently, have no delay in getting out work. Members of our staff have had extensive experience in the largest shops in New York, and know how to get work out on time, a point always kept specially in view. This experience is an important asset, and our patrons benefit by it.

LONG EXPERIENCE. John Watson & Son, Father, Son and Grandson, have had an experience in the Ornamental Iron business in Montreal for over forty years, a fact deserving consideration, especially as many concerns engaged in Ornamental Iron Work have come and gone in the meantime, often leaving loss and disappointment behind them.

We are getting a large share of the extensive buildings being erected in Montreal and Ottawa to equip, a fact which, we think, speaks not only for excellent workmanship, but also promptness in delivery.



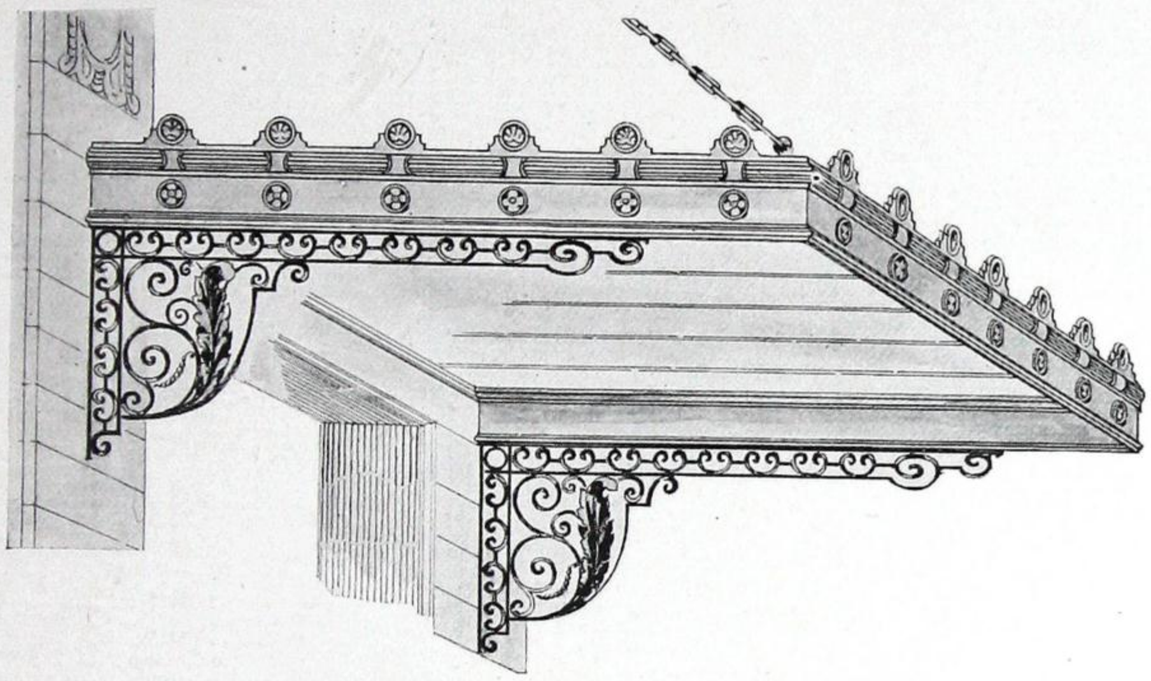
RECENT CONTRACTS.

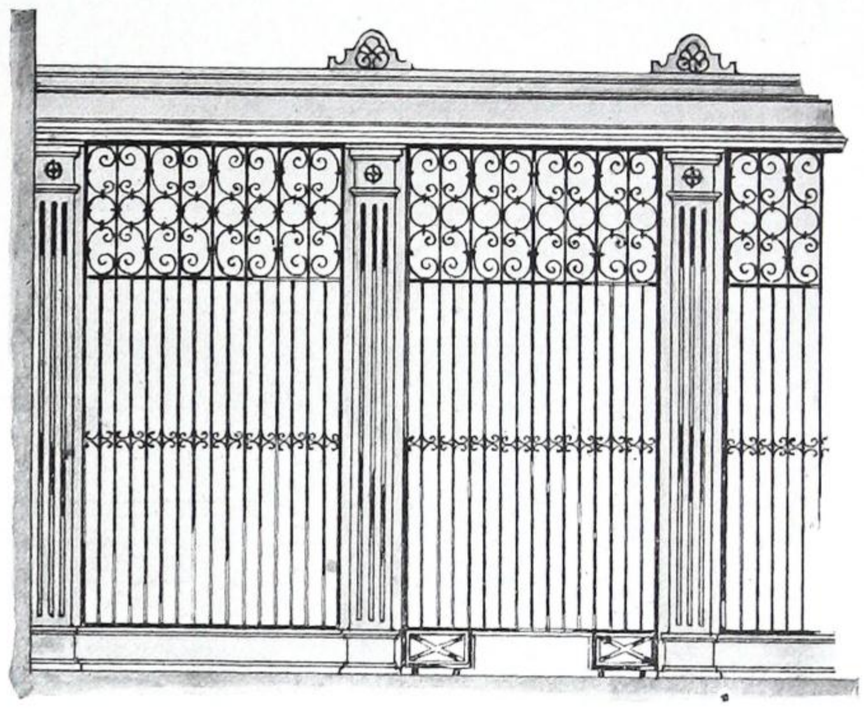
Transportation Building, Montreal.
Dominion Express Building, Montreal.
Major Building, Montreal.
Sommer Building, Montreal.
Read Building, Montreal.
Four Y.M.C.A. Buildings, Montreal.
New Customs Examining Warehouse, Montreal.
Rideau Hall, Ottawa.
Booth Building, Ottawa.
Bank Note Building, Ottawa.
Bell Telephone, Ottawa.
Imperial Wire and Cable Building, Montreal.
Shaughnessy Building, Montreal.
Frontenac Breweries, Montreal.
Postal Station "C," Montreal.
Central Union Station, Ottawa.
Bell Telephone Buildings, Toronto.
Parliament Buildings, Regina.
Mappen & Webb, Montreal.
Merling Refuge, Montreal.
High School, Montreal.
Goodwins Store Building, Montreal.

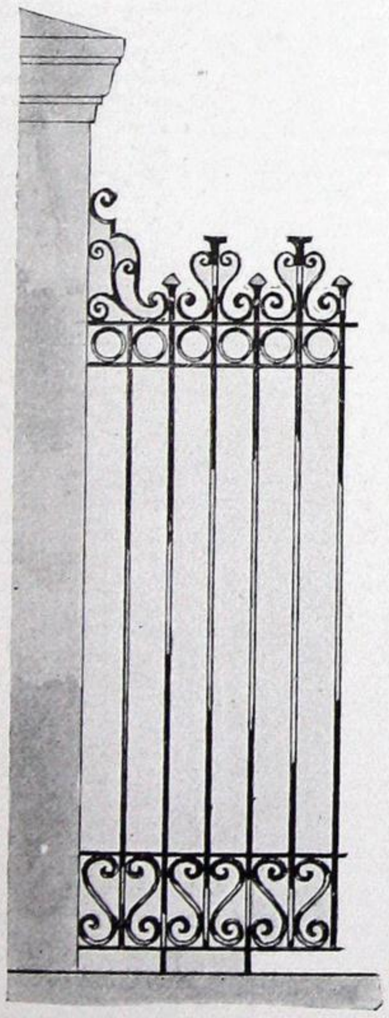
THE DOMINION ORNAMENTAL IRON CO., LIMITED

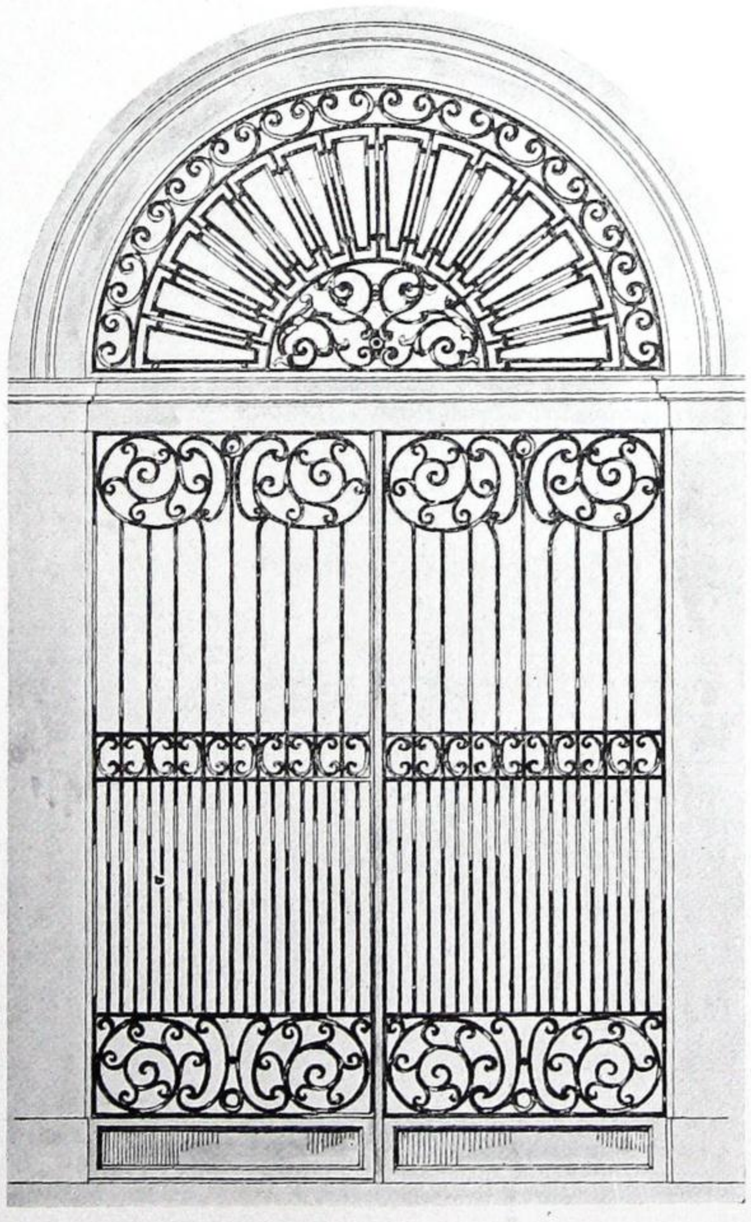
OFFICE AND WORKS: 1195 QUEEN STREET EAST,
TORONTO, ONT.

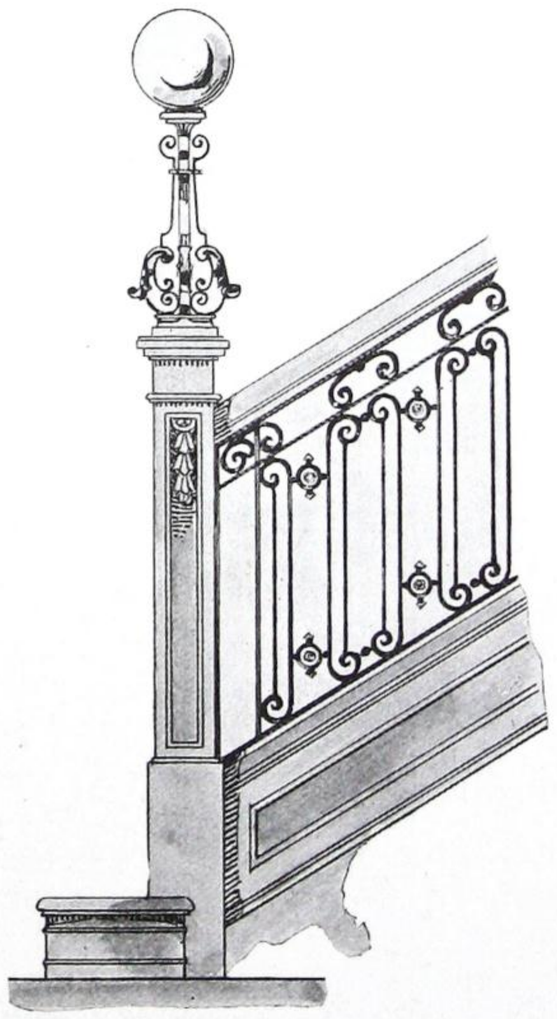
PRODUCTS. We are Manufacturers of Stairs in Wrought and Cast Iron, Fire Escapes, Elevator Enclosures, Marquises and Canopies, Bank Counter Screens, Fences and Gates, Balconies, Window Grilles, Lamps and Brackets, Gratings, Light Structural Iron Work, Iron Doors, Wire Work, Hammered Leaf Work, Fire Irons, Hoods, Baskets, Fenders, Andirons, etc., and Ornamental Iron, Brass and Bronze Work of every description.











DESIGNS AND ESTIMATES. We shall be pleased at any time to furnish estimates on architects' drawings and to submit special designs upon request. Correspondence solicited.

ESTEY BROS. CO.

WINNIPEG REPRESENTATIVES:
N. J. DINEEN & CO., LTD.

TORONTO REPRESENTATIVES:
SCOTT, HAMMOND & PRATT, LTD.

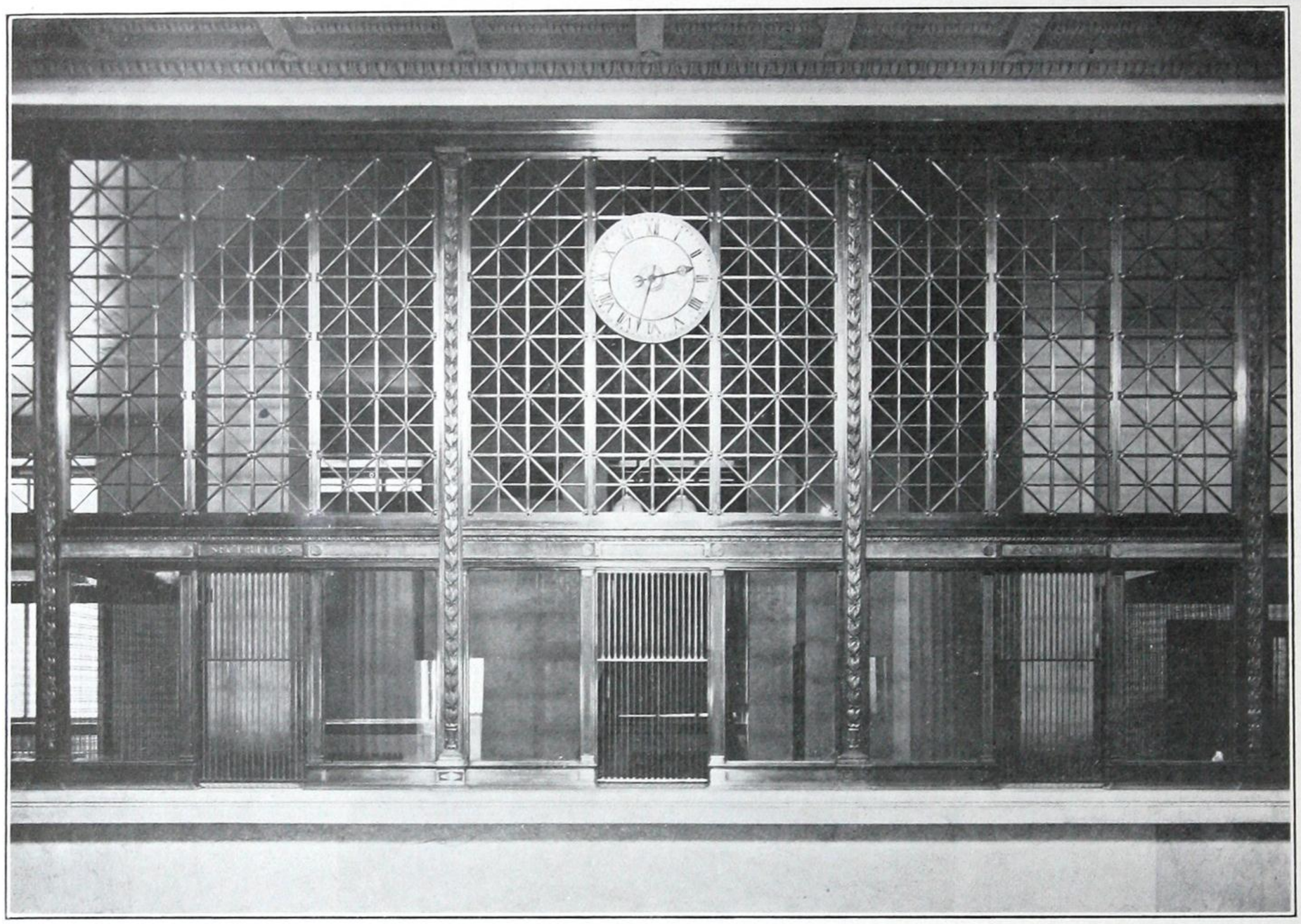
NEW YORK. MONTREAL.

ORNAMENTAL BRONZE AND IRONWORK.

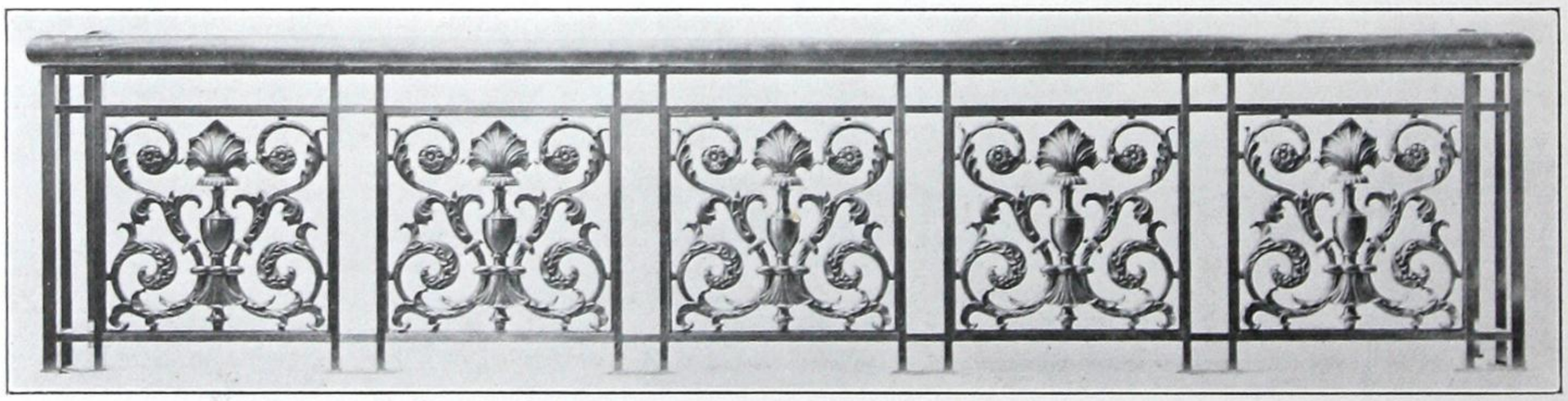
OFFICE:
2-4 ST. CECILE STREET.

CANADIAN WORKS:
ST. JAMES, CATHEDRAL, ST. CECILE STREETS.

PRODUCTS. SPECIALISTS IN STRICTLY HIGH-CLASS BRONZE WORK. BANKING SCREENS, ENTRANCE DOORS, GRILLES, RAILINGS, LAMP STANDARDS, TABLETS, ELEVATOR ENCLOSURES, STAIRS, ETC., IN BRONZE, IRON OR ELECTRO-PLATED.



ROYAL TRUST BLDG., MONTREAL. BRONZE COUNTER SCREEN. MCKIM, MEAD & WHITE, Architects.



FORT GARRY HOTEL, WINNIPEG. BRONZE BALCONY RAIL. ROSS & MCDONALD, Architects.

SPECIAL DESIGNS. Our Designing Department is at the service of architects, with whom it is our aim to co-operate at all times.

THE CANADIAN CUTLER MAIL CHUTE COMPANY, LIMITED

GENERAL OFFICE AND WORKS:
MONTREAL, CANADA.

PRODUCTS. CUTLER MAILING EQUIPMENT.

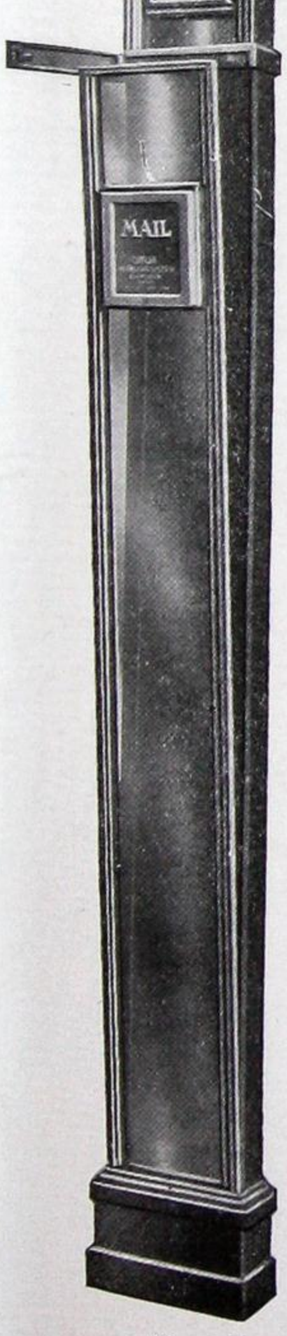
We are the sole Manufacturers and Dealers in Canada of Models F and C, the latest improved Mail Chutes. Their interiors are under Government lock and are easily and quickly accessible, as the front is removable in convenient sections. These fronts are set inside of the Chute Channel, their edges being covered by a protecting flange, which effectively prevents malicious or mischievous persons from pulling or prying them forward.

The Chute is very simple and substantial in design and construction.

In appearance these Chutes are neat and of an architectural character appreciated and much commended by architects.

THE CUTLER MAIL CHUTE EQUIPMENT is a necessity in any modern building of the office, apartment, or hotel variety, because in such buildings the convenient and certain despatch of mail is a matter of first importance, and the Cutler Mail Chutes afford the best means of securing this result.

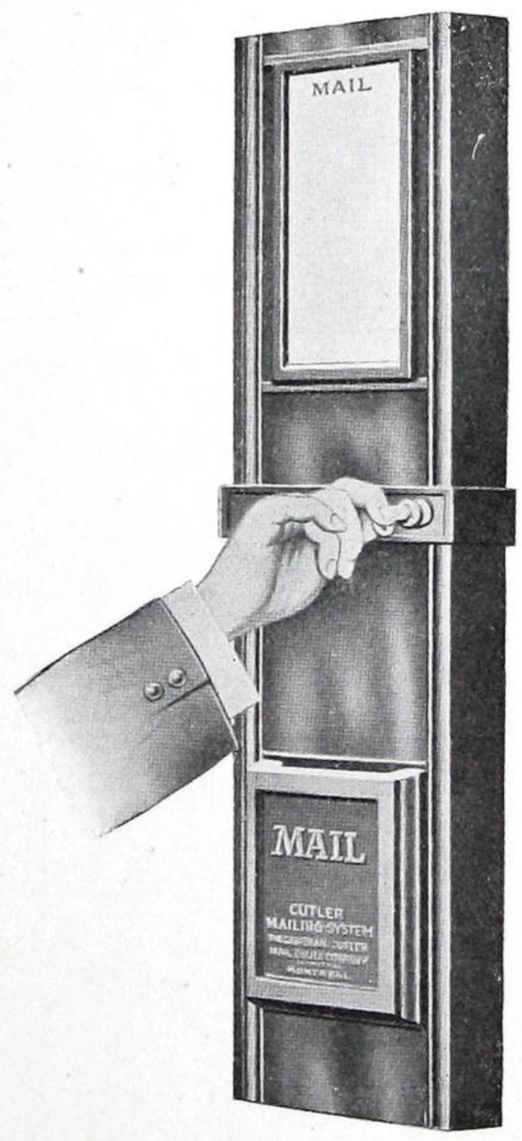
THE CUTLER MAIL CHUTE is Patented and Authorized, and is in strict accordance with Post Office requirements.



TYPE F
OPEN.



No. 1350 A MAIL BOX.





No. 1165 MAIL BOX.

We have installed Cutler Mailing Equipments in all the leading office buildings, apartment houses, and hotels throughout Canada. Upon request, we shall be pleased to submit special designs in harmony with any style of building.

Full information as to cost of installation will be furnished upon application to the Company's General Offices, Montreal, or any of its numerous Agents located in the principal cities throughout Canada.

Write for our latest booklet "B."



TYPE F
CLOSED.

KAWNEER MANUFACTURING COMPANY, LIMITED

METAL STORE FRONTS AND ARCHITECTURAL MOULDINGS,

TORONTO, CAN.

AGENTS:

KAWNEER MFG. CO., LTD.
1017 NEW BIRKS BLDG., MONTREAL, QUE.
CANADIAN-WESTERN BLDRS. SUPPLIES, LTD.,
301 DOMINION BANK BLDG., SASKATOON, SASK.
SASKATCHEWAN GLASS AND SUPPLY CO., LTD.,
MOOSE JAW, SASK.
THE J. H. LAVALLEE CO., LTD.,
EDMONTON, ALTA.
D. J. MACKENZIE,
194 QUEEN ST., OTTAWA, ONT,

BRAID & MCCURDY,
TRIBUNE BUILDING, WINNIPEG, MAN.
WESTERN SUPPLY AND EQUIPMENT CO.,
LETHBRIDGE, ALTA.
WESTERN SUPPLY AND EQUIPMENT CO.,
CALGARY, ALTA.
AMES BROS.,
WELTON BLOCK, VANCOUVER, B.C.
R. ANGUS,
1105 WHARF ST., VICTORIA, B.C.

PRODUCTS. Manufacturers of KAWNEER STORE FRONTS in solid copper, brass, bronze and aluminum; KAWNEER ARCHITECTURAL METAL MOULDINGS in cold-rolled and drawn copper, brass, bronze, aluminum and steel.

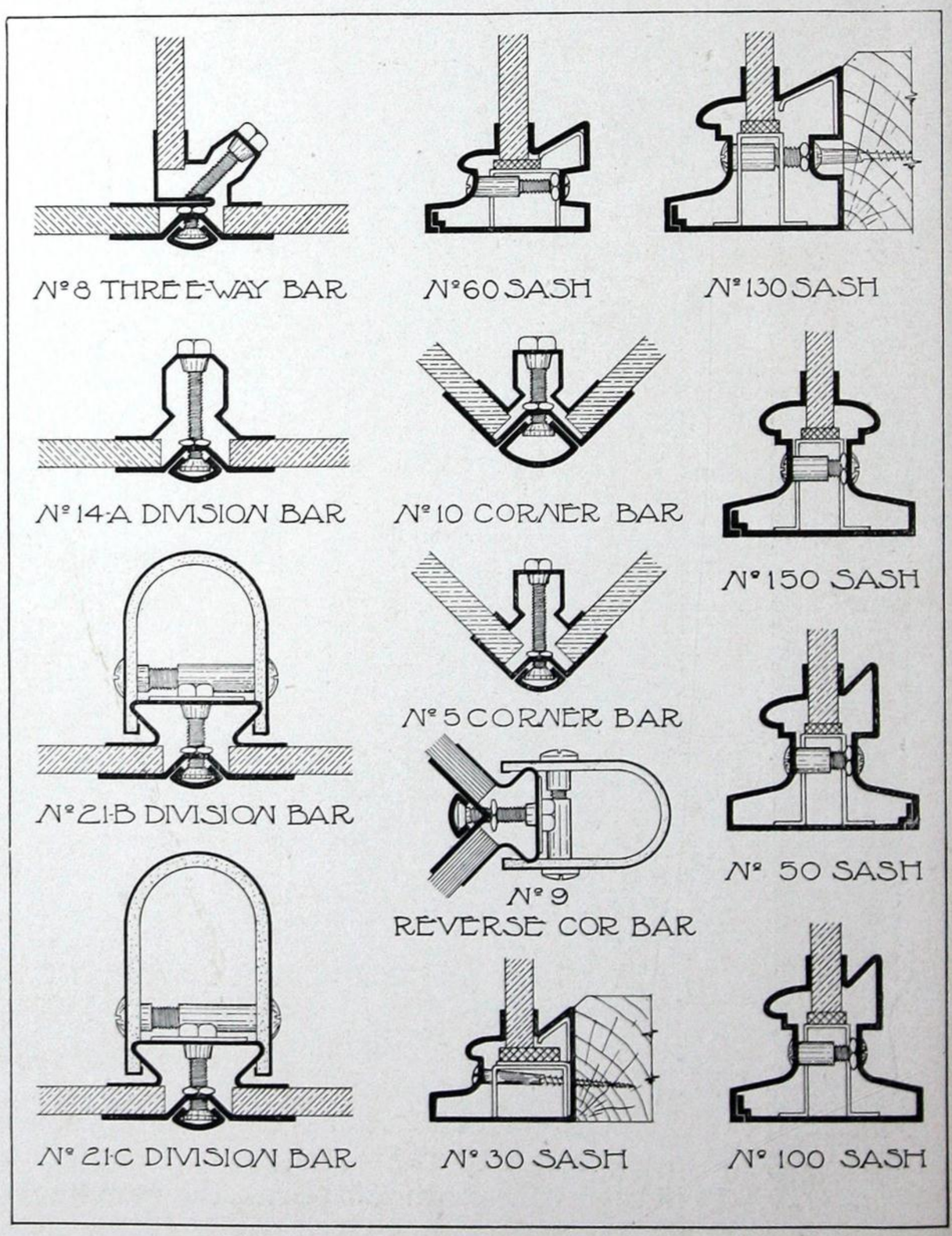
Kawneer STORE FRONTS

CO-OPERATION. In addition, many architectural metal mouldings, as well as special mouldings made to the particular specification of the architect, can be furnished promptly. An engineering department is maintained to give you complete information, accompanied by drawings to architects wherever special usages of construction are required.

DESCRIPTION. KAWNEER NO. 30 METAL SASH, shown in the accompanying details, provide for the regulation of show window ventilation and drainage. By moving the V-shaped slide every vent-hole in the gutter is simultaneously opened or closed. The slide is operated from the inside of the show window, and is made, as are all other parts, of solid copper, brass, bronze, or aluminum, as desired. Metal Sash Nos. 30, 60 and 130 are equipped with movable slide.

"KAWNEER" STORE FRONTS. "KAWNEER" is a narrow, inconspicuous, all-metal construction, designed to give the greatest possible space for window display. The glass is held rigidly with a spring cushion grip, which insures the safest possible setting for the glass; one that provides for the expansion and contraction, vibration from wind, and any inequalities in the thickness. All glass is set from the outside.

VENTILATION AND DRAINAGE. Metal Sash No. 30, No. 60, No. 100 and No. 130 are provided with a ventilation system that allows the entrance of a full current of air. This air circulates along the inner surface of the glass, absorbs the moisture and prevents the formation of frost or sweat. Drainage is also provided for, and in summer Sash Nos. 30, 60 and 130 can be made absolutely dust-tight by the slide built in the gutter.



CONTINUED ON NEXT PAGE

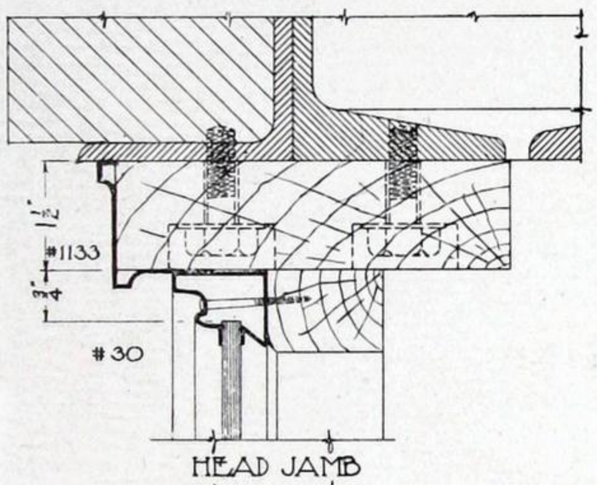
SETTING. All sash may be set directly against a brick, iron, concrete, marble or wood jamb or sill. A backing, either of wood or an angle iron 1⅛″ high, is used in which to fasten the screw of Sash Nos. 30 and 130. All other sash are self-supporting and require no backing whatever.

ELEVATED DISPLAYS. Sash No. 50 is especially designed for displays above the first storey. Glass is set in this sash from the inside.

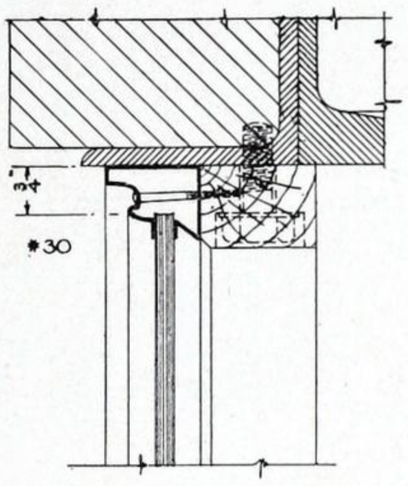
MATERIAL. All exposed metal is either copper, brass, bronze or aluminum, pure lake copper being used for all oxidized or antique copper finishes, as well as for the polished copper finish. This gives absolute freedom from rot, rust or warp, and obviates any necessity of painting the store front.

FINISHES. "KAWNEER" material is manufactured in the following finishes: Polished copper, brass, bronze and aluminum, gun metal or black oxidized copper, spotted oxidized copper, statuary copper, dull brass, antique brass, antique or old copper, and brushed bronze.

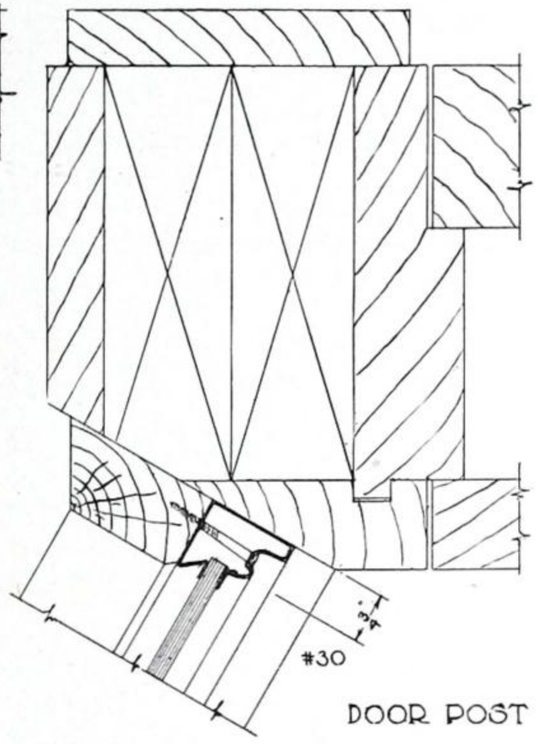
DETAILS OF KAWNEER STORE FRONTS, QUARTER FULL SIZE.



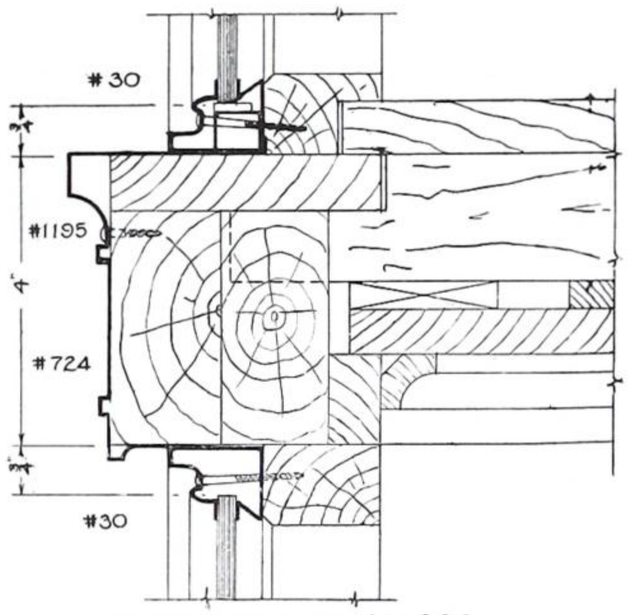
HEAD JAMB



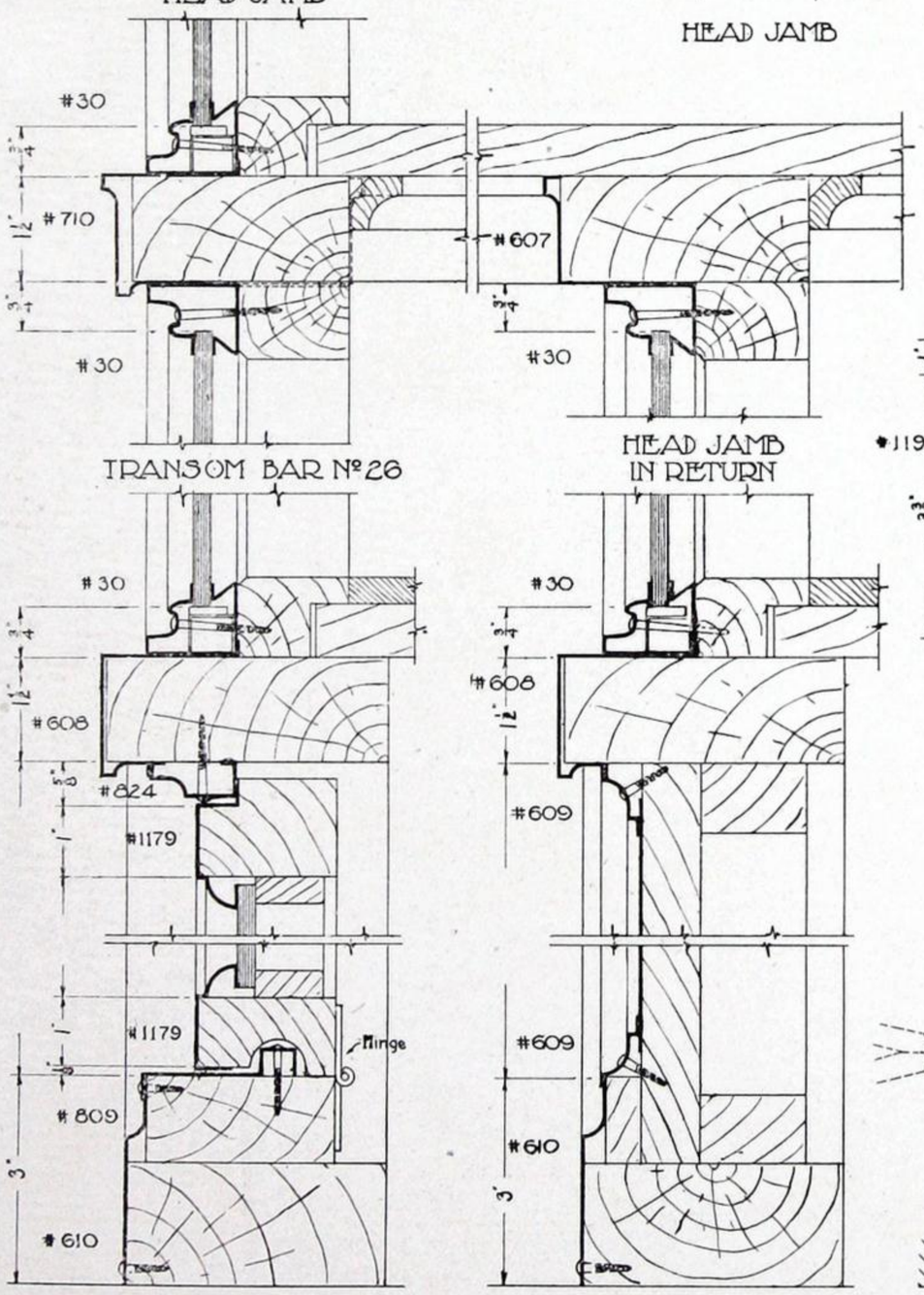
HEAD JAMB



DOOR POST

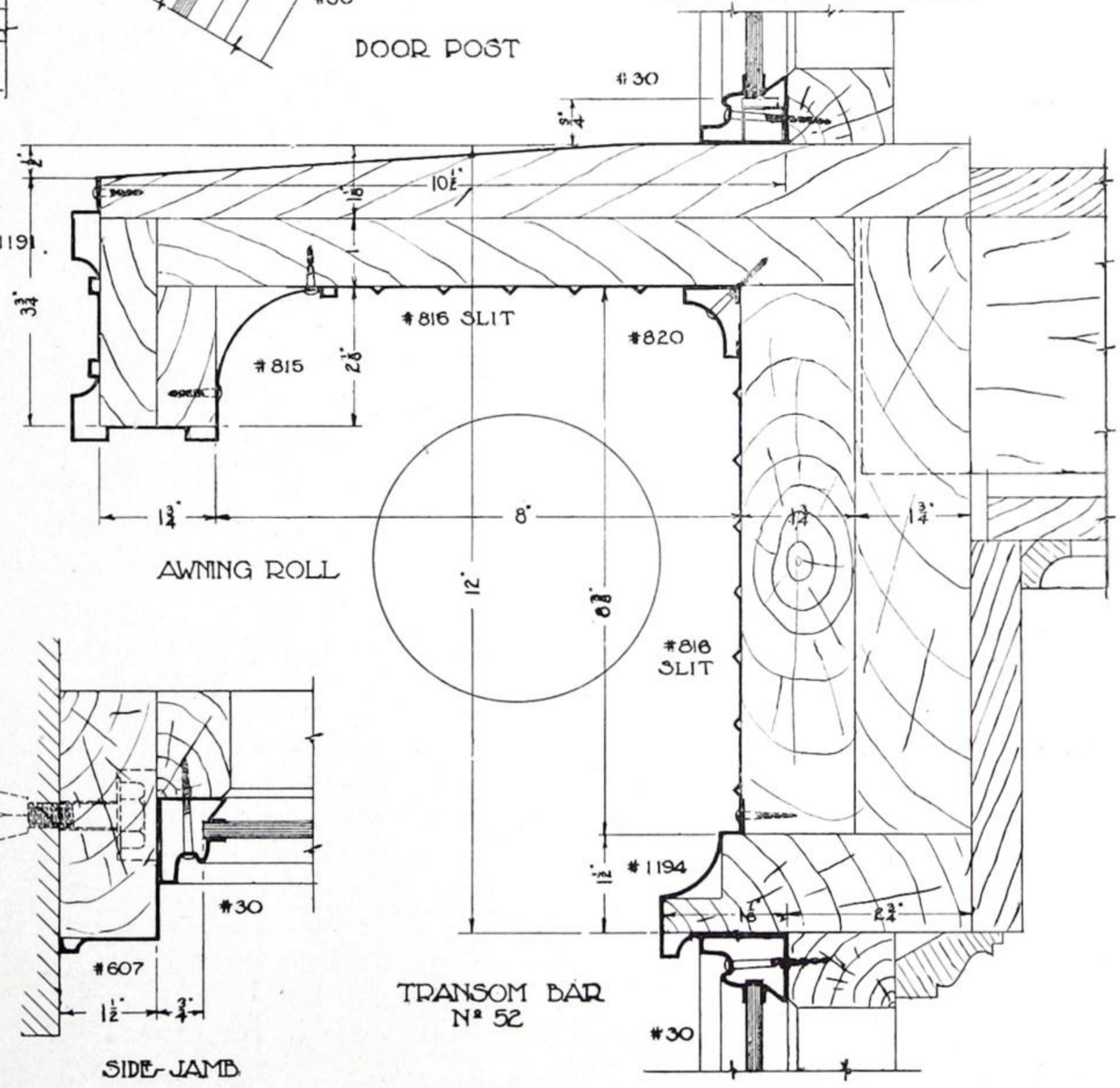


TRANSOM BAR Nº 5392



TRANSOM BAR Nº 26

HEAD JAMB IN RETURN



AWNING ROLL

TRANSOM BAR Nº 52

BULKHEAD Nº 3069

BULKHEAD Nº 3051

SIDE JAMB

EASYSET STORE FRONT CONSTRUCTION CO.

EASYSET SYSTEM
ALL METAL
STORE FRONT CONSTRUCTION

"EASYSET"

THE STRONGEST AND MOST ATTRACTIVE ALL-METAL STORE FRONT CONSTRUCTION ON THE MARKET.

EASYSET SYSTEM
ALL METAL
STORE FRONT CONSTRUCTION

TORONTO, CANADA.

H. J. ST. CLAIR CO. LTD., MANUFACTURERS OF "EASYSET" FOR DOMINION OF CANADA, TORONTO, ONT.

CANADIAN REPRESENTATIVES WHO CARRY STOCK OF "EASYSET."

DARTNELL LIMITED	MONTREAL, QUE.	CALGARY PAINT AND GLASS CO., LTD.	CALGARY, ALTA.
MARIER & TREMBLAY, LTD	QUEBEC, QUE.	WM. N. O'NEIL CO., LTD.	VANCOUVER, B.C.
MCFARLAND & DOUGLAS, LTD	OTTAWA, ONT.	WM. N. O'NEIL CO., LTD.	VICTORIA, B.C.
H. J. ST. CLAIR CO. LTD.	WINNIPEG, MAN.	MACKENZIE-HAZELL SUPPLY CO.	REGINA, SASK.
WINNIPEG PAINT AND GLASS CO., LTD.	WINNIPEG, MAN.	EDMONTON PAINT AND GLASS CO., LTD.	EDMONTON, ALTA.
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A. J. GRABER	LONDON, ONT.	BOWMAN SUPPLY CO.	PRINCE ALBERT, SASK.
TWIN CITY SAND CO.	FORT WILLIAM, ONT.	MCKENZIE & THAYER, LTD.	SASKATOON, SASK.
HANBURY MFG. CO.	BRANDON, MAN.	J. B. TURNEY & CO.	LETHBRIDGE, ALTA.
GENERAL BUILDERS' SUPPLY CO.	MOOSE JAW, SASK.	TWIN CITY SAND CO.	PORT ARTHUR, ONT.

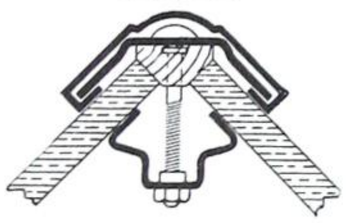
ALL DETAILS SHOWN HERE ARE HALF-SIZE.

CORNER BAR.

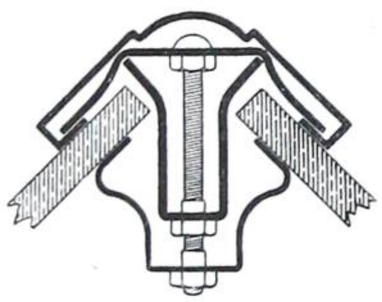
No. 4A



No. 4 B



NO. 4-C.

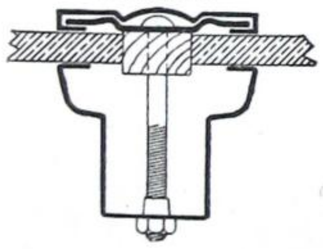


No. 4 A CORNER BAR. Note how the reinforcement fits inside the outer covering — thus, when the bar is installed and the nut is tightened, it draws the outside of the bar to the glass, instead of forcing it away, as is the case with most bars. The glass is gripped some distance from the edge, thus preventing breakage from "pinching" — a small piece of wood fitted over the screw protects the edge of the glass. This bar is designed to take care of the variation in thickness of plate glass without bending or springing the metal.

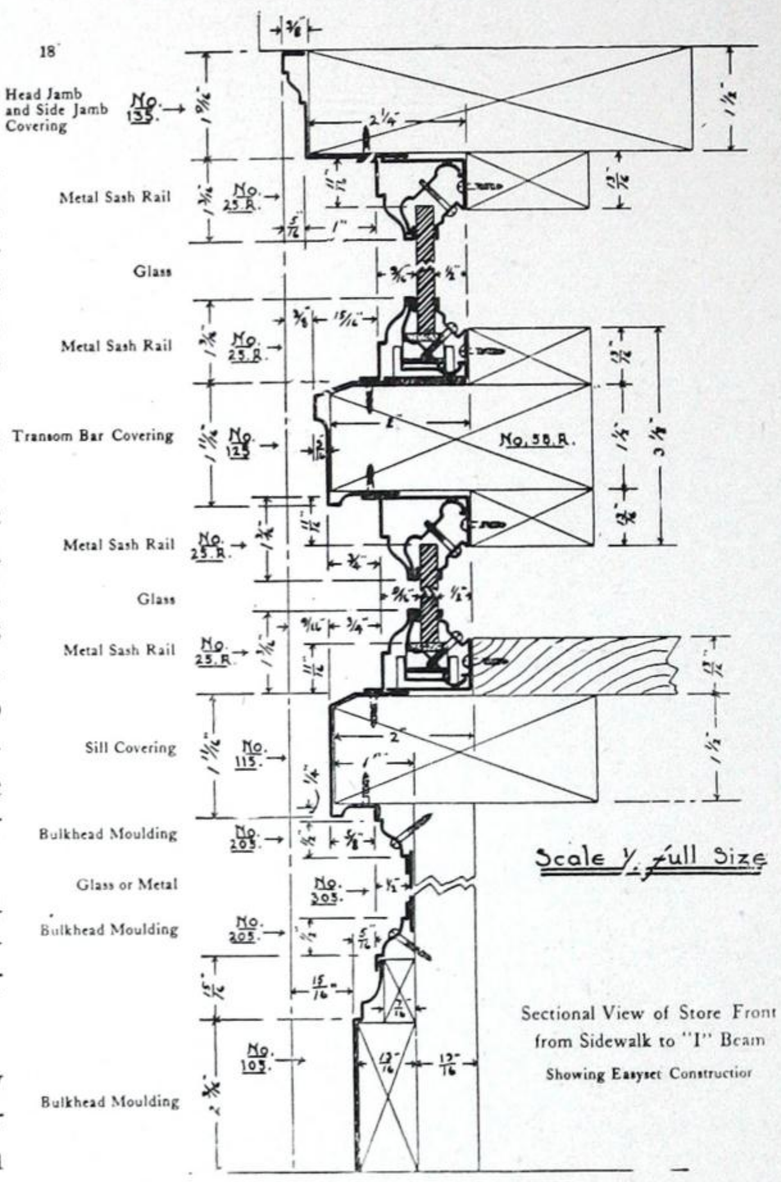
No. 4 C, similar to 4 A, but larger; also reinforced by steel. This bar we highly recommend.

DIVISION BAR.

No. 15. B

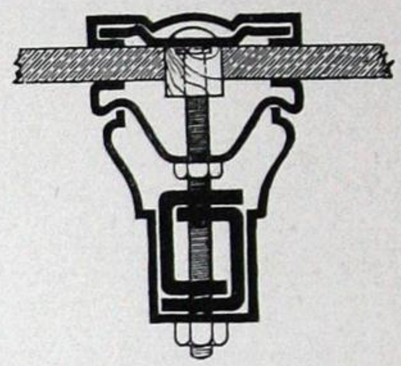


No. 15 A.R. We show half-size detail of our Division Bar. As with the Corner Bar, the reinforcement fits inside the outer covering, and the same principle is employed—that of drawing the outside section of the bar to the glass. The edges of the glass are also left free, preventing "pinching." This bar is also arranged to provide for variation in thickness of glass. The end of this bar rests on the edge of the metal sash rail, and the inner part is anchored to the floor. Small steel anchors, with screws complete, are furnished for this purpose. This shows the steel reinforcement, which is not necessary under 108" glass.

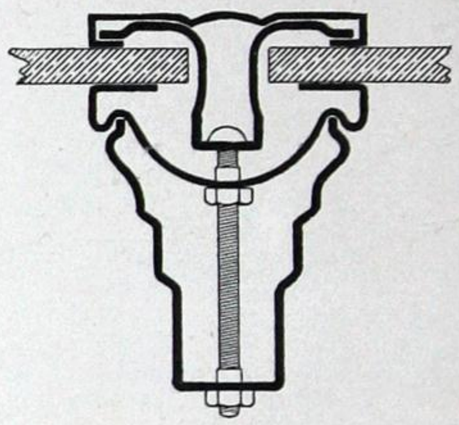


Sectional View of Store Front from Sidewalk to "I" Beam Showing Easyset Construction

No. 15AR

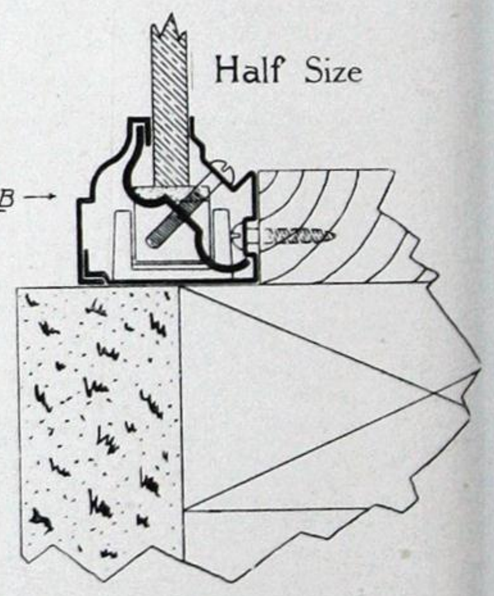


NO. 15-C.



Half Size

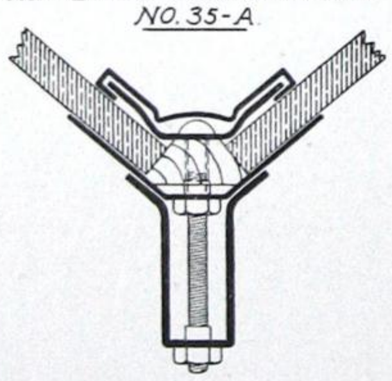
NO. 25-B →



SASH RAILS.

No. 25 A. We show above a half-size detail of our Metal Sash Rail, with ventilating drainage system. Glass is set from outside. Tension obtained from inside screws. No outside screws to mar the face of the sash or to work loose and release the tension. These inside screws should be tightened evenly.

REVERSE CORNER BAR
NO. 35-A



No. 25 B. Sash Rail. Is similar to 25 A in appearance, but is so constructed as to be readily applied to stone, marble, brick or steel. The setting block is of solid steel, mounted with leather. It is in two pieces and readily adjustable; it can be raised or lowered. This absolutely prevents the edge of the glass from coming in contact with metal. All caps which cover joints are then put in place. These caps, with the necessary screws, are shipped with each order. This rail is a frost-preventive when show windows are built air-tight, allowing only the air entering through the metal sash to circulate. It has the drainage system also.

Made of heavy gauge COPPER, BRASS, ALUMINUM, or BRONZE.

Special finishes: Oxidized, Nickle, Gun Metal, Statuary Bronze, Satin Bronze, Satin Brass, and Sand Blast Copper. If interested, send for our catalogue, showing the great disappearing awning and our different mouldings.

We remodel the entire store front and show windows. Send for design book B, showing many of the latest and up-to-date Store Fronts.

THE HOBBS MANUFACTURING CO., LIMITED

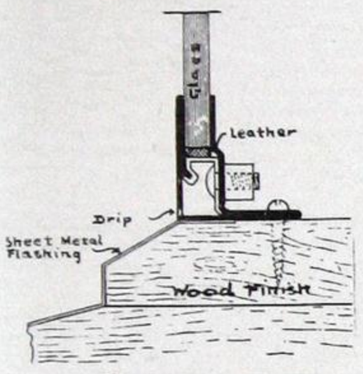
MONTREAL. TORONTO. LONDON. WINNIPEG. VANCOUVER.

PRODUCTS. We are Canadian Agents for the THORNE HOLD-FAST PATENT METAL BAR SYSTEM OF STORE FRONT CONSTRUCTION.

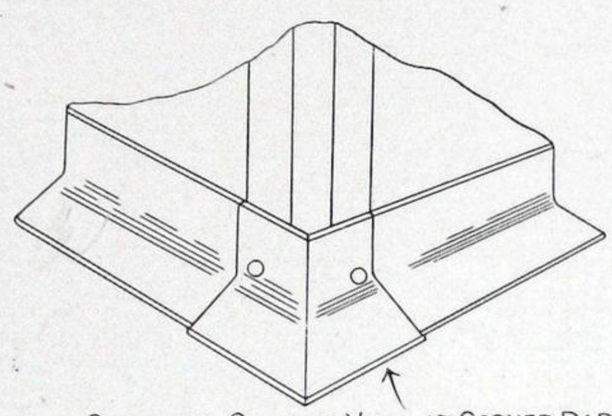
DESCRIPTION. The Thorne Hold-Fast Patent Metal Bar System not only does away with the unsightly wooden posts, but it provides a setting for the glass that eliminates breakage, which other metallic bars not manufactured on the Thorne scientific basis, will not do.

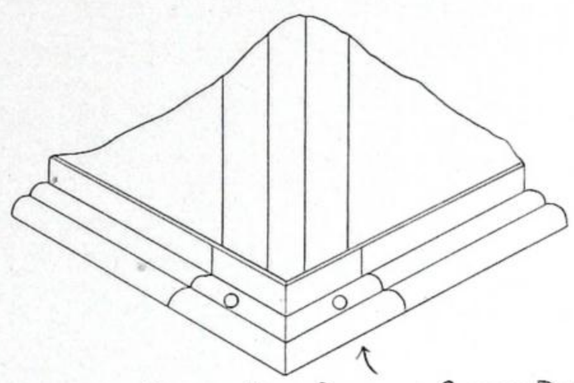
These bars are drawn from seamless tubes which give greater strength and provide a perfectly smooth and even rabbett for the Plate Glass, in this way eliminating the danger of the glass sliding over on the bolt as is the case with other metal constructions.

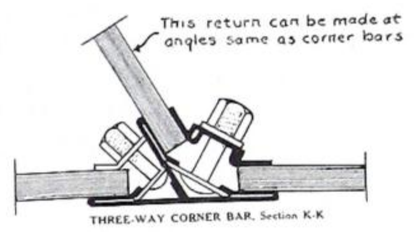
Plate Glass Insurance Companies accept these bars on the same basis as wooden posts.



SECTION THRU LIGHT DRIP SILL.

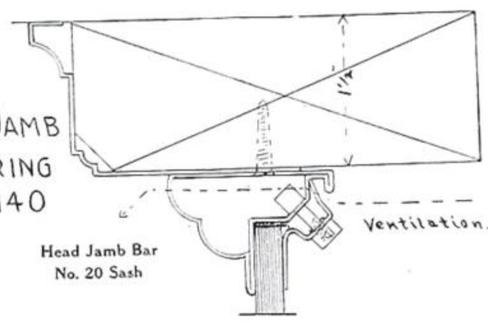

SHOWING OUTSIDE VIEW OF CORNER BAR AND HEAVY SILL WITH CAP.

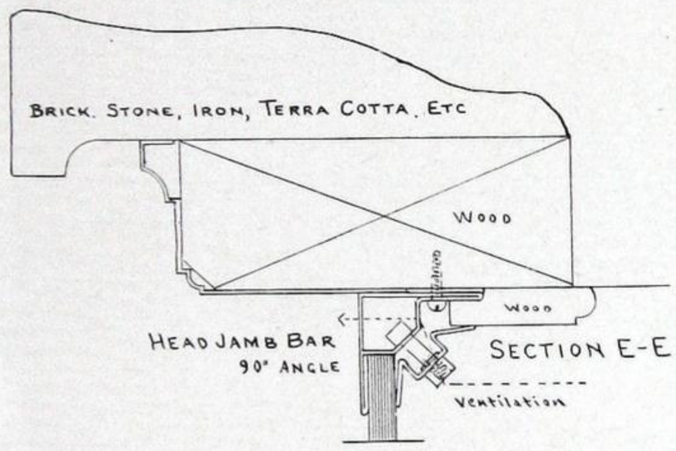

No 20 SPECIAL DRIP SILL AND CORNER BAR ALSO SILL CAP



THREE-WAY CORNER BAR. Section K-K

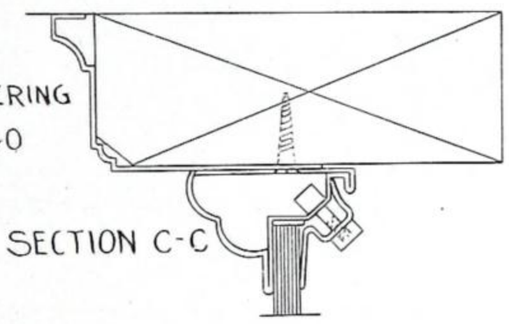
FULL SIZE DETAIL. SECTION E-E


HEAD JAMB COVERING No 140

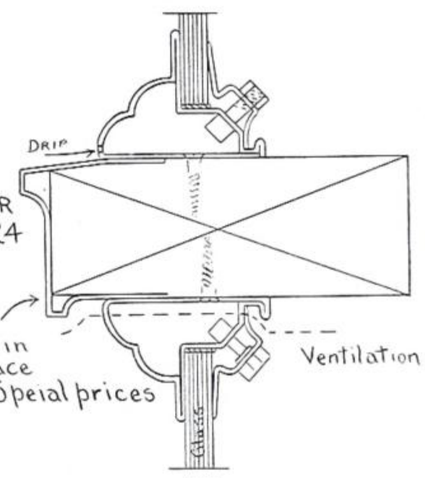


HEAD JAMB BAR 90° ANGLE

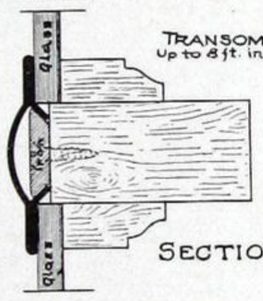
SECTION E-E


SIDE JAMB COVERING No 140

SECTION C-C

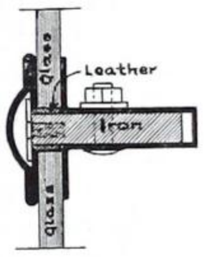


TRANSOM BAR No 24



TRANSOM BAR Up to 8 ft. in length

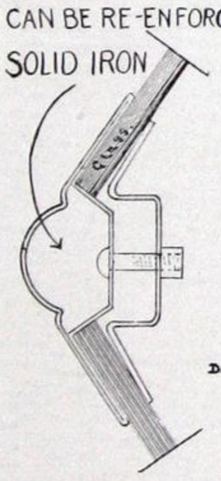
SECTION L.-L.



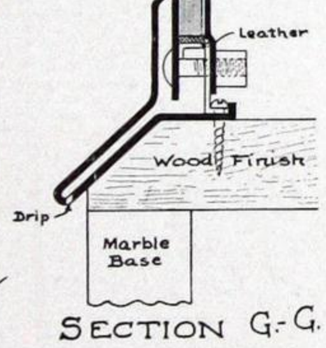
DIVIDING BAR over 6 ft. long

SECTION J.-J.

SPECIAL CORNER BAR FOR HEAVY CONSTRUCTION CAN BE RE-ENFORCED WITH SOLID IRON



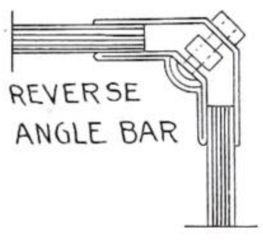
CORNER BAR. Style No. 3

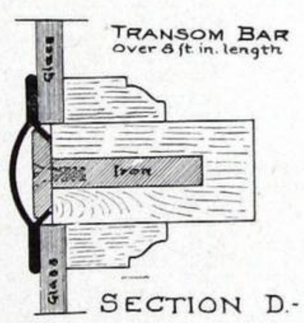


SECTION G.-G.


CORNER BAR. Style No. 2

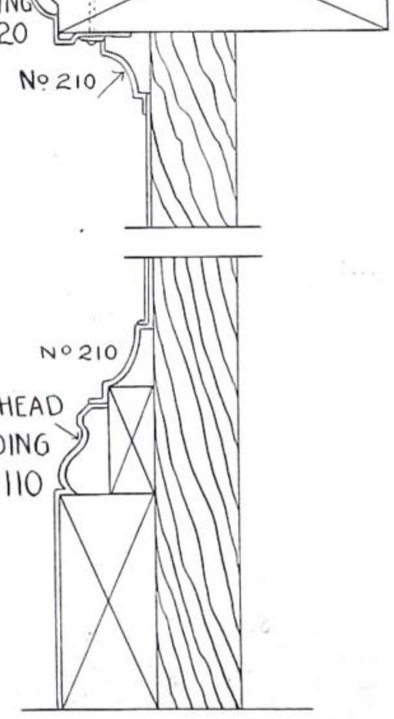
SECTION A-A


REVERSE ANGLE BAR



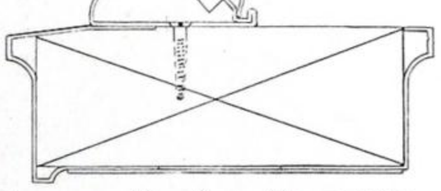
TRANSOM BAR Over 8 ft. in length

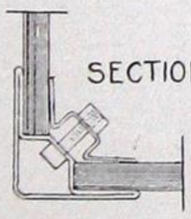
SECTION D.-D.



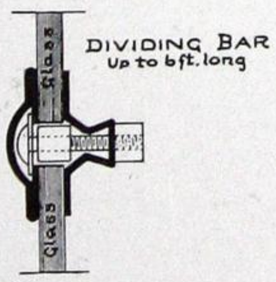
SECTION H-H

SILL COVERING No 120


TRANSOM BAR OVER VESTIBULE

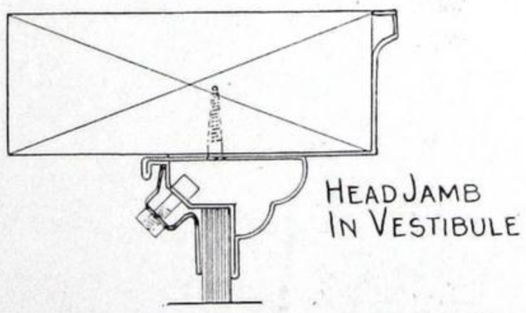

CORNER BAR. Style No 1

SECTION B-B



DIVIDING BAR Up to 6 ft. long

SECTION I.-I.


HEAD JAMB IN VESTIBULE

DETAILS OF STORE FRONT CONSTRUCTION.

INFORMATION. Full information and catalogues furnished upon request.
See our advertisement on page 137.

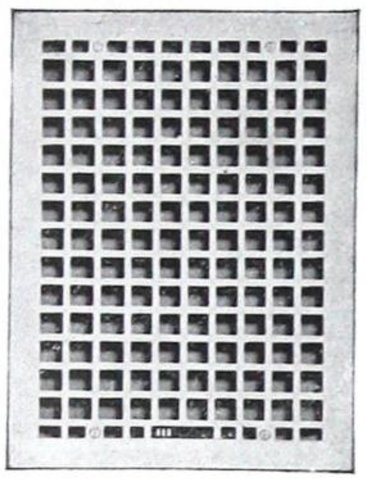
TUTTLE & BAILEY MFG. CO. OF CANADA, LTD.

BRIDGEBURG, ONTARIO.

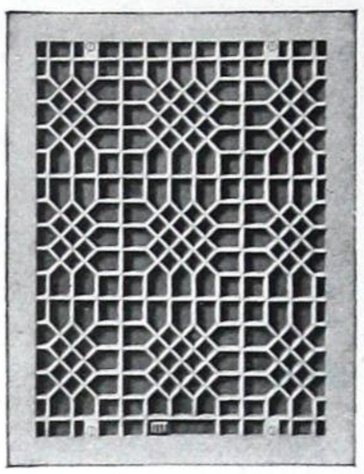
PRODUCTS. We Manufacture REGISTERS, VENTILATORS, GRILLES AND SCREENS OF STOCK OR SPECIAL DESIGN IN BRONZE, BRASS, CAST IRON, STEEL OR WIRE.

A few Stock Design Warm Air Registers are shown below.

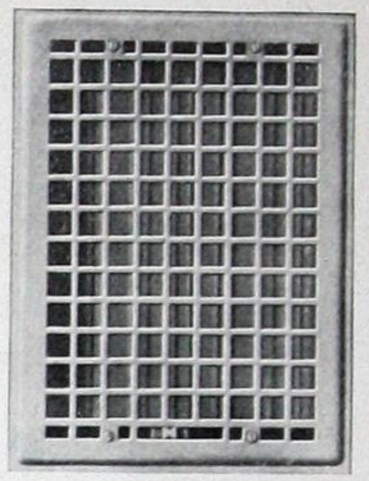
FLOOR REGISTERS.



CAST IRON—PLAIN LATTICE.



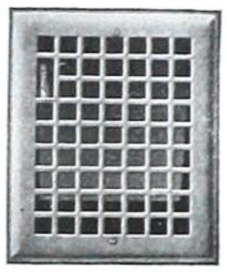
SEMI-STEEL—INDIAN LATTICE.
Also made in Plain Lattice.



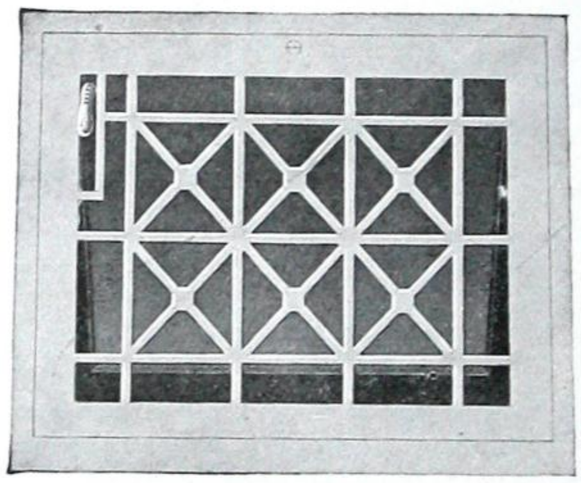
ALL-STEEL—PLAIN LATTICE.

BASE BOARD REGISTER.

SIDE WALL REGISTER.

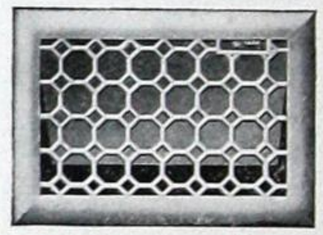


ALL-STEEL—PLAIN LATTICE.
Our Side Wall Registers can be set either way



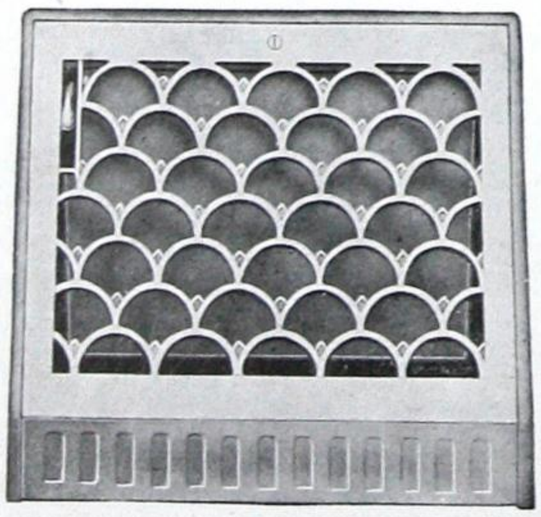
THE "QUICK SET."
Note large capacity. 12 x 14 size is especially adapted to deep flues.

SIDE WALL REGISTER.

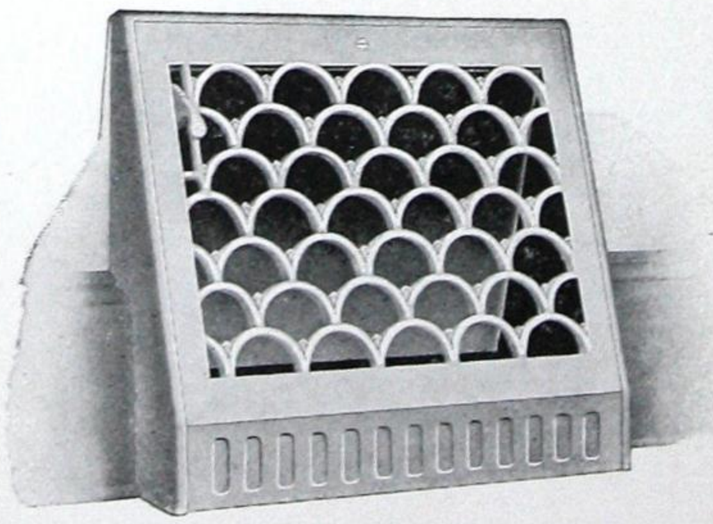


SEMI-STEEL—MOORISH.
Our Side Wall Registers can be set either way.

BASE BOARD REGISTERS.



SEMI-STEEL—SCALE DESIGN.



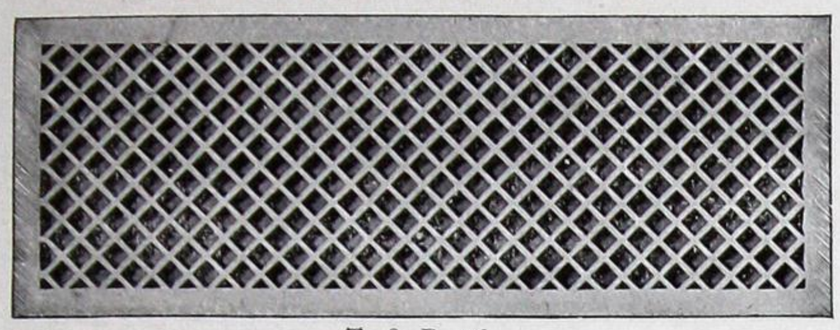
THE "DEFIANCE"—4½" DEEP
(FOR 12" OR 14" PIPE).



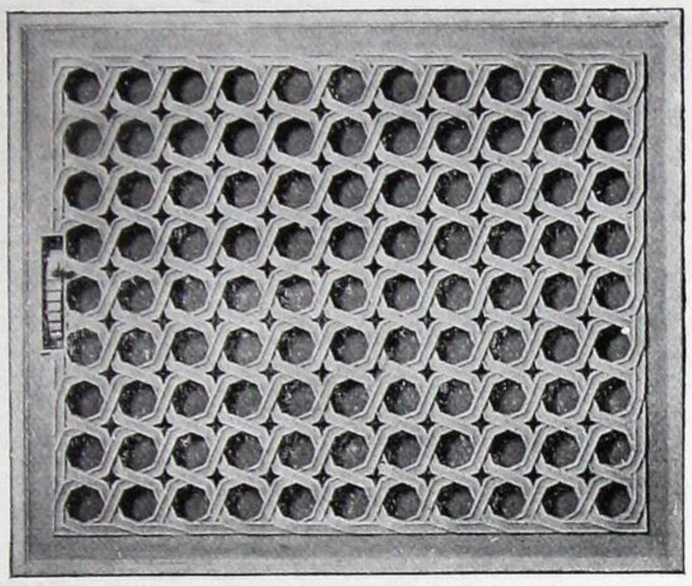
ALL-STEEL—PLAIN LATTICE DESIGN.

CONTINUED ON NEXT PAGE

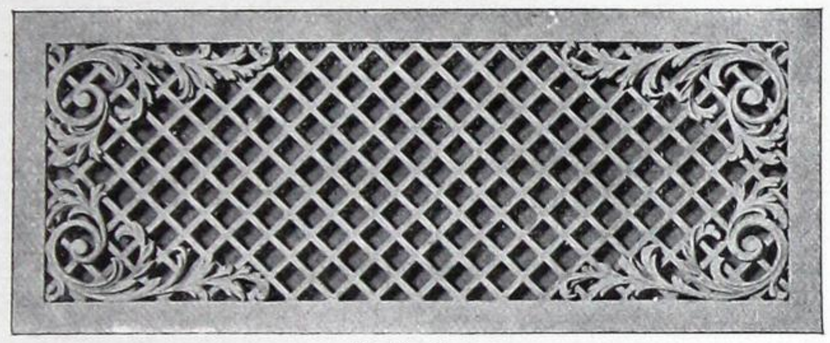
TUTTLE & BAILEY MFG. CO. OF CANADA, LTD.



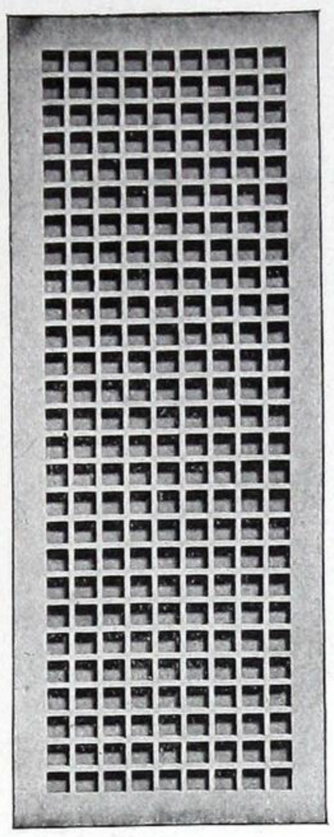
T. & B. 56.



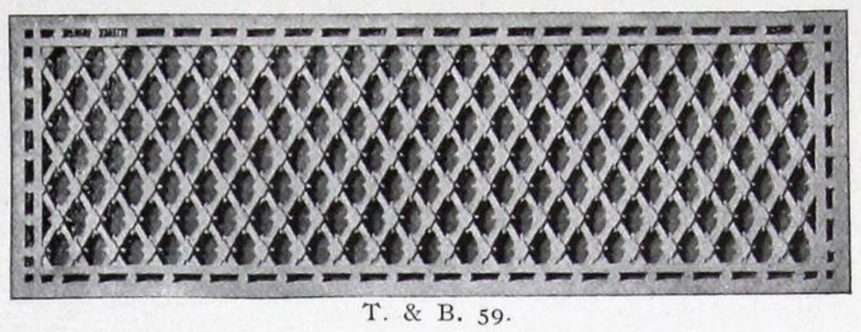
T. & B. 82.



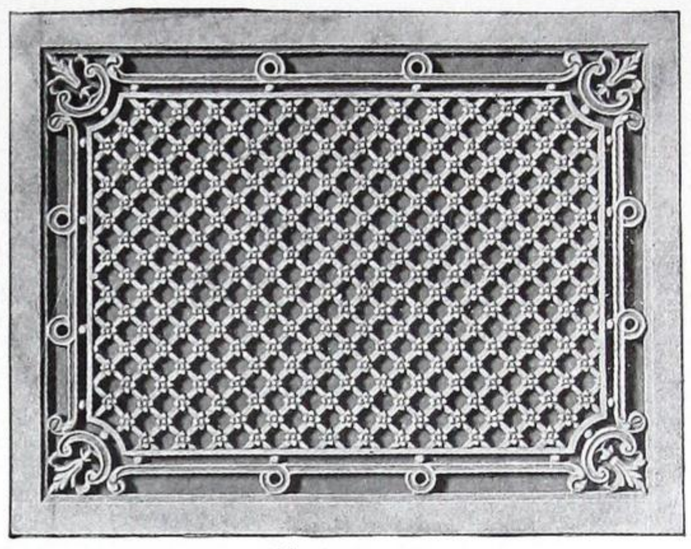
T. & B. 12.



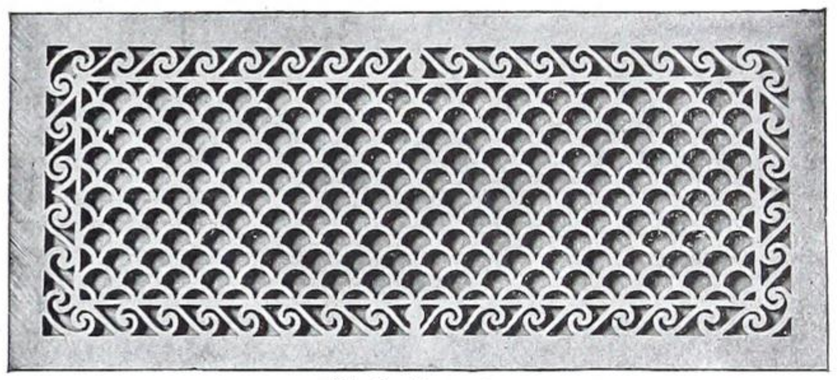
T. & B. 85.



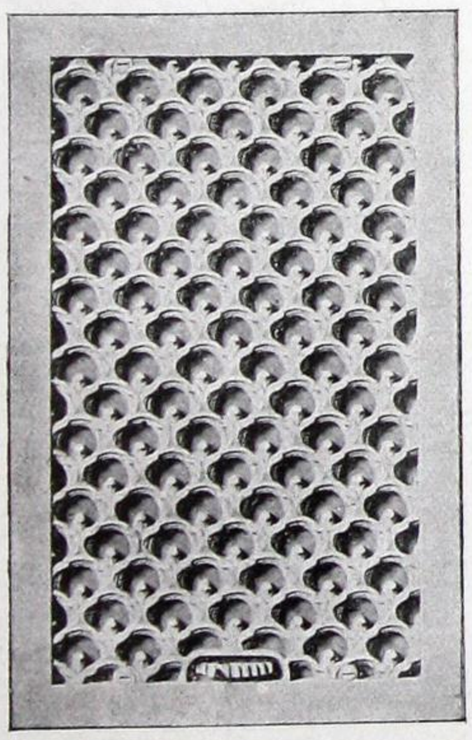
T. & B. 59.



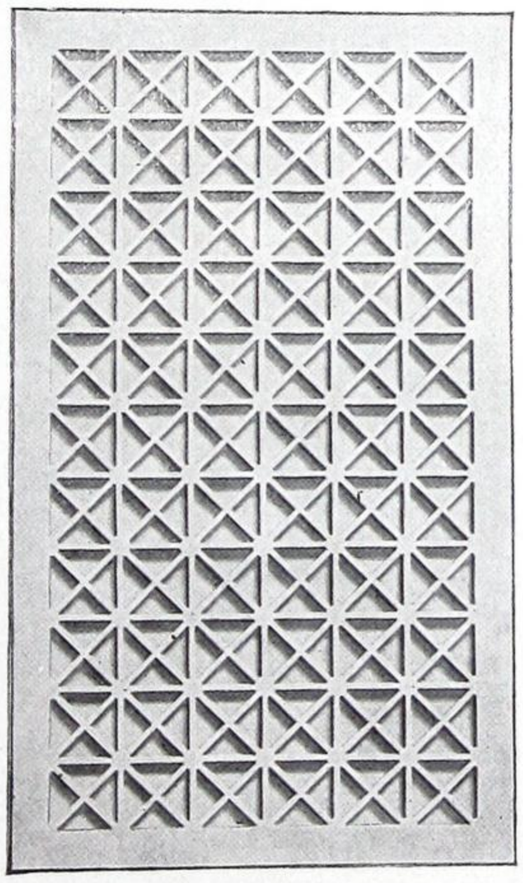
T. & B. 83.



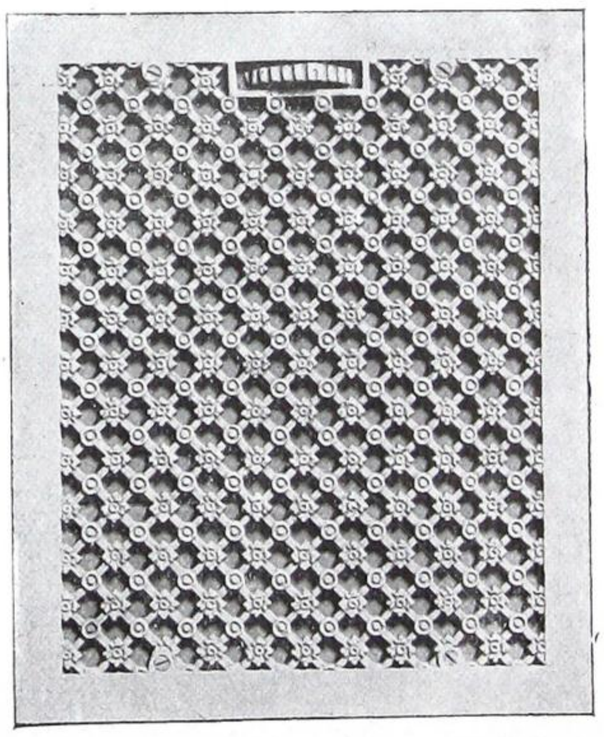
T. & B. 118.



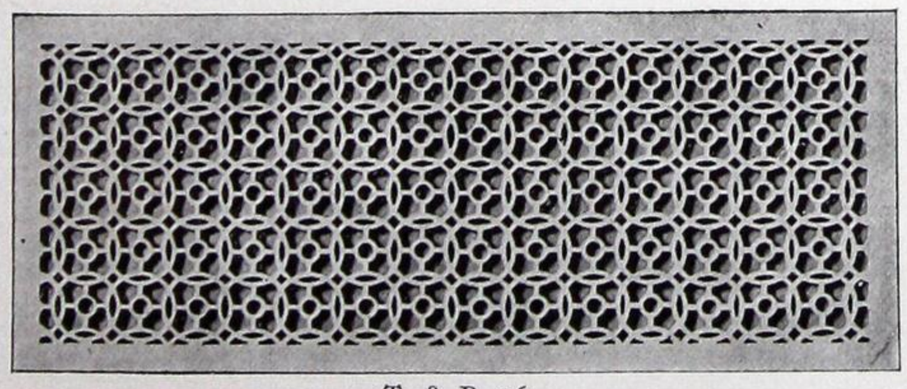
T. & B. 30.



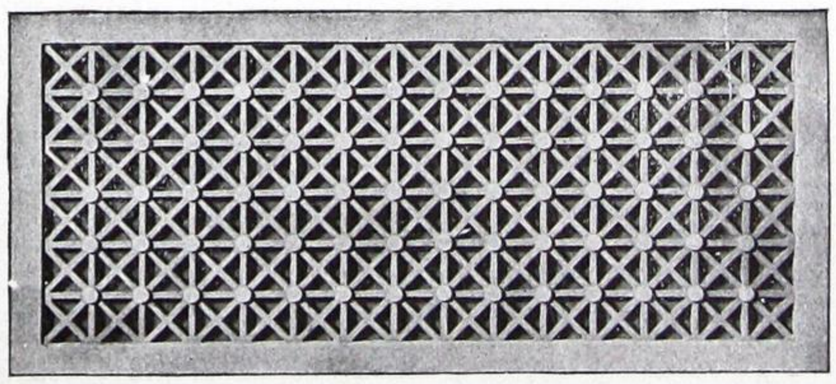
T. & B. 381.



T. & B. 80.



T. & B. 26.



T. & B. 42.

A Few Examples of Registers, Grilles and Screens Selected from Over 400 Special De-igns
Made to order only, with an additional charge over the cost of stock goods.

CONTINUED ON NEXT PAGE

TUTTLE & BAILEY MFG. CO. OF CANADA, LTD.

SPECIAL DESIGNS. We make a specialty of designs suited to all orders of decoration, including Louis XIV., Louis XV., Colonial, Gothic, Moorish, Old English, Elizabethan, etc. A few of these, suitable for registers or grilles, are shown. We have over four hundred designs, covering all styles from the severely simple Plain Lattice to the most ornate Renaissance.

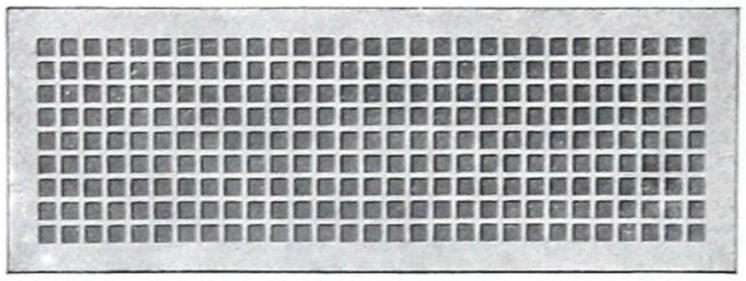
GRILLES AND SCREENS. Grilles and Screens of all sizes, to cover steam coils or for ventilation, are made in any finish, of cast-iron, bronze, or brass metal, stamped steel, stamped brass, or woven wire.

CAST GRILLES. Bronze or Cast-Iron Grilles have rims which vary in width according to size, the thickness of the rim being less than that of the fretwork. In the section shown below, A is the body size or size of opening to be covered; B is the extreme outside measure, and C the daylight opening. Unless otherwise stated, we assume that sizes given on orders are body sizes "A." Plain Lattice cast Grilles are made in almost all sizes (body sizes) of even inches. The mesh is $\frac{7}{8}$ of an inch square and the bars approximately $\frac{1}{4}$ of an inch. Various methods of fastening these Grilles and providing means of access to steam valves or for cleaning purposes are shown. Any of the special design Grilles can be similarly arranged. Estimates for providing hinges and catches or the special frames shown will be sent on application.

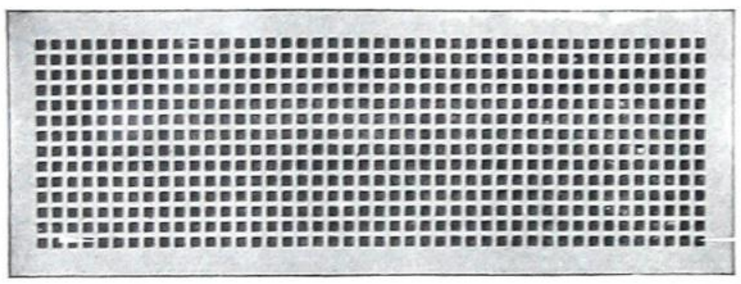
STEEL GRILLES. While not as substantial in appearance or as lasting as cast-iron, Steel Grilles are cheaper and have their uses under certain conditions. They are made of sheet steel perforated in $\frac{7}{8}$" or $\frac{1}{2}$" mesh. The $\frac{7}{8}$" mesh is standard and is always supplied unless otherwise specified, but we also make $\frac{1}{2}$" mesh in both square and diagonal lattice.



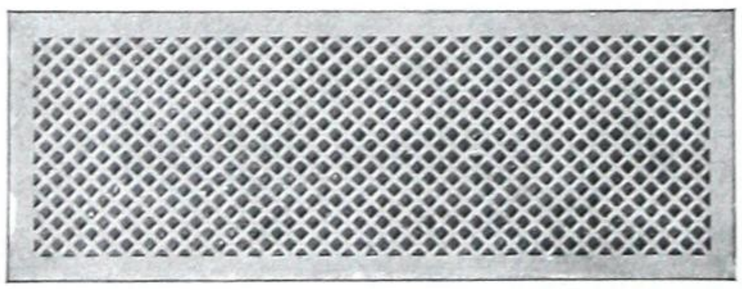
Steel Grilles.



Standard $\frac{7}{8}$-in. Square Mesh.



$\frac{1}{2}$-in. Square Mesh.

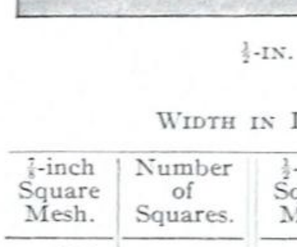


$\frac{1}{2}$-in. Diagonal Mesh.

Width in Daylight Opening "C."

$\frac{7}{8}$-inch Square Mesh.	Number of Squares.	$\frac{1}{2}$-inch Square Mesh.	Number of Squares.	$\frac{1}{2}$-inch Diagonal Mesh.	Number of Squares.
$1\frac{15}{16}$"	2	$1\frac{7}{8}$"	3	2"	2
3"	3	$2\frac{9}{16}$"	4	$2\frac{1}{2}$"	$2\frac{1}{2}$
4"	4	$3\frac{15}{16}$"	6	$3\frac{1}{16}$"	4
$5\frac{1}{8}$"	5	$5\frac{1}{16}$"	8	$5\frac{3}{16}$"	$5\frac{1}{2}$
$6\frac{1}{8}$"	6	6"	9	$5\frac{7}{8}$"	6
$7\frac{1}{16}$"	7	$7\frac{3}{8}$"	11	$7\frac{5}{16}$"	$7\frac{1}{2}$
$8\frac{1}{4}$"	8	8"	12	$8\frac{1}{4}$"	$8\frac{1}{2}$
$9\frac{5}{16}$"	9	$8\frac{3}{4}$"	13	$9\frac{1}{4}$"	$9\frac{1}{2}$
$10\frac{3}{8}$"	10	$10\frac{1}{8}$"	15	$10\frac{3}{16}$"	$10\frac{1}{2}$
$11\frac{3}{8}$"	11	$11\frac{7}{16}$"	17	$11\frac{3}{16}$"	$11\frac{1}{2}$
$12\frac{3}{8}$"	12			$12\frac{1}{8}$"	$12\frac{1}{2}$

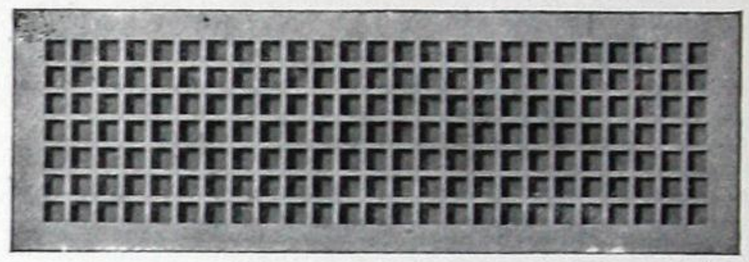
Extreme size "B" as desired. Unless otherwise ordered, rims will vary from $\frac{5}{8}$ inch to 1 inch, all around, according to size of grille. Estimates for heavier gauge or wider sizes furnished on application.



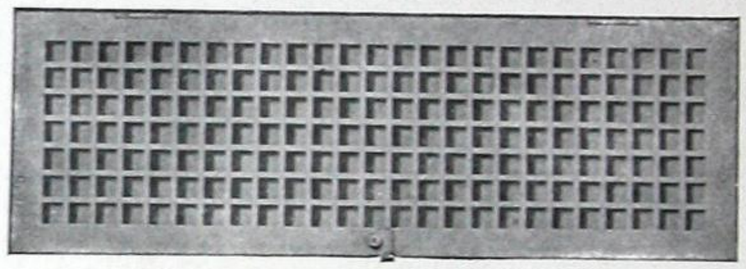
Gauges.

Showing thickness of gauge of sheet steel, U.S. Standard, from which steel grilles are punched.

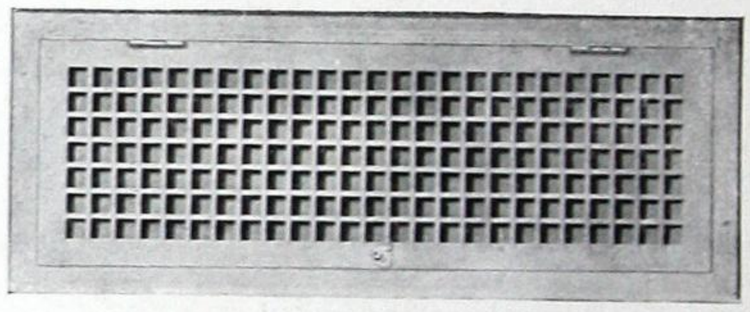
Cast Grilles.



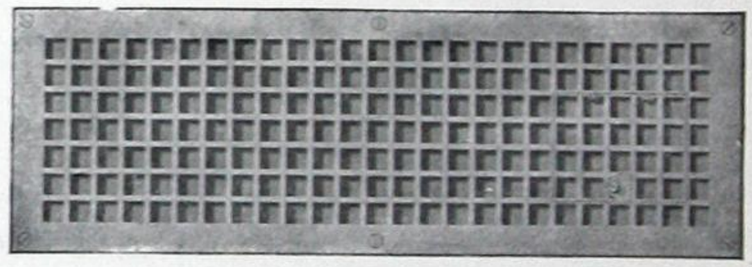
Standard $\frac{7}{8}$-in. Mesh Grille.



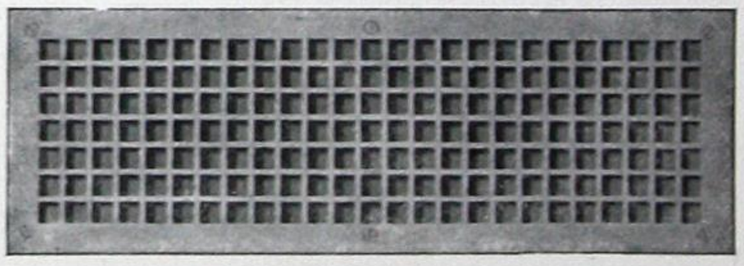
Grille Hinged to Woodwork.



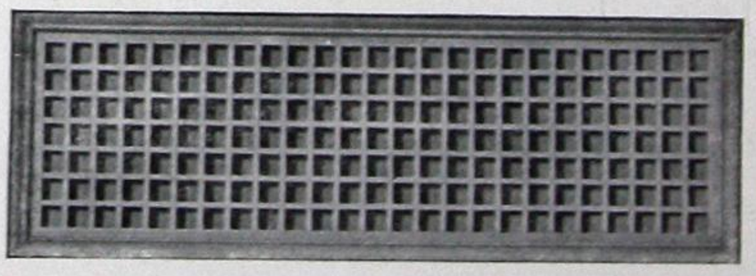
Grille Hinged to Angle Frame.



Grille with Door in Fretwork.



Grille Attached to Iron Wall Frame.



Grille Held in Place by Wood Moulding.

WARDEN KING, LIMITED

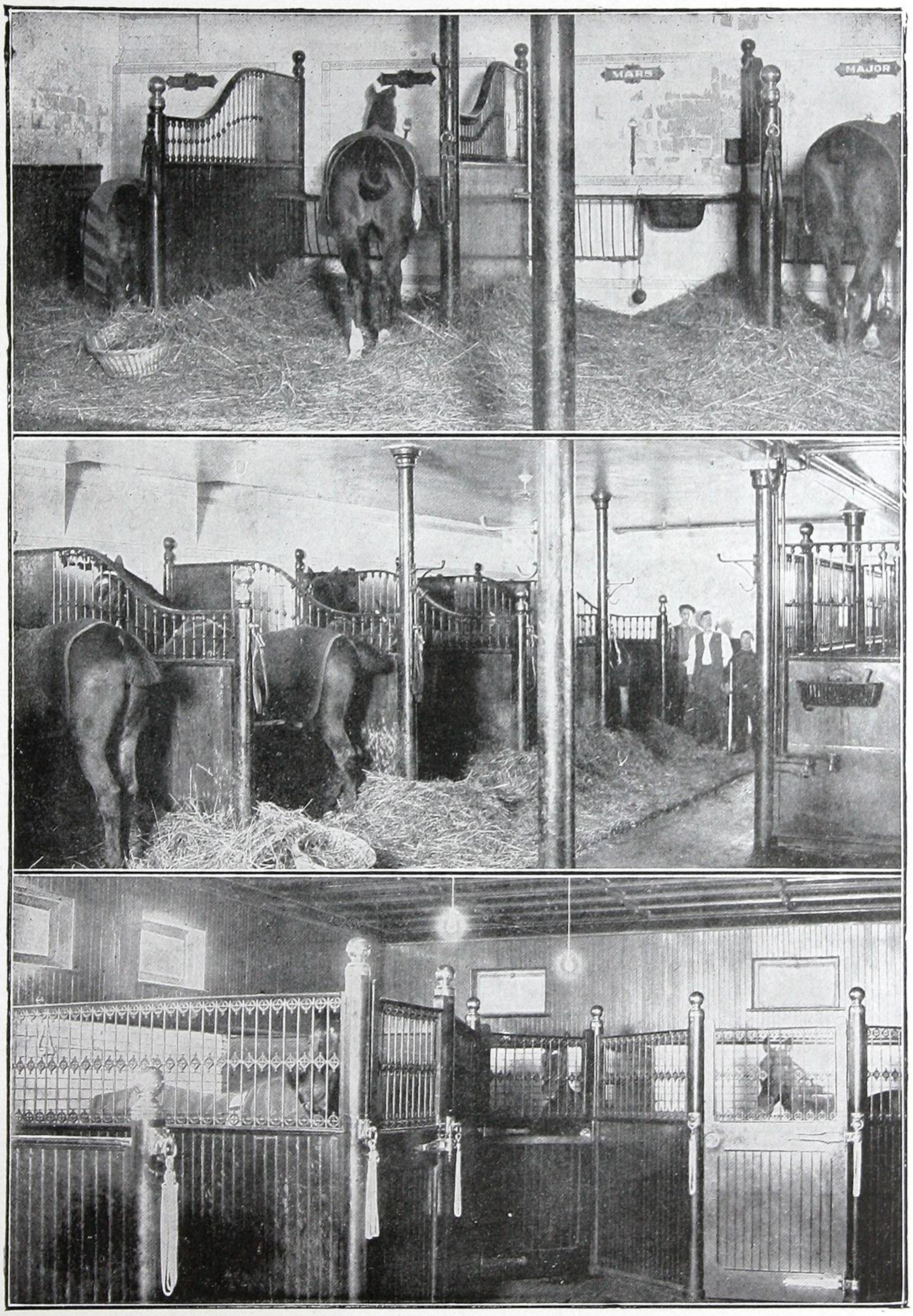
EXECUTIVE OFFICE AND WORKS:
BENNETT AVE., MAISONNEUVE,
MONTREAL, QUE.

TORONTO BRANCH:
200 ADELAIDE STREET WEST.

SALES OFFICE AND CITY WAREHOUSE:
151 CRAIG STREET WEST,
MONTREAL, QUE.

PRODUCTS. We manufacture and carry in stock a complete line of STABLE FITTINGS in Cast or Wrought Iron and Brass, OPEN STALLS, BOX STALLS, HAY RACKS, MANGERS, TROUGHS, STALL GUARDS, WHEEL GUARDS, STALL POSTS, NAME PLATES, CESSPOOLS, GUTTERS, YARD GRATES, BRACKETS, OAT CLEANERS, etc.

ESTIMATES. We will be pleased to submit estimates from drawings and specifications.



CATALOGUE. Our 70-page Stable Fittings Catalogue for 1913, fully illustrated, and bound in blue and gold, has been sent to all architects throughout the Dominion. If it has not reached the office of any architect, we shall be pleased to mail a copy upon request.

See also our advertisement on pages 258 to 262.

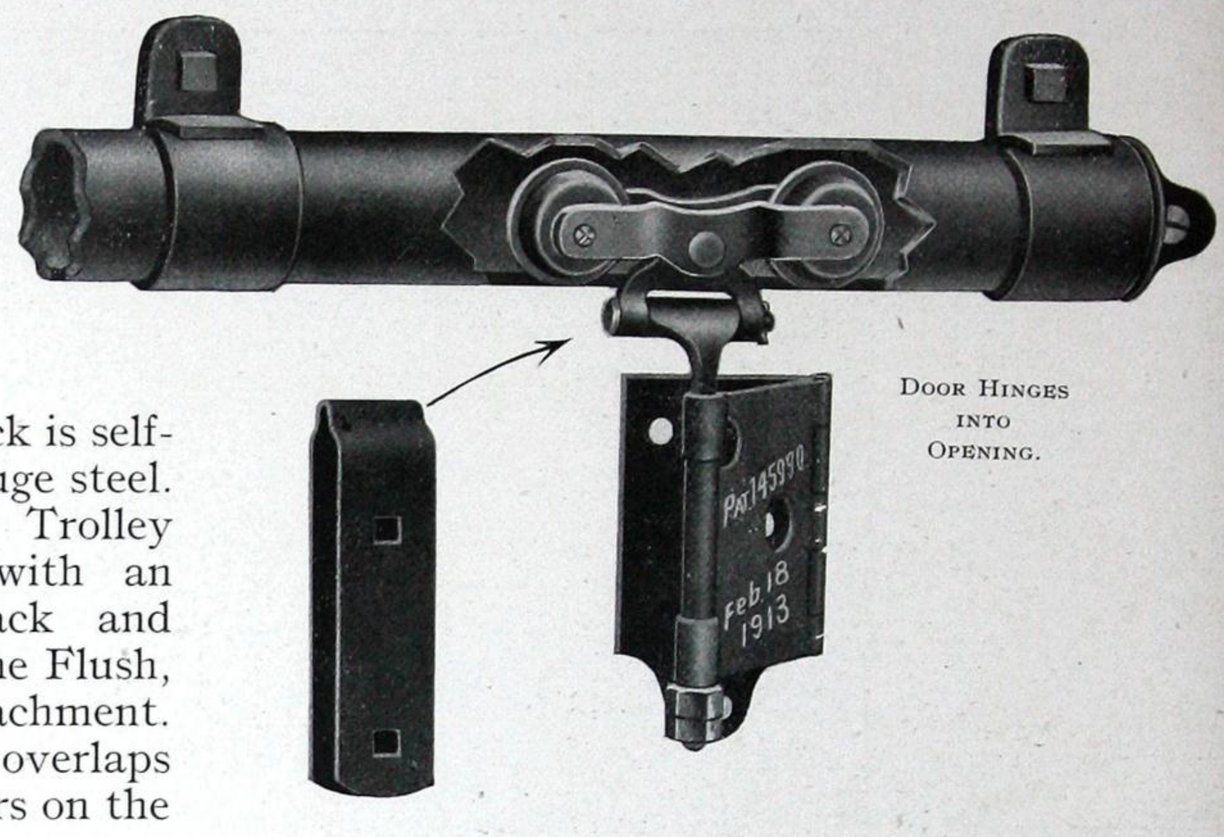
THE ALLITH MANUFACTURING CO., LIMITED

HAMILTON, ONT.

PRODUCTS. We are manufacturers of "RELIABLE" SLIDING DOOR FIXTURES for Fire, Parlour, Garage and Warehouse Doors, SLIDING STORE LADDERS, MERCHANDISE CARRIERS, etc.

ALLITH FLUSH ADJUSTABLE HANGER.

The Allith Flush Adjustable Hanger is the only Hanger on the market which ensures a wind-tight, storm-proof, rain-tight, and absolutely weatherproof Door.



DOOR HINGES INTO OPENING.

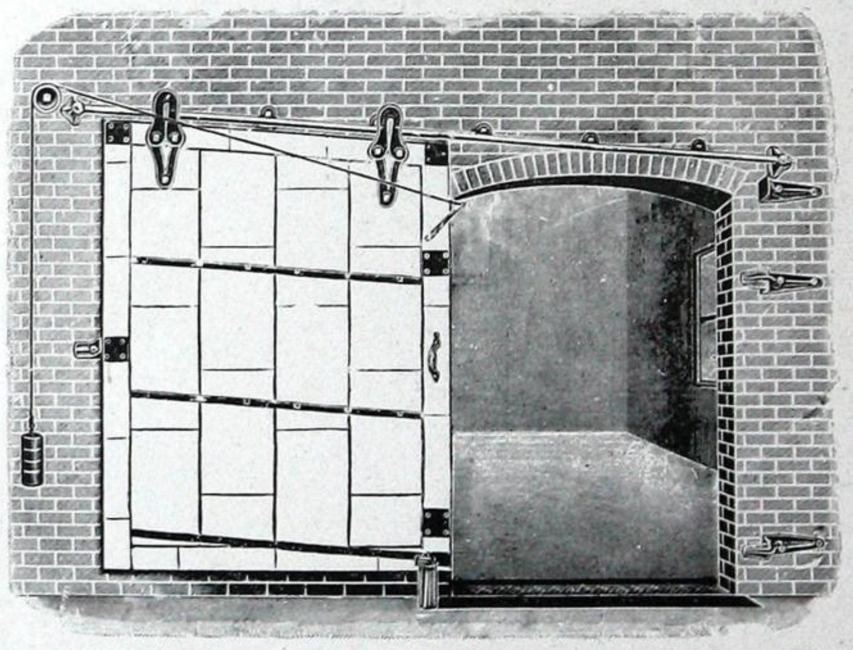
The Allith Trolley Track is self-cleaning—made from 13 gauge steel. We also make the Allith Trolley Hanger (as illustrated), with an apron or pendant. Track and wheels are the same as in the Flush, but differ on the door attachment. In the Trolley Hanger, door overlaps the same as all other Hangers on the market.

FIRE-DOOR FIXTURES.

Our Fire-Door Fixtures are regularly inspected and labelled under the direction of the Underwriters' Laboratories (Inc.).

All styles made—Sliding, Swing, Vertical.

Write for drawing illustrating latest device for Swing Fixtures, Malleable Fixtures, Round Steel Track with Adjustable Supports.

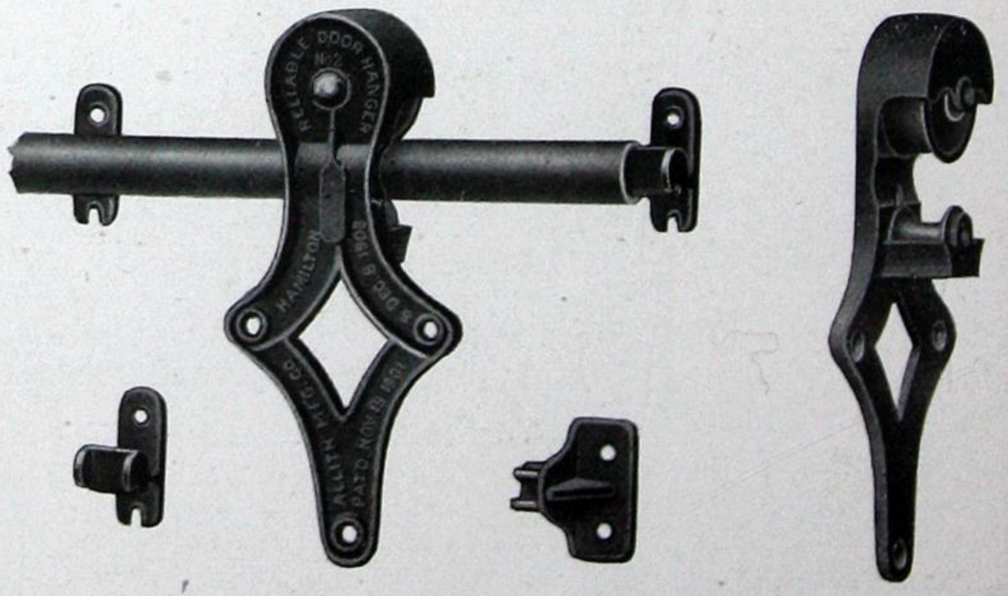


IMPORTANT.

In ordering Fire-Door Fixtures, give width of opening (not width of door) and thickness of door.

"RELIABLE" DOOR HANGER AND TRACK.

The "Reliable" Door Hanger and Track has stood the test for years, and is, to-day, acknowledged the easiest running combination on the market.



PARLOUR DOOR HANGERS.

Supports are adjustable, can be slid along track to a place where grip is strongest. The "Reliable" Track is different from the old style track with the rivetted supports.

THE GALT STOVE & FURNACE CO., LIMITED

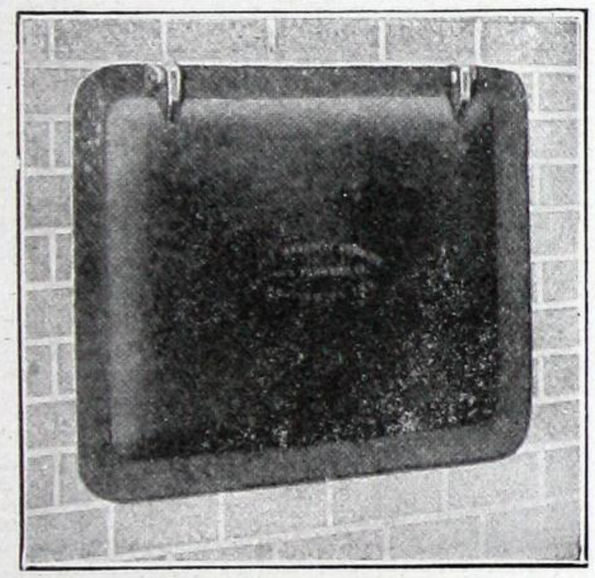
GALT, ONTARIO, CANADA.

AGENCIES:
THE VOKES HARDWARE CO.,
TORONTO, ONT.
W. A. RANKIN,
OTTAWA, ONT.
BOSSE & BANKS,
QUEBEC, QUE.
E. F. DARTNELL,
No. 8 BEAVER HALL SQUARE,
MONTREAL, QUE.

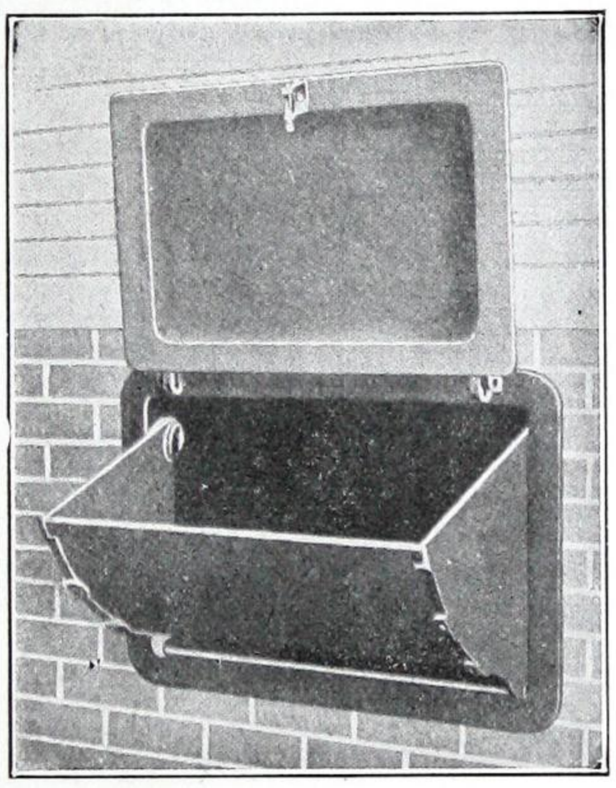
AGENCIES:
GORMAN, CLANCY & GRINDLEY, LTD.,
EDMONTON, ALTA.
GORMAN, CLANCY & GRINDLEY, LTD.,
CALGARY, ALTA.
WILLIAM N. O'NEIL CO., LTD.,
VANCOUVER, B.C.
DENNIS WIRE AND IRON WORKS CO., LTD.,
LONDON, ONT.
THE WINNIPEG PAINT & GLASS CO.,
WINNIPEG, MAN.

EVERY MODERN BUILDING SHOULD BE EQUIPPED WITH A "MAJESTIC" COAL CHUTE.

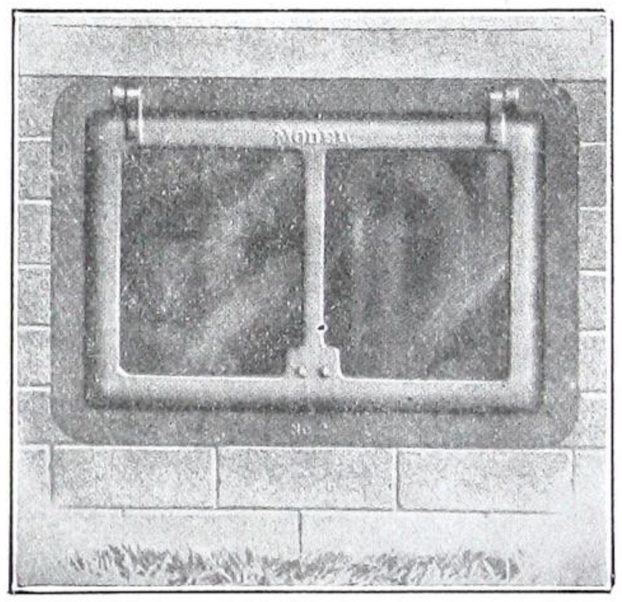
"MAJESTIC" COAL CHUTE. The "Majestic" Coal and Wood Chute is designed to be placed in the basement wall, the same as a window, for depositing coal, wood or other fuel into the basement, which is the storehouse for fuel in modern houses. It furnishes a protection to the building when the door is opened, and locks automatically when closed, rendering it positively burglar proof. The use of this chute avoids the nuisance of broken windows, badly disfigured or probably totally demolished window frames each time coal is put into the basement.



"MAJESTIC" CHUTE, CLOSED.



"MAJESTIC" CHUTE, OPEN.



"MODEL" CHUTE, CLOSED.

"MODEL" COAL CHUTE. The "Model" Coal Chute is provided with two sheets of "Rubber Glass," which is transparent and serves as a window. A sheet of steel drops down over the glass, when the door is opened, protecting it from breakages. This steel sheet lies at the bottom of the hopper when the door is closed, allowing light to shine through the glass unobstructed. In the summer months the glass can be removed and a screen inserted, allowing pure ventilation.

CONSTRUCTION. These chutes are constructed with a cast-iron frame and a heavy steel body. They are strong and durable, so as to stand rough usage.

		NO.	SIZE OF OPENING IN WALL.
"MAJESTIC."	Made in three sizes:	1.	16 in. high, 22 in. wide, 13 in. deep.
		2.	16 in. high, 27 in. wide, 13 in. deep.
		3.	22 in. high, 33 in. wide, 18 in. deep.
"MODEL."	Made one size only:	10.	16 in. high, 27 in. wide, 13 in. deep.

Our booklet describes it more minutely. Send for a copy.

OTHER PRODUCTS. We are also manufacturers of Furnaces, Stoves and Ranges.

THE WHITTAKER STOVE WORKS

WINDSOR, ONT.

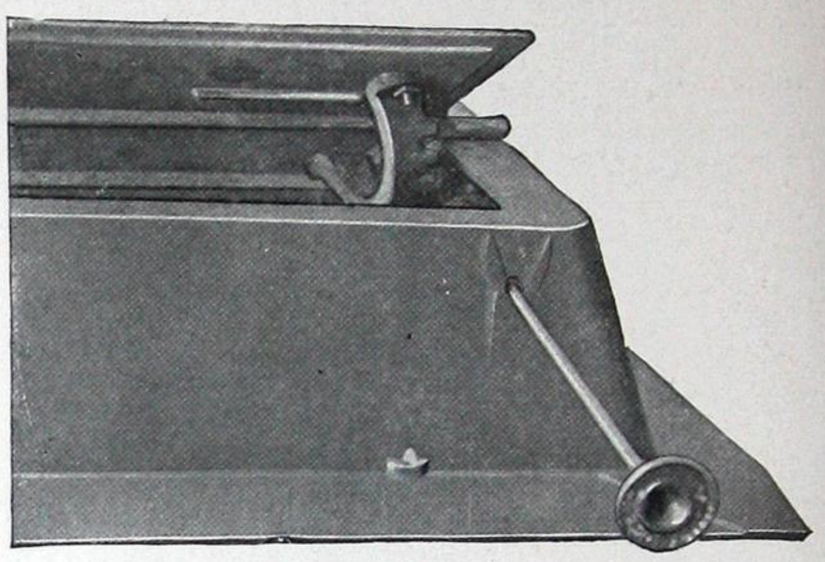
PRODUCTS. We are manufacturers of FIREPLACE FURNISHINGS "only"; ELECTRIC MANTEL GRATES, COAL GRATES, PORTABLE BASKETS, ANDIRONS, ASH DUMPS, IRON LININGS, etc.

DOME DAMPERS. A new damper, the mechanism of which is simplicity itself, and cannot get out of order. Has sloping top and ends, with a solid door. The door is operated from outside by a rod through the setting, and the pinion wheel and jaw is fully exposed from the inside, so that it is very easily put in position.

There can be no rattle in this damper caused by the wind blowing down the chimney, as the spring from the pinion wheel to side of damper eliminates all this trouble; this feature alone recommends the damper.

The door can be placed at any angle, and will remain at this point, thus giving a quick or slow combustion, as desired.

This damper is of heavy construction, and, having a 2½-in. flange in front, acts as an arch bar or lintel.



The door can be removed at any time by lifting it away from left end and drawing it away from opposite side.

No.	Front.	Back.	Depth.	Base of Dome.			Height of Dome.
				Front.	Back.	Depth.	
10	28	22½	16	24	18½	12½	5
	34	28½	16	30	24½	12½	5
	40	34½	16	36	30½	12½	5
	46	40½	16	42	36½	12½	5
	52	46½	16	48	42½	12½	5

ELECTRIC GRATES. We make a large variety of designs in Electric Grates. The No. 15 Grate shown here is made only with 3 Radiator globes, size 24½ x 30½.

Specify Electric Mantel Grates—no odour—no ashes—no dust.

SIZES. 24½ x 30¼ fitted with three 250-Watt heating globes; 30½ x 30¼ fitted with four 250-Watt heating globes. Wired with switch attached to grate ready to install.

CATALOGUE. All Mantel and Tile Dealers carry a line of our goods, or apply direct to us. Send for catalogue.



DEARBORN HARDWARE MANUFACTURING CO.

2911-2919 CARROLL AVENUE,

CHICAGO, ILL.

REPRESENTED BY THE LEADING HARDWARE DEALERS.

PRODUCTS.

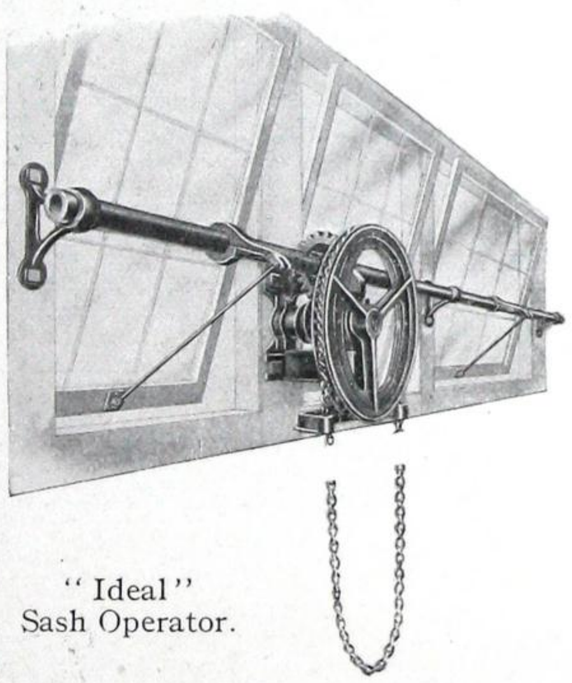
We are Manufacturers of all kinds of Sash Operating Devices for all kinds of Sash, including our "TRIUMPH," "RELIANCE," "IDEAL," "VICTOR," "PILOT," "PEERLESS," "PNEUMATIC," "TWIN," "DUPLEX," "MONARCH" and "STANDARD" OPERATORS, suitable for Factory Buildings, Railroad Shops, Power Houses, Government Buildings, Conservatories, etc.

"TRIUMPH" ROLLER-BEARING SASH OPERATOR.

The "TRIUMPH" Operator is provided with a worm and gear, and is a very powerful device of easy operation. It is especially designed for controlling Monitor and other skylight sash, as by means of idler sprockets the straps and chain connecting the Operator with the main shaft above, can be carried around corners and angles with the least possible friction, avoiding travelling cranes and other machinery.

A heavy roller-bearing support, with brace, is placed on the main shaft near the sprocket wheel, giving the shaft extra support at that point.

This Operator will control a run of 125 feet in length of side pivoted sash and top or bottom hinged sash in proportion. It holds and locks the sash in any position and is made in two sizes.

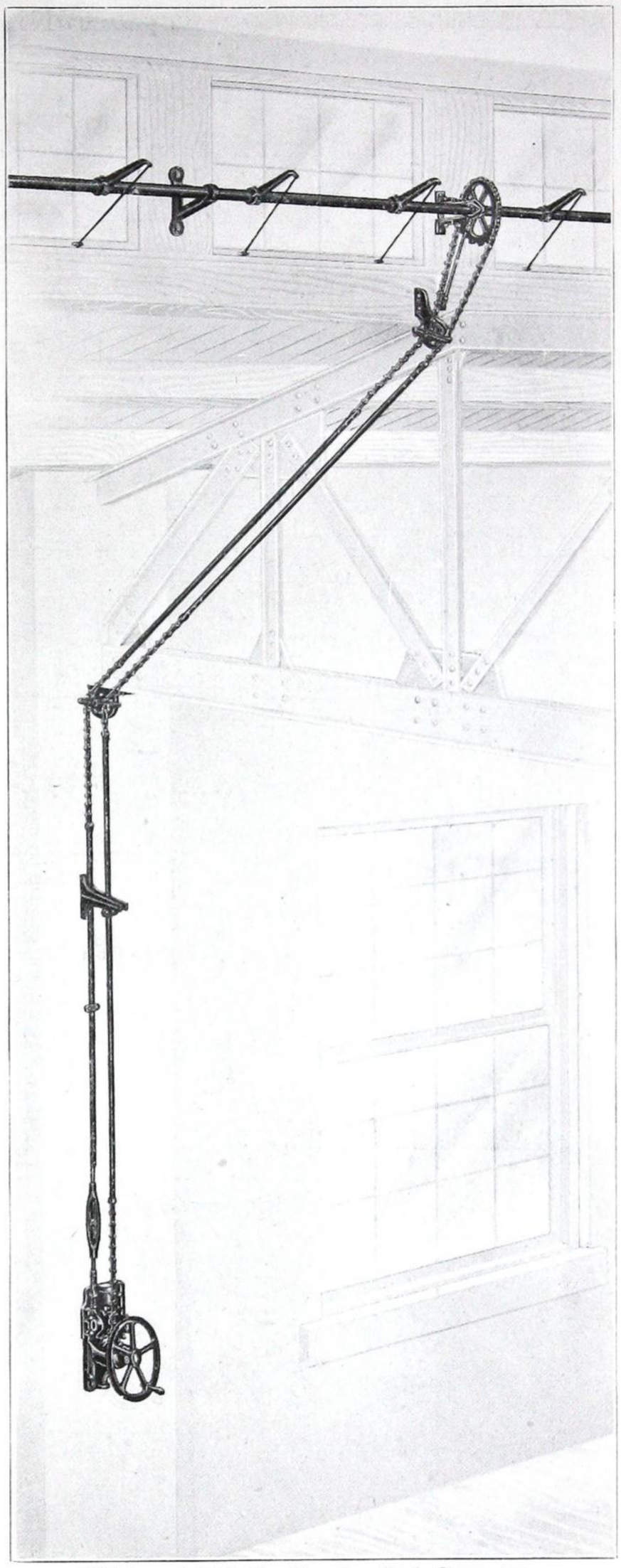


"Ideal" Sash Operator.

"IDEAL" SASH OPERATOR.

The "IDEAL" Operator is especially adapted to Monitor and Skylight Sash, where a vertical operating rod with hand wheel cannot be applied. The chain is brought down within easy reach from floor.

This Operator will control a run of 100 feet in length of side pivoted sash and top or bottom hinged sash in proportion. Holds and locks the sash in any position and is made in several sizes.



"Triumph" Roller-Bearing Sash Operator.

SPECIFICATION.

The main or horizontal shaft to be not less than 1 5-16 inch O.D. Standard Pipe.

Shaft couplings for the main shaft made to properly clamp to the shaft by means of four strong bolts and properly set-screwed.

Shaft brackets to support the main shaft shall be placed on each mullion, except where sash are less than 3 feet wide.

Each Operator must be made to fit the trim, and so constructed that same can be properly bolted to mullions or wall, as the case may be, and held rigid at all times.

The levers or arms shall be made to clamp to the main shaft with two strong bolts, and provided with set screws.

The vertical or operating rod used on the Standard and Reliance Operators is to be not less than ¾ inch C.R. Steel, and must be provided with proper couplings and steady brackets.

All side pivoted sash, forty inches or more wide, and all top or bottom hinged sash thirty inches or more wide, shall have two lever connections each.

RELIANCE BALL BEARING DOOR HANGER COMPANY

NEW YORK CITY, N.Y.

AGENTS:

WM. N. O'NEIL CO., VANCOUVER AND VICTORIA.
DOUGLAS-MILLIGAN, LIMITED, MONTREAL, TORONTO AND OTTAWA.
WAITE-FULLERTON CO., LTD., WINNIPEG AND CALGARY.

PRODUCTS. Manufacturers of Sliding Door Hangers and Elevator Door Locks and Drawer Slides.

FACILITIES. All goods are made to order at our own Plant. Any ordinary order can be shipped within a week.

CONSTRUCTION. All hangers are made with grooved tracks, with solid steel balls running in the grooves. No Wheels.

ILLUSTRATIONS. Fig. 1. Made with drawn metal tracks, designed especially for light grille doors, bank work, etc., weighing up to 75 lbs. Known as Style "G."

Fig. 2. Style "C" for Single Door. From back of back plate to centre of bolt connecting to top of door ¾" to 1⅛". Good hanger for thin door.

Fig. 3. Style "E" for Single Door. From back of back plate to centre of bolt for connecting to top of door 1½" to 2". Adapted to wider and heavier doors.

Fig. 4. Style "H." Double gear device for moving two doors in opposite directions at the same time. Allow 1" above back plate for opening device. Width of back plate 4" to 5".

Fig. 5. Style "K." Two-Speed Hanger for moving two doors in same direction, one at double the speed of the other. Allow 1" above back plate for opening device. Width of back plate 4" to 5".

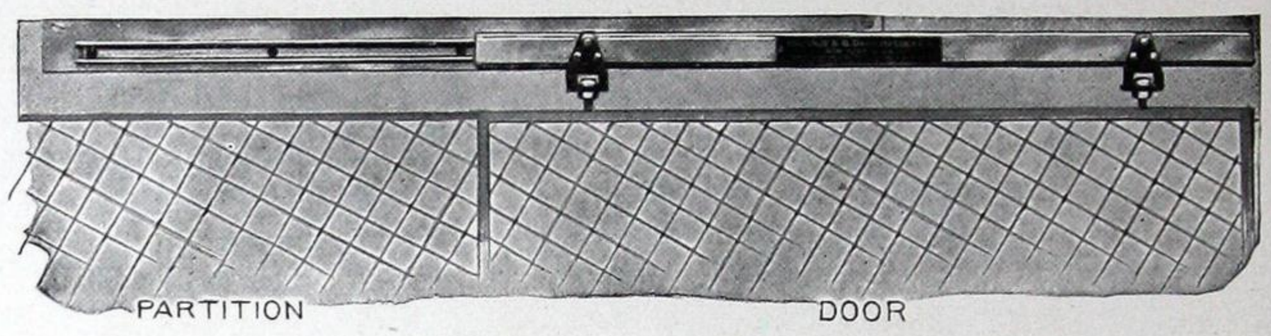


FIG. 1.—SHOWING SINGLE DOOR—CLOSED.

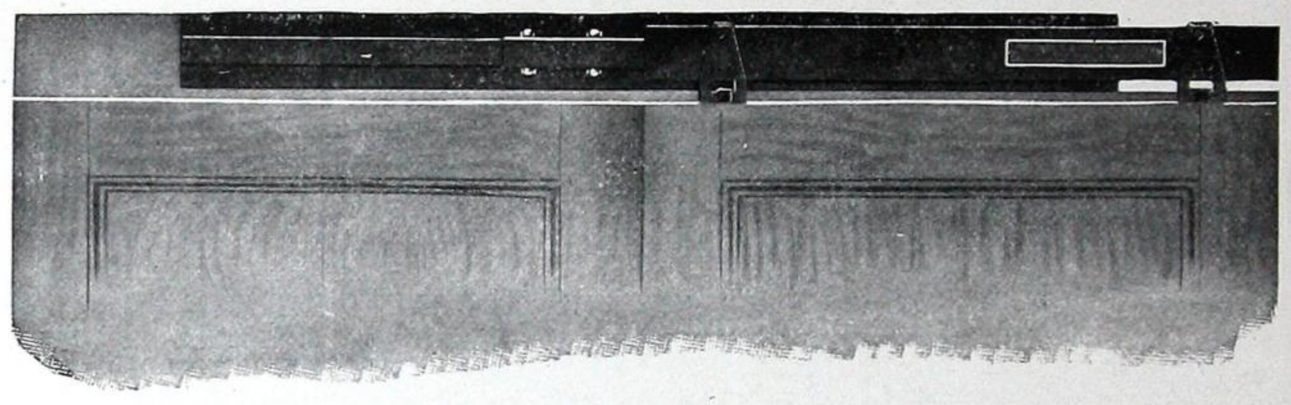


FIG. 2.—SHOWING SINGLE DOOR—CLOSED.

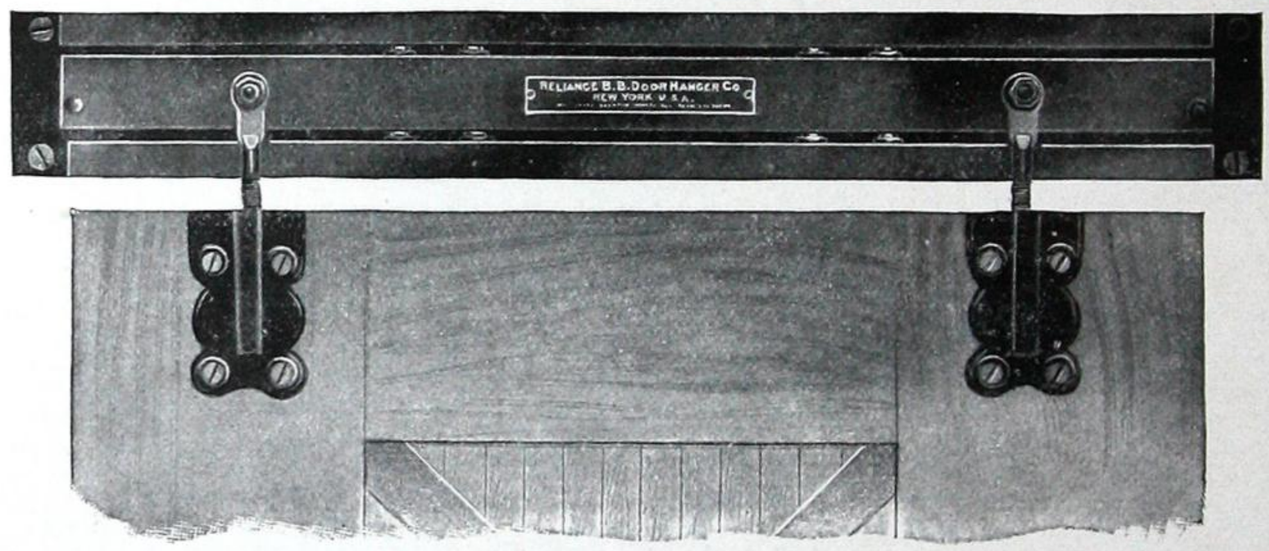


FIG. 3.

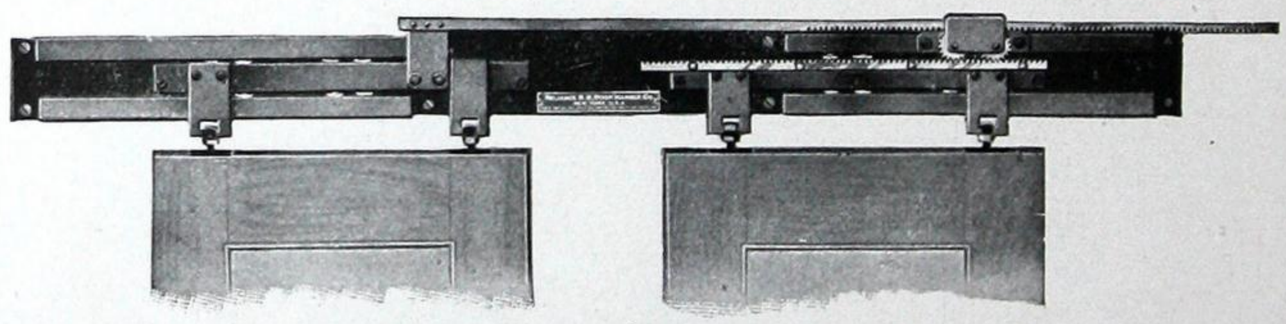


FIG. 4.—SHOWS DOORS PARTLY CLOSED.

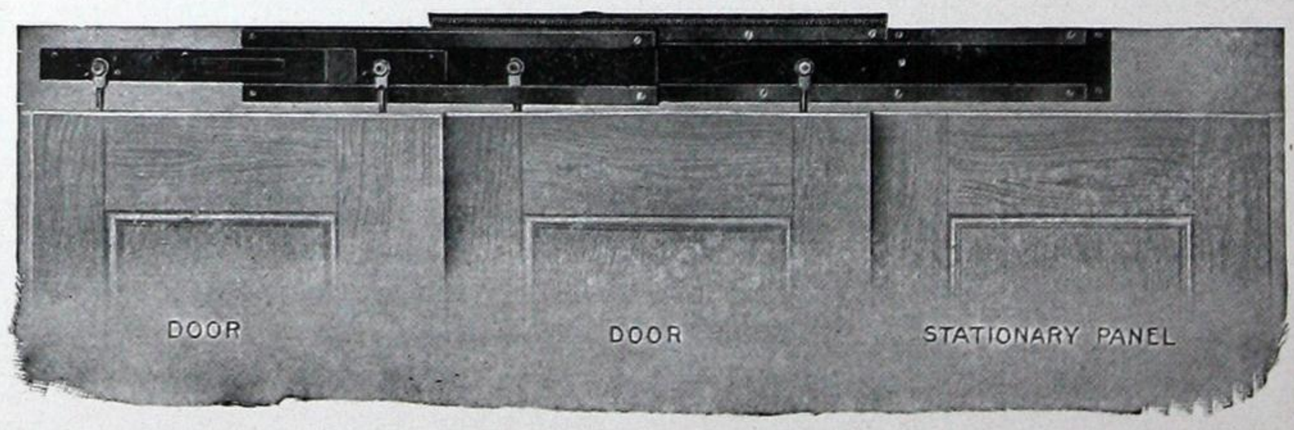


FIG. 5.—SHOWS DOORS CLOSING TO THE LEFT.

CONTINUED ON NEXT PAG

ILLUSTRATIONS.

FIG. 6.—Style "B," with device to swing both door and panel into hall in order to get full width of opening. (This device can be used with any of our various makes of hangers.) It is used where it is impracticable to swing the transom bar overhead. We advise swinging the transom bar in all cases where possible. Width of back plate 3″ to 3¾″. From back of back plate to centre of bolt for top of door ¾″.

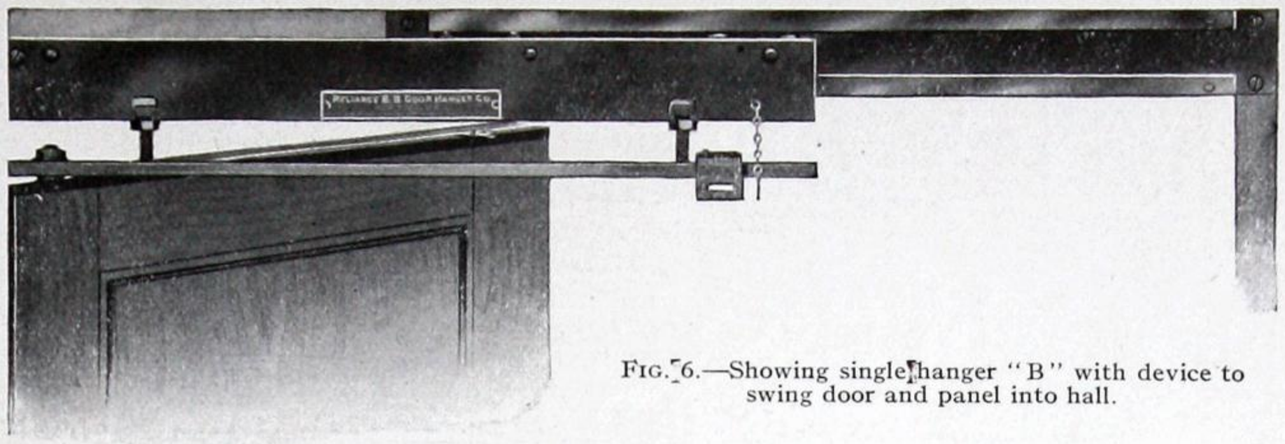


FIG. 6.—Showing single hanger "B" with device to swing door and panel into hall.

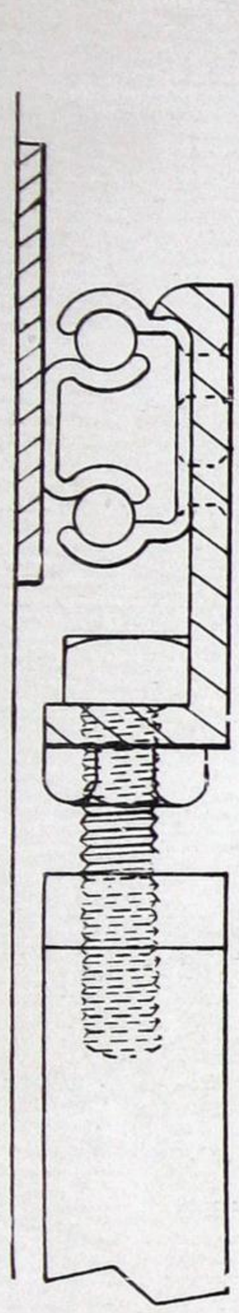


FIG. 1.

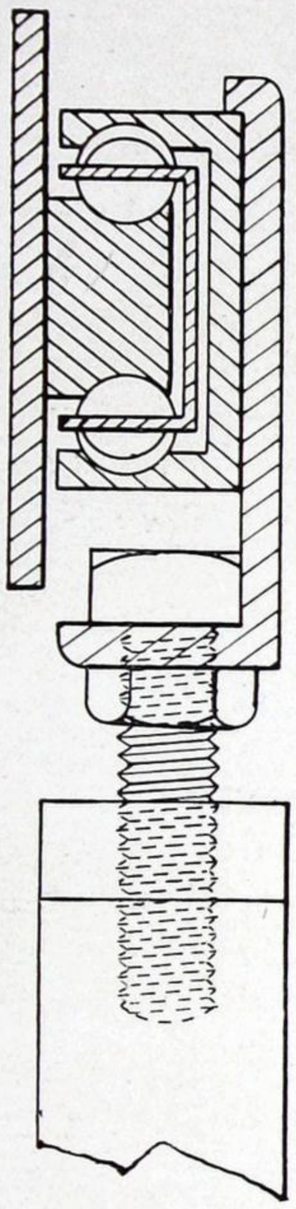


FIG. 2.

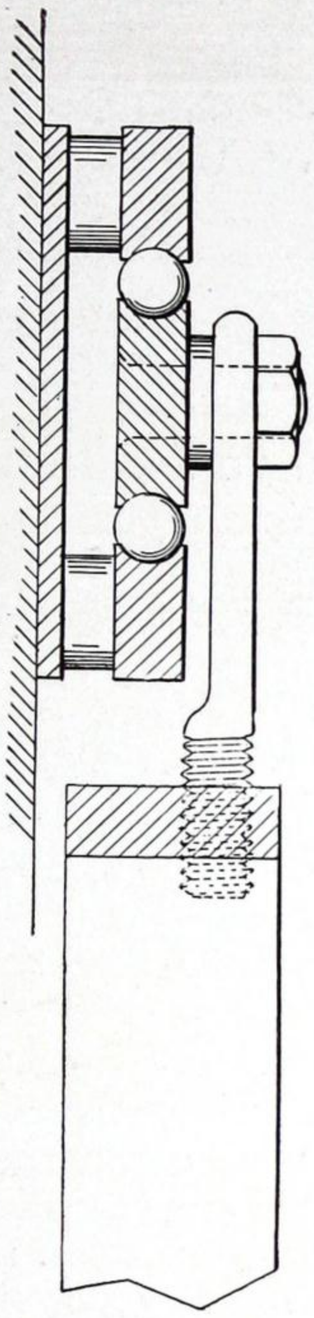


FIG. 3.

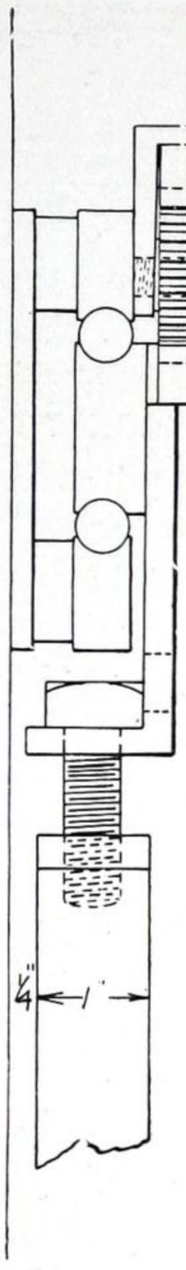


FIG. 4.

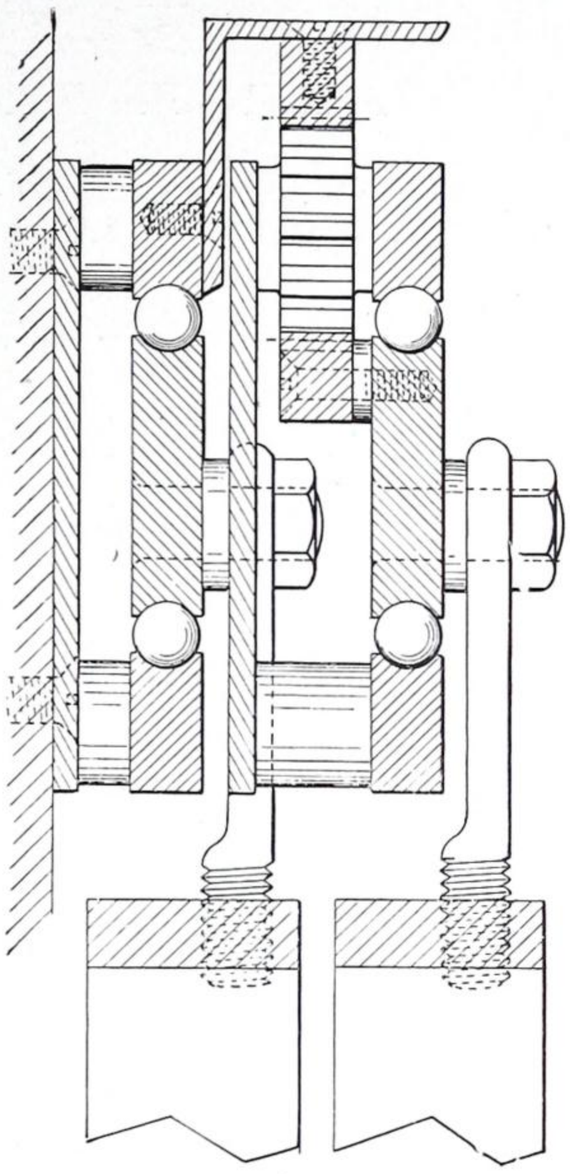


FIG. 5.

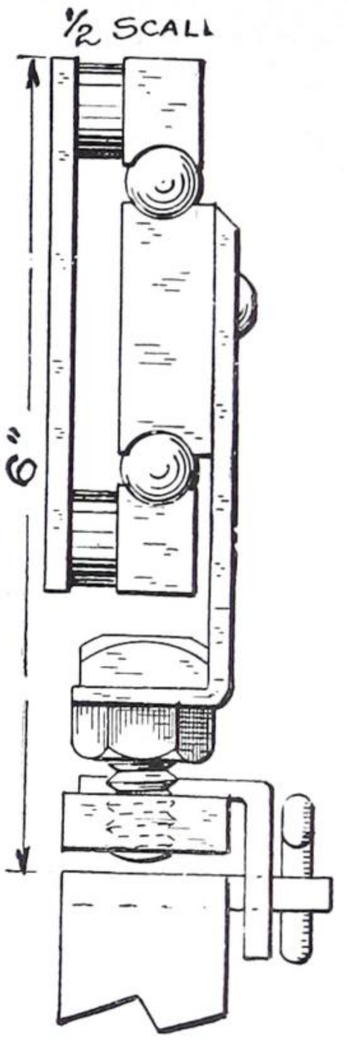


FIG. 6.

Corresponding to face views same numbers. These end sections are about half size.

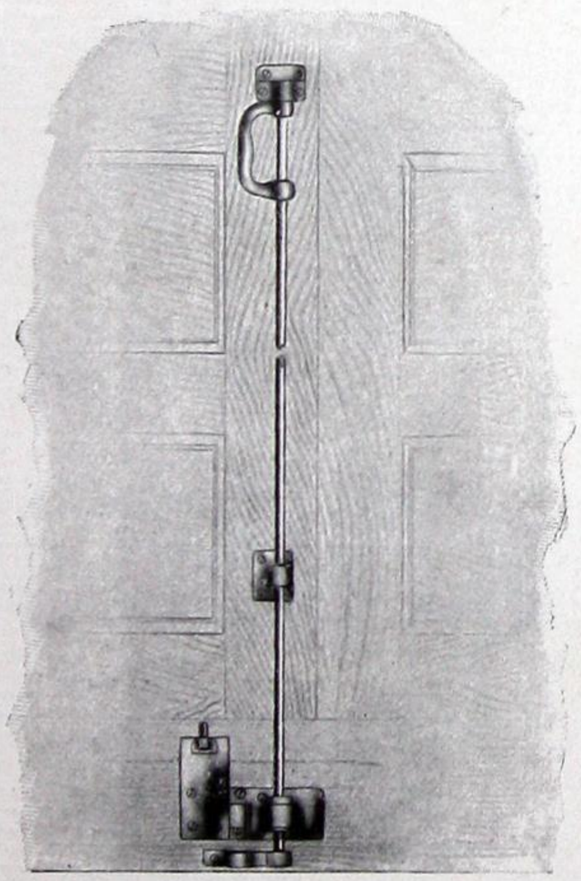


FIG. 10.—BAR LOCK. No. 99.

With this lock the door can be opened with one straight pull on the handle, the catch and handle rotating enough so that the lock is disengaged. Can be either bronze or oxidized finish. Requires 1⅜″ from face of door.

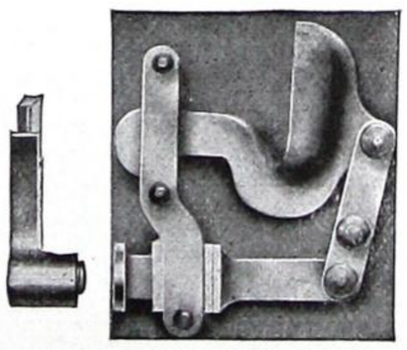


FIG. 8.—GRAVITY LATCH. No. 2.

Can be arranged to unlock from hall. Has no projections beyond edge of door to catch clothing.

Back plate, 4½″ x 5½″; thickness, ⅞″.

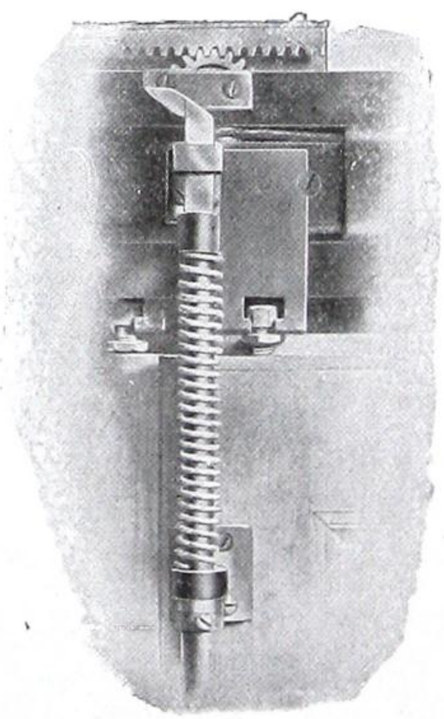


FIG. 9.—BAR LOCK.

Suitable for single or double doors. Dull finish brass tubing. Total length, 5′ 8″. Requires 1⅜″ from face of door. Locks tracks of hanger.

SPECIFICATIONS. Specify "Reliance" Hangers, with name of opening device if double doors.

ORDERING. In ordering, please state actual width of sliding door (not the opening), thickness of same, approximate weight, whether of wood or iron; and if two or three doors travelling in same direction, state which way doors *close* looking from inside elevator car.

REFERENCES. We will furnish list of installations and any special information on request.

RICHARDS-WILCOX CANADIAN COMPANY, LIMITED

LONDON, ONTARIO.

RICHARDS-WILCOX MF'G COMPANY

AURORA, ILL., U.S.A.

MANUFACTURERS OF

DOOR HANGERS, FIRE DOOR HARDWARE, AND HARDWARE SPECIALTIES.

BRANCH OFFICES:

MONTREAL, QUE.,	448 ST. PAUL STREET.	CHICAGO, ILL.,	15 EAST LAKE STREET.
NEW YORK, N.Y.,	85 WALKER STREET.	PHILADELPHIA, PA.,	50 N. 6TH STREET.
BOSTON, MASS.,	132 PEARL STREET.	ST. LOUIS, MO.,	1609 CHEMICAL BLDG.

"A HANGER FOR ANY DOOR THAT SLIDES."

PRODUCTS. DOOR HANGERS for SLIDING DOORS of all kinds, sizes and weights; FIRE DOOR FIXTURES; OVERHEAD CARRYING SYSTEMS and HARDWARE SPECIALTIES.

SUGGESTION TO ARCHITECTS.

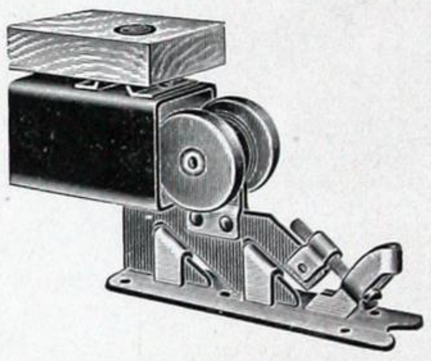
The reason there are so many unsatisfactory sliding doors in Canada is that sliding door hangers have been listed in the ordinary specification with nails and sash weights as "Rough Hardware." The only way to get good sliding doors is to specify good hangers—the difference in cost is a trifle.

HOUSE DOOR HANGERS AND TRACK.

R-W Trolley Door Hangers and Track are furnished with a wood header, which is easily installed. Adjustment in both hanger and track. If necessary, track can be easily taken down after walls are plastered. Weight is centre-hung, which does away with the binding and chafing commonly experienced with side-hung hangers.

R-W 19 HERO BALL-BEARING TROLLEY DOOR HANGER.

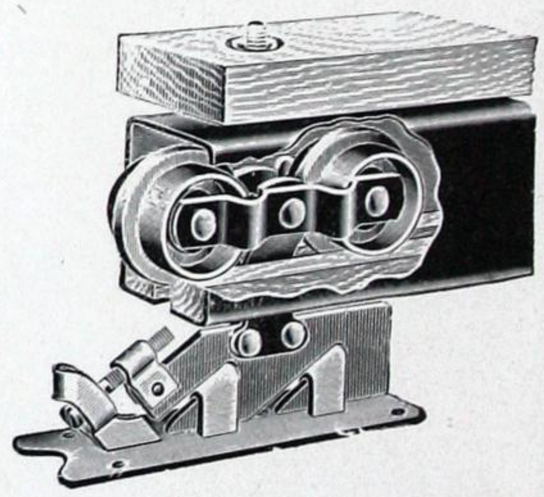
Has noiseless, fibre, ball-bearing wheels. Largely used because it is simple in form, inexpensive, strong and durable; meets all ordinary constructive requirements for sliding doors, and costs but a trifle more than the ordinary flat track hanger. (Actual vertical adjustment in side-hung hangers is from 3-8 in. to ¾ in. exclusively in hanger. R-W Trolley Hangers have 1½-in. adjustment in track in addition.)



R-W No. 19.

R-W 122 "ROYAL" BALL-BEARING TROLLEY HOUSE DOOR HANGER.

Designed for the best class of residences and apartment buildings. Has wide tread on wheels, which run on hard maple track. Two-wheel truck. Pendant hung from exact centre, distributing weight of door evenly, insuring true and noiseless operation. Easy and quick adjustment in both hanger and track.

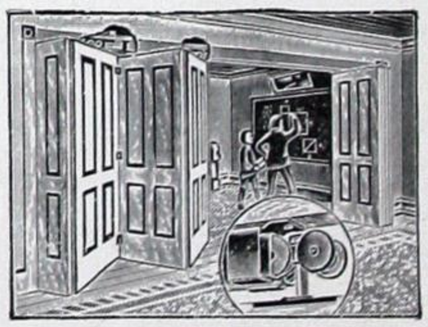


R-W No. 122 "Royal."

R-W 135 SWIVEL AUDITORIUM DOOR HANGER.

Made in four sizes; for folding and sliding partition doors. Vertical screw adjustment; ball-bearing swivel pendant. One No. 135 Hanger used on every other door, beginning with door farthest from half-door. Nos. 1 and 2 size furnished with metal wheels if desired.

Hanger No.	For Track No.	Wheels Regular	Thickness of Doors	Distance from Top of Door to Heading Timber
135-0	30½	Steel ball-bearing	1⅜-inch	4 inches
135-01	31	Steel ball-bearing	1¾-inch	5 inches
135-1	31	Fibre roller-bearing	2 and 2¼ inch	5 inches
135-2	33	Fibre roller-bearing	2½-inch	7¾ inches



R-W No. 135.

CATALOGUE No. 10.

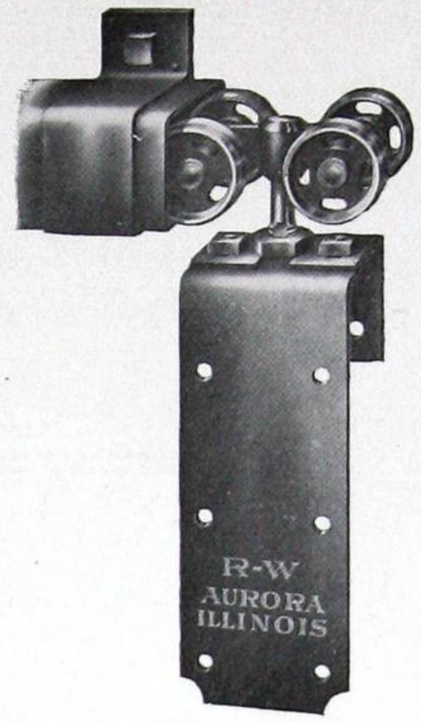
Have you our Catalogue on file? If not, kindly advise.

CONTINUED ON NEXT P

R-W TROLLEY GARAGE BALL-BEARING DOOR HANGERS.

Represent the highest type of Hanger construction. Yokes made of one-piece steel drop forging. Adjustable vertically and laterally, compensating for settling and preventing chafing of doors. High duty steel balls, perfectly true, insuring easy and smooth operation.

Hanger No.	Track No.	Weight Doors Not Over
20½B	31	300 pounds
27½B	31	400 to 500 pounds
28½B	32	500 to 600 pounds
29½B	232	600 to 700 pounds



No. 29½B Hanger.

Special Catalogue of "Garage Door Equipment" on request.

No. 235 Hangers for Angle Doors, as per Fig. 1 below.

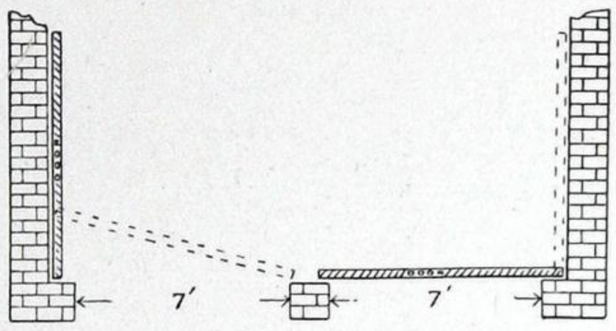


Fig. 1—Right angle sliding doors.

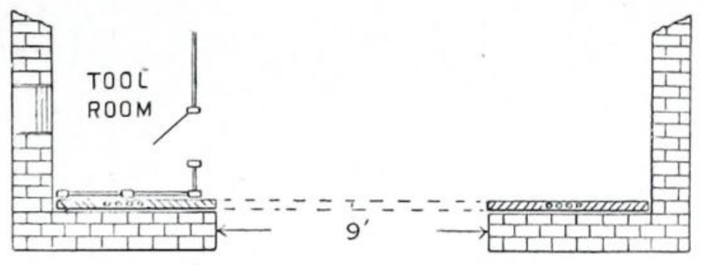


Fig. 2—Double sliding doors.

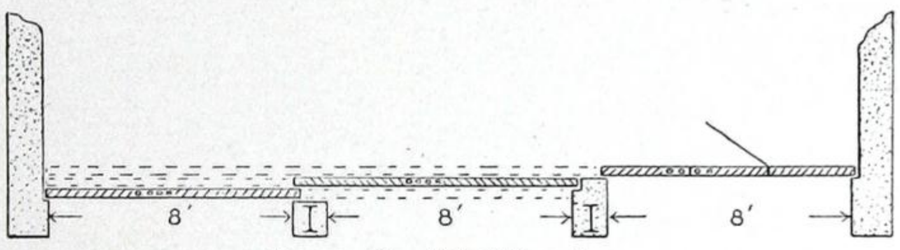


Fig. 4—Parallel sliding doors.
Note—Wicket doors shown on right end door.



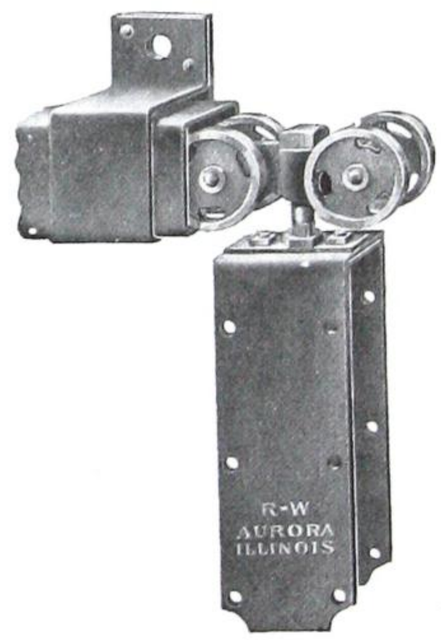
Fig. 3—Parallel sliding doors.

R-W TROLLEY DOOR HANGERS FOR BARNS, WAREHOUSES, FACTORIES, FREIGHT-HOUSES.

Strong, well-finished and run smoothly. Lateral adjustment to suit thickness of doors. Vertical adjustment to provide for settling of timbers. Track can be attached to side or ceiling supports. We make four sizes of track to accommodate various weights of doors.

No.	Thickness Doors	Weighing Not Over	Track	Adjustment
321	1¾ in. to 2½ in.	300 lbs.	No. 31	Lateral
27-1	2¼ in. to 2¾ in.	400 lbs.	No. 31	Lateral
27-2	2¼ in. to 2¾ in.	400 lbs.	No. 31	Lateral and Vertical
28-2	2¼ in. to 3 in.	500 lbs.	No. 32	
29-2	2¼ in. to 3 in.	600 lbs.	No. 232	
150	2¼ in. to 3½ in.	750 lbs.	No. 33	
150½B	2¼ in. to 3½ in.	1000 lbs.	No. 33	

All above roller-bearing, except 150½B, ball-bearing.

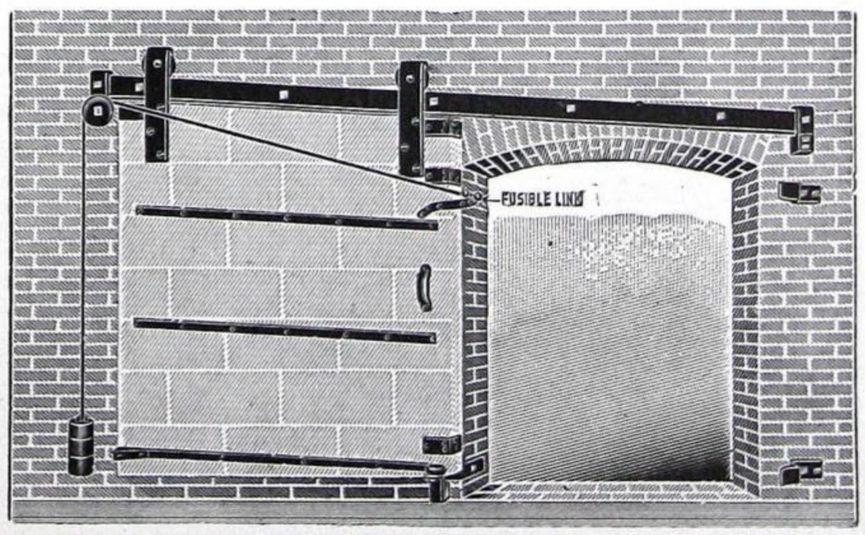


No. 150½B Hanger.

R-W LABELLED FIRE-DOOR HARDWARE.

The only Canadian manufacturers of flat track fire-door hardware bearing Underwriters' label. This hardware has maximum fire-resisting qualities, is easily installed, and superior in operation. Stocked by builders' hardware men at central points.

All styles: Sliding, Swinging, Vertical. Special fire-door hardware catalogue on request.



R-W 20 Fire-Door Hardware.

CARRIER SYSTEMS. SPECIAL WORK.

We furnish blue-prints and estimates on carrier systems and special hanger and fire-door work of all kinds.

LORD & BURNHAM CO.

GREENHOUSE DESIGNERS AND MANUFACTURERS, IRVINGTON, N.Y.

TORONTO, CANADA:
12 QUEEN STREET E.

NEW YORK, N.Y.:
42ND STREET BUILDING.

PHILADELPHIA, PA.:
FRANKLIN BANK BUILDING.

CHICAGO, ILL.:
ROOKERY BUILDING.

CLEVELAND, O.: SWETLAND BUILDING.

BOSTON, MASS.:
TREMONT BUILDING.

ROCHESTER, N.Y.:
GRANITE BUILDING.

PRODUCT. SECTIONAL IRON-FRAME GREENHOUSES AND CONSERVATORIES.



PALM HOUSE AND CURVED EAVE WINGS.
Feruccio Vitale, Land. Arch.

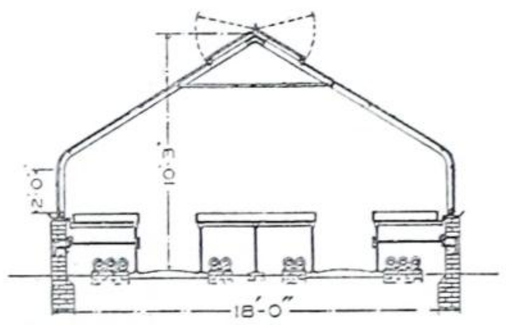


FIG. 1. SECTION A.
CURVED EAVE HOUSE.

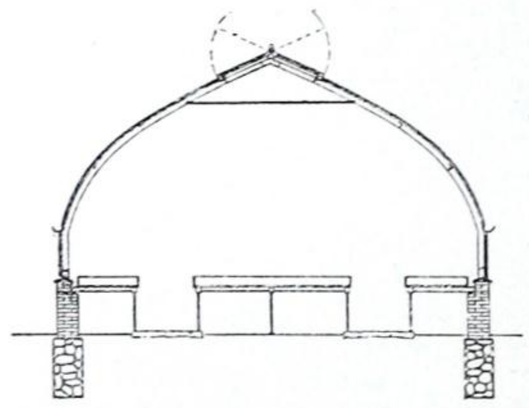


FIG. 2. SECTION B.
CURVILINEAR HOUSE.

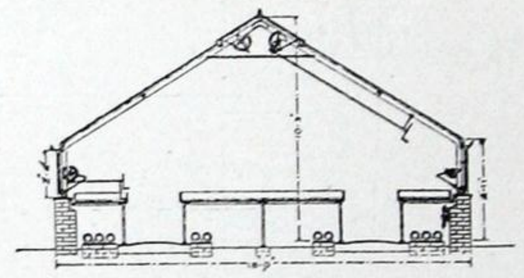


FIG. 3. SECTION C.
SILL AND GUTTER HOUSE.

DETAILS OF GREENHOUSE CONSTRUCTION.

SECTIONAL CONSTRUCTION.

Our Sectional Iron-Frame Greenhouse has been developed and perfected through our constant efforts to secure greater durability and to meet the demand of gardeners for more light.

One section is formed by setting up two spans of rafters, 8 feet 4 inches apart, at either end of two lengths of cast-iron sills. The cross framing between these two spans of rafters consists of the gutters at the eaves and purlins between the eaves and ridge. These latter are placed the right distance apart to carry the roof bars. Another section may be added by setting up one more span of rafters 8 feet 4 inches further along, with cross framing, and so on, until you have the required number of sections for the length of the house.

STRENGTH.

The strength of this construction is in its steel-bar rafters placed thin edge to the light and framed between with steel angles for purlins, and in the method of securing the rafters to the sills at the joints, where two sections of sills meet, and to the gutters in the same manner, so that the sections of sill and gutter on either side of each span of rafters are united to the rafters as if they were part of them, making the entire iron frame of rafters, sills, gutters and purlins as one piece.

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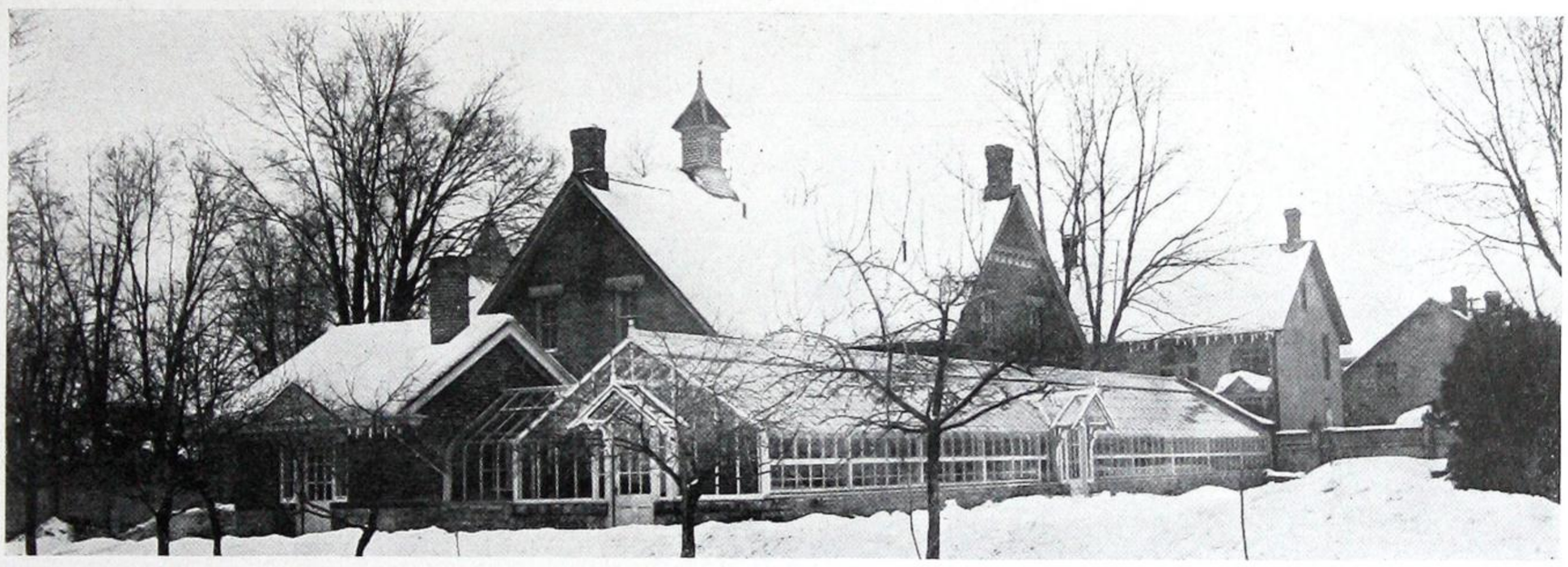
MATERIALS. All iron is of the highest grade; the wood used is clear Gulf cypress of best quality, thoroughly air-dried. This wood grows in the swamps of Florida, and has proven to have no equal for withstanding the destructive conditions of constant moisture existing in greenhouses.

GLAZING. All glass is bedded in putty and supported by wooden parts, which prevent breakage by expansion and contraction.

REPAIRING. Aside from the usual repainting, the matter of repairs is a minor one, for the small roof bars are fastened with iron clasps, and it is a simple matter to unscrew, cut out the defective part and splice in a new piece.

ROOF LINE ACCENT. As the rafter caps and pilasters, which are larger than the glazing bars, are united at the end of each section, this point is accented, giving an effect of broad spacing throughout the entire roof and sides, not obtainable where the glazing bars are of one size and no rafters are used.

ERECTION. This is the ideal greenhouse construction, so scientifically worked out that the labour of preparing materials and erecting is reduced to a minimum. It is not a house that has to be cut and fitted by hand, on the job, but the entire frame is passed through a line of machines in our factory, where it is cut, shaped, punched, fitted and primed, ready for immediate erection. When the materials are delivered, it is merely a matter of bolting up the iron parts and fastening the screws. The expense of erecting is thus greatly reduced, practically equalizing the advance in cost of the iron-frame house over the wooden structure.



GREENHOUSE ERECTED FOR MRS. A. V. MACLAURIN, OTTAWA.

BENCHES AND TABLES. Four kinds of construction are employed in our regular stock benches and tables:

BENCHES.—(1) Indestructible all cast-iron; sides, bottoms and ends cast in separate pieces; legs of pipe. (2) Galvanized-iron frames, with cypress bottoms and sides. (3) Galvanized-iron frames, with tile bottoms and cypress sides. (4) All cypress.

TABLES.—(1) Indestructible all cast-iron; sides, bottoms and ends cast in separate pieces; legs of pipe. (2) Galvanized-iron frames, with ¾-inch planed slate tops. (3) Galvanized-iron frames, with cypress tops. (4) All cypress.

VENTILATION. Ventilation sash are located at ridge and where required on the sides. They are in continuous runs, and are opened by our patented Ventilating Machinery, with hand wheel placed in convenient location.

HEATING. Coils of 3½-inch (I. D.) cast-iron pipes made up with caulked joints are generally located under the benches, where they do not take up any growing space, and are so arranged as to secure a free circulation of air around them. Their surfaces are so distributed as to give the desired temperature, with sufficient control in each compartment to produce the best growing conditions.

"Burnham" Boilers are used, with ample mains for carrying water to the coils.

The system is installed with sufficient grade to insure rapid circulation and even distribution. The coils are equipped with automatic air headers to prevent all air locks.

CATALOGUE. We have a very complete catalogue, to which you are most welcome.

THE McCLARY MANUFACTURING CO.

HEAD OFFICE AND FACTORIES:
LONDON, ONT.

BRANCHES:
TORONTO, MONTREAL,
HAMILTON, ST. JOHN, N.B.

BRANCHES:
WINNIPEG, VANCOUVER,
CALGARY, SASKATOON,
EDMONTON.

PRODUCTS. Your attention is respectfully drawn to McCLARY'S KITCHEN EQUIPMENT.
THE MOST MODERN AND COMPREHENSIVE LINE MADE.
APPARATUS FOR COOKING BY COAL, STEAM OR GAS.
EVERYTHING FOR THE KITCHEN, THE SERVERY, THE PANTRY, OR SCULLERY.

INFORMATION. McClary's expert is at the disposal of ARCHITECTS, CONTRACTORS, HOTEL PROPRIETORS and PUBLIC BODIES, and will gladly confer with a view to designing special apparatus and laying out proposed equipments to obtain the most effective, most sanitary and economical working.

SANITARY FEATURES. We specialise this work, making the sanitary feature prominent. Every utensil and dish used in the establishment can be thoroughly sterilized.
A McClary-installed kitchen means a kitchen always pure and fresh and absolutely proof against vermin.

ADAPTABILITY. Hotel, Hospital, Asylum and Public Institution Kitchens equipped complete.
Grill rooms receive special attention. Designs made to suit space and required capacity. Highly finished ornamental designs or plain, neat and substantial apparatus as desired.

SPECIAL WORK. Cafeterias and Self-Help Restaurants designed in compact form. Drawings and prices gladly submitted.

CO-OPERATION. Let us co-operate with you. We are experts in kitchens and cooking apparatus. Opinions, designs and detail drawings free and without obligation. Consider our proposition and if you like it specify for and give us your business.

THAT'S ALL WE ASK.

CONTINUED ON NEXT P

McCLARY'S HOTEL RANGE.

DESCRIPTION. The largest Hotel Range manufactured for one central cooking space.

Has eight fires and sixteen ovens.

Length of Range, 38′ 6½″ over all and 6′ 8″ in width.

Supplied with a Canopy Top of Monel Metal 40′ 6″ over all and 8′ 0″ in width, and a Canopy "T" 12′ 0″ long by 10′ 9″ wide.

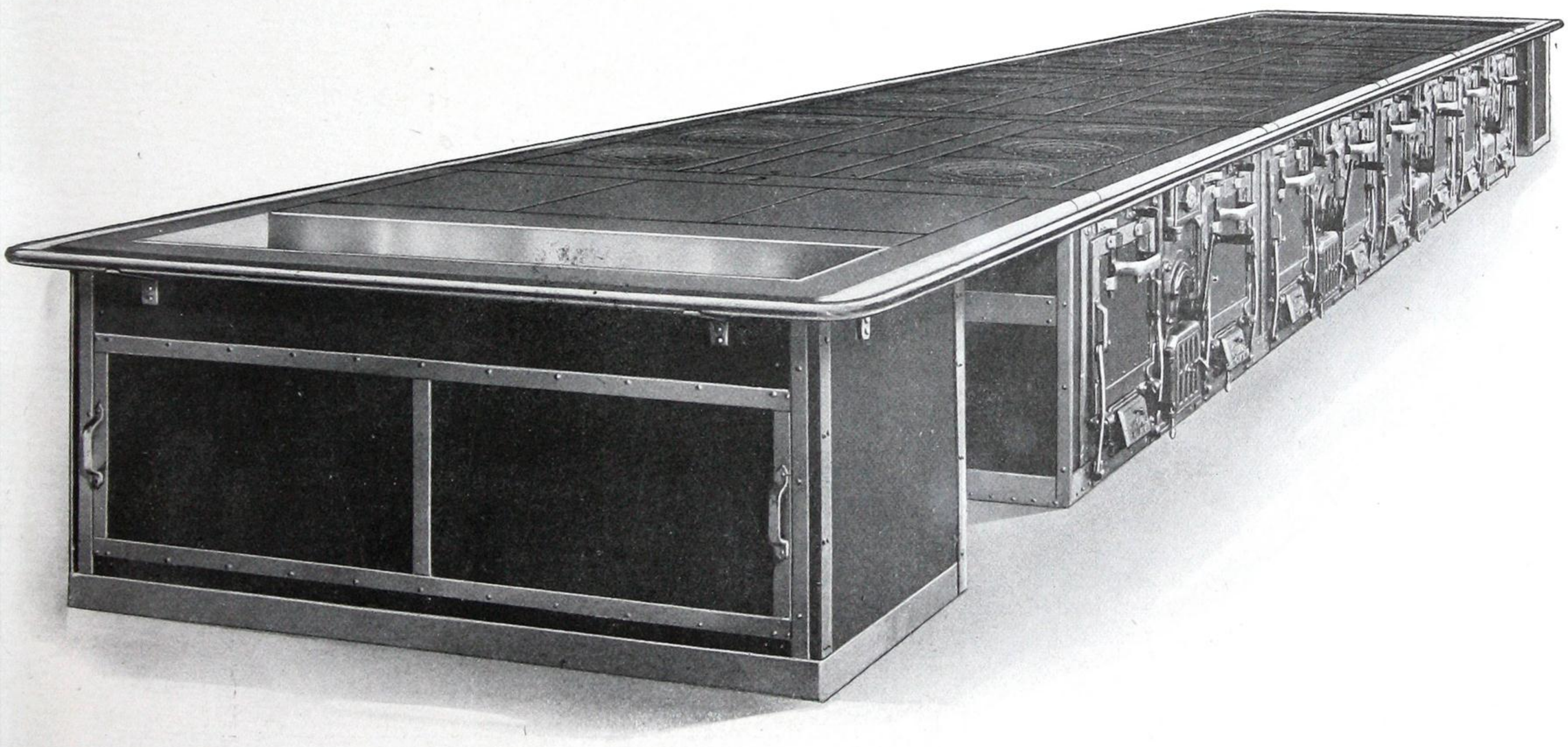
Entire weight of Range, 13 tons; and Canopy, 3,000 lbs.

Has two coal trucks and warming closet with bain-marie at each end.

Body of Range constructed of 10 Gauge Steel.

Rail of 1½″ shafting steel; weight, 650 lbs.

Secret Flues.



OTHER SPECIALTIES. Carving Tables, Serving Tables, Dish Washing and Bakers' Machinery.

Steam Jacket Kettles—Copper, Aluminum and Cast Iron.

Steam Sectional Vegetable Cookers, Urns and Urn Stands, Hospital Ward Diet Tables, etc.

WRITE FOR CATALOGUE.

THE GURNEY FOUNDRY COMPANY, LIMITED

HEAD OFFICE AND FACTORIES:
TORONTO, ONTARIO.

STOCK ALSO CARRIED AT MONTREAL, WINNIPEG, HAMILTON, CALGARY, EDMONTON, VANCOUVER.

PRODUCTS. (HOTEL DEPARTMENT.)

"JOHN BULL" STEEL PLATE HEAVY DUTY HOTEL RANGE, "JOHN BULL" HEAVY DUTY GAS RANGE, CHARCOAL AND GAS BROILERS, PORTABLE BANK OVENS, CARVING TABLES, SERVING TABLES, WARD TABLES, URNS, Etc. We design and make SPECIAL and REGULAR EQUIPMENTS for Kitchens, Serveries, Pantries and Sculleries.

QUALITY STANDARD.

Best demonstrated by the following list of Kitchens equipped by us and giving perfect satisfaction.

HOTELS.

Chateau Laurier, Ottawa.
Prince George, Toronto.
New Russell, Ottawa.
Canadian Northern, Port Arthur.
Windsor Hotel, Montreal.
Alexandra Hotel, Calgary.
King Edward, Edmonton.
Fort Garry Hotel, Winnipeg.

RESTAURANTS AND CAFES.

T. Eaton Co., Toronto.
T. Eaton Co., Winnipeg.
R. Simpson Co., Toronto.
Restaurants of the Canadian Railway News Co.
Canadian Northern Dining Cars.
Hudson Bay Co., Winnipeg, Calgary and Edmonton.

CLUBS.

Rosedale Golf Club.
Rideau Hall, Ottawa.
Carleton Club, Ottawa.
National Club, Toronto.
Royal Canadian Yacht Club.
Engineers' Club, Montreal.
Manitoba Club, Winnipeg.

INSTITUTIONS, ETC.

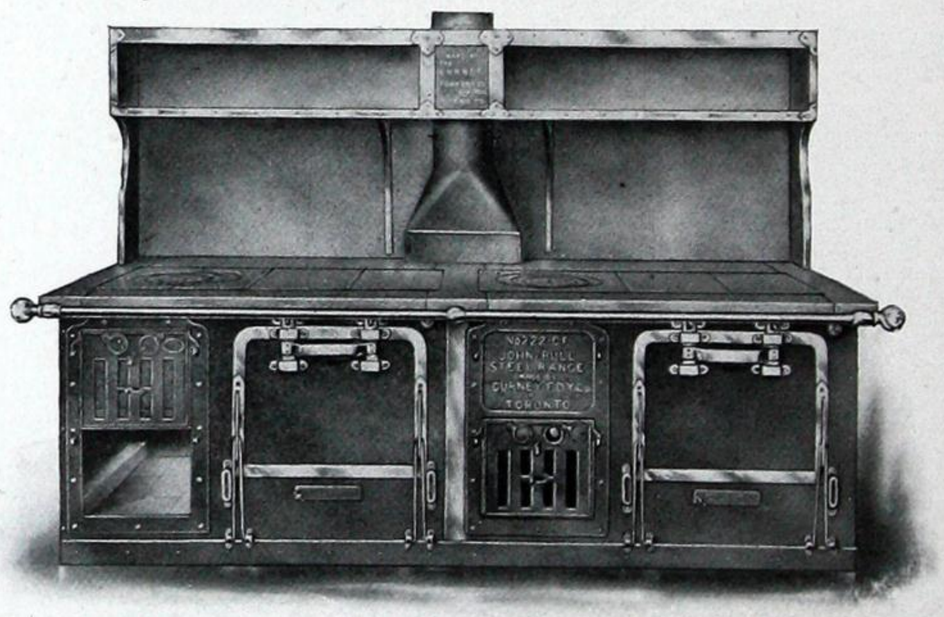
Toronto General Hospital.
St. Michael's Hospital.
Central Prison, Toronto.
Niagara Navigation Company's Steamboats.
Selkirk Asylum, Selkirk.
Algoma Central and Hudson Bay Railroads.

SPECIFICATIONS AND PLANS.

As the reputation of our products means much to us, we maintain a Kitchen Equipment Department, which makes a business of laying out Kitchens, so that our apparatus, when installed, will give the utmost satisfaction in the way of service to our customer. The service of this Department is at the disposal of anyone who is interested.

SPECIFICATIONS.

Heavy wrought steel body, lined throughout with firebrick. Top of extra heavy casting. Fire-box is lined with 6-in. firebrick all around, except on oven side, where 4 inches of brick are backed by heavy plate of gray iron. This Range can be supplied in sections from one fire one oven to any number desired, and in various sizes of ovens from sixteen inches to twenty-seven inches. Following is a list of stock sizes, with dimensions, etc.:



"JOHN BULL" STEEL PLATE, HEAVY DUTY HOTEL RANGE.
Illustrating Nos. 102 and 222, with Double High Shelf, French Top.

No. Oscillating. Grate.	No. Simplex. Grate.		Fires.	Ovens.	TOP COOKING SURFACE. Length. Width.	OVEN DIMENSIONS. Width. Depth. Height.
331	221	John Bull	1	1	4 ft. 2 in. x 3 ft. 6 in.	22 in. x 28 in. x 17 in.
332	222	John Bull	2	2	8 ft. 2 in. x 3 ft. 6 in.	22 in. x 28 in. x 17 in.
333	223	John Bull	3	3	12 ft. 1 in. x 3 ft. 6 in.	22 in. x 28 in. x 17 in.
341	101	John Bull	1	1	4 ft. 4 in. x 3 ft. 6 in.	24 in. x 28 in. x 17 in.
342	102	John Bull	2	2	8 ft. 5 in. x 3 ft. 6 in.	24 in. x 28 in. x 17 in.
343	103	John Bull	3	3	12 ft. 5 in. x 3 ft. 6 in.	24 in. x 28 in. x 17 in.
344	104	John Bull	4	4	16 ft. 6 in. x 3 ft. 6 in.	24 in. x 28 in. x 17 in.
...	202	John Bull	1	2	6 ft. 1 in. x 3 ft. 6 in.	22 in. x 28 in. x 17 in
...	203	John Bull	2	3	10 ft. 1 in. x 3 ft. 6 in.	22 in. x 28 in. x 17 in.
...	204	John Bull	3	4	14 ft. 2 in. x 3 ft. 6 in.	22 in. x 28 in. x 17 in.
...	"A"	John Bull	1	2	4 ft. 6 in. x 3 ft. 0 in.	16 in. x 24 in. x 13 in.
...	"B"	John Bull	1	2	4 ft. 10 in. x 3 ft. 0 in.	18 in. x 24 in. x 15 in.
...	"C"	John Bull	1	2	5 ft. 4 in. x 3 ft. 0 in.	20 in. x 24 in. x 15 in.
...	"D"	John Bull	1	2	6 ft. 3 in. x 3 ft. 0 in.	24 in. x 24 in. x 15 in.
...	1-2-24	Pacific	1	2	7 ft. 5 in. x 3 ft. 0 in.	24 in x 22 in. x 16 in.
...	1-3-24	Pacific	1	3	9 ft. 1 in. x 3 ft. 0 in.	24 in. x 22 in x 16 in.
...	12-CL	Gurney-Oxford C Series (Soft Coal)	1	2	7 ft. 0 in. x 3 ft. 0 in.	24 in. x 24 in. x 17 in.
...	13-CL	Gurney-Oxford C Series (Soft Coal)	1	3	10 ft. 0 in. x 3 ft. 0 in.	24 in. x 24 in. x 17 in.
...	12-CR	Gurney-Oxford C Series (Soft Coal)	1	2	7 ft. 0 in. x 3 ft. 0 in.	24 in. x 24 in. x 17 in.
...	13-CR	Gurney-Oxford C Series (Soft Coal)	1	3	10 ft. 0 in. x 3 ft. 0 in.	24 in. x 24 in. x 17 in.

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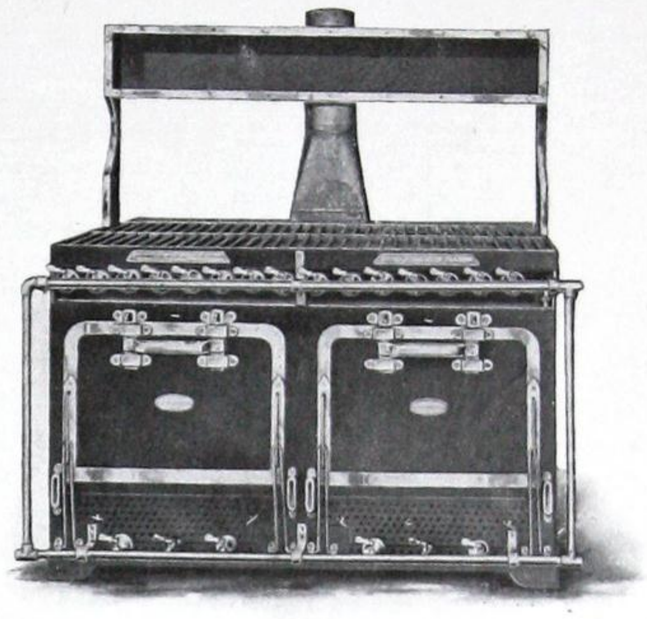
"JOHN BULL" GAS RANGE.

"JOHN BULL" HEAVY DUTY GAS RANGE, FOR MANUFACTURED OR NATURAL GAS. MADE WITH AS MANY OVENS AS DESIRED.

SPECIFICATION.

Range made of best quality material throughout, has extra large oven, heated with beaver tail burners. Oven bottom is protected with special brick lining, insuring even heat distribution. Brick lining, top and oven burners instantly removable for cleaning.

	No. 124 K. 1 Oven.	No. 224 K. 2 Ovens.
Dimension of each Oven	24 x 28 x 17 in.	24 x 28 x 17 in.
Dimension of Cooking Surface	28 x 28 in.	57 x 28 in.
No. of Top Burners	4	8
Size of Gas Connection	1 in.	1½ in.
Approx. Shipping Weight, Range only	500 lbs.	1,000 lbs.
Floor Space Required.	28 x 36 in.	57 x 36 in.



J. B. Gas Range.

GURNEY-OXFORD PORTABLE BAKE OVEN.

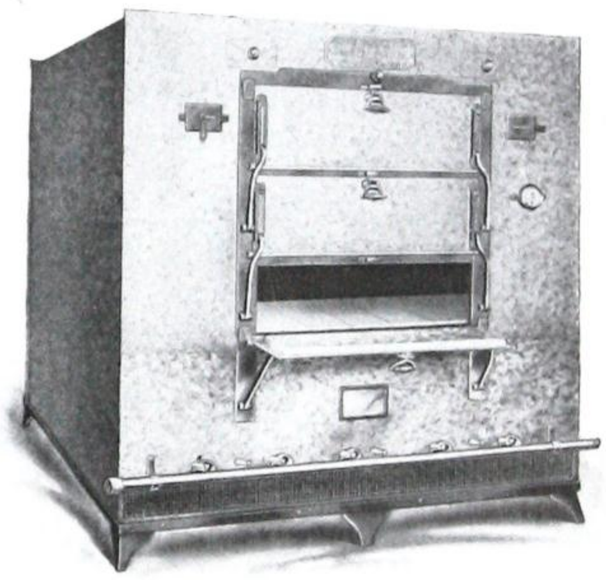
Coal, wood or gas. Made in four sizes:

No. E-138—54 in. wide x 63 in. high x 68½ in. deep.
Capacity, 2-lb. loaves..... 138
Capacity, 4-lb. loaves..... 69

No. A-36—50 in. wide x 60 in. high x 24 in. deep.
Capacity, 2-lb. loaves..... 36
Capacity, 4-lb. loaves..... 18

No. B-54—50 in. wide x 60 in. high x 31 in. deep.
Capacity, 2-lb. loaves..... 54
Capacity, 4-lb. loaves..... 27

No. C-72—54 in. wide x 61 in. high x 42 in. deep.
Capacity, 2-lb. loaves..... 72
Capacity, 4-lb. loaves..... 36



Gurney-Oxford Portable Gas Bake Oven.

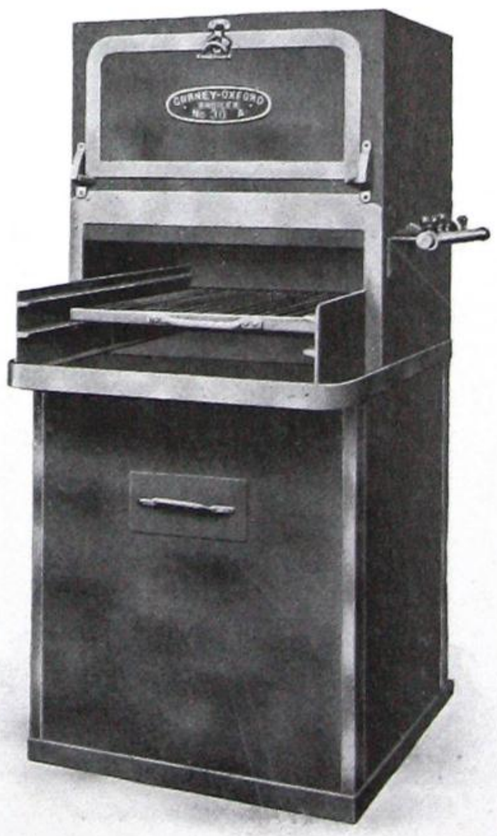
GURNEY-OXFORD GAS AND CHARCOAL BROILERS.

Note the quick-working oven over the broiler. Gas Broiler made in two sizes:

No. 24 A—Width, 24 in. No. 30 A—Width, 30 in.

French Charcoal Broiler made in three sizes:

No. 24 A—24 x 46 x 58 in. No. 30 A—30 x 50 x 58 in.
No. 36—36 x 50 x 58 in.

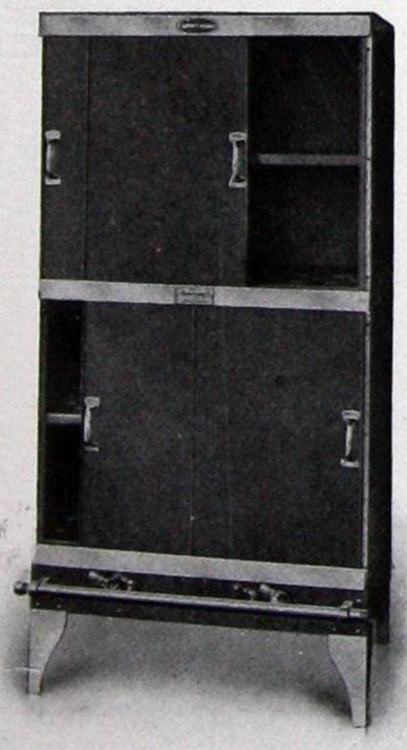


Gurney-Oxford Gas Broiler.

GURNEY-OXFORD UPRIGHT WARMER.

Constructed of planished polished steel or galvanized iron. Made in three sizes:

No. 30—3 ft. wide x 2 ft. deep x 5 ft. 9 in.
No. 40—4 ft. wide x 2 ft. deep x 5 ft. 9 in.
No. 50—5 ft. wide x 2 ft. deep x 5 ft. 9 in.



Gurney-Oxford Upright Warmer.

CONTINUED ON NEXT PAGE

GURNEY-OXFORD HOSPITAL WARD OR DIET TABLE.

SPECIFICATION.

This appliance combines in a most sanitary and compact form an efficient Carving Table, Plate Warmer, Broiler, Toaster and Hot Plate, with ample capacity for the preparation of special dishes for an ordinary public ward or for a number of private wards.

The Steam Table section of this device contains one enamelled meat platter and four vessels, in which may be heated various diets.

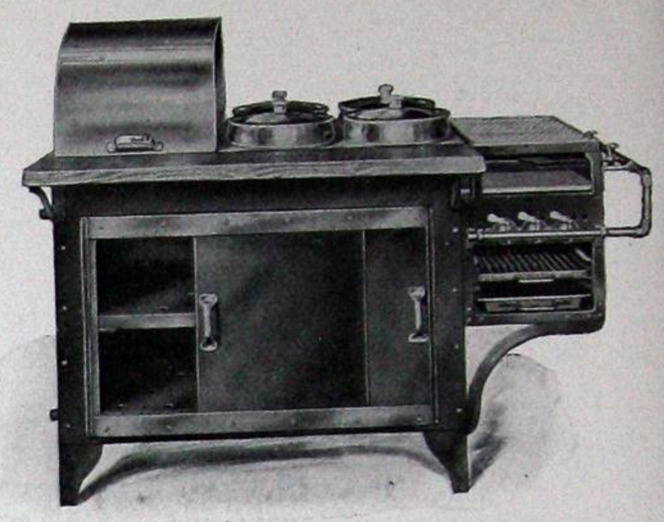
Beneath this steam table top, which is absolutely sanitary and removable, and below the retinned copper water pan, is a warming closet for warming the service dishes for the ward.

Above the Broiler, which has ample capacity for broiling and toasting, is a modern sanitary, nickel-plated hot plate, made so that it can be taken entirely apart for cleaning, and with burners for keeping soups, broths, etc., warm. A feature of the burners in this apparatus is that they are absolutely quiet, being so constructed that it is impossible for them to fire back, which is very desirable in the hospital.

We can supply this type of Ward Table in a number of combinations, though that illustrated and described above is easily the most popular.

DIMENSIONS OF TYPE ILLUSTRATED.

Length over all	5 ft. 2 in.
Width over all	2 ft. 10 in.
Gas Connection	¾ in.



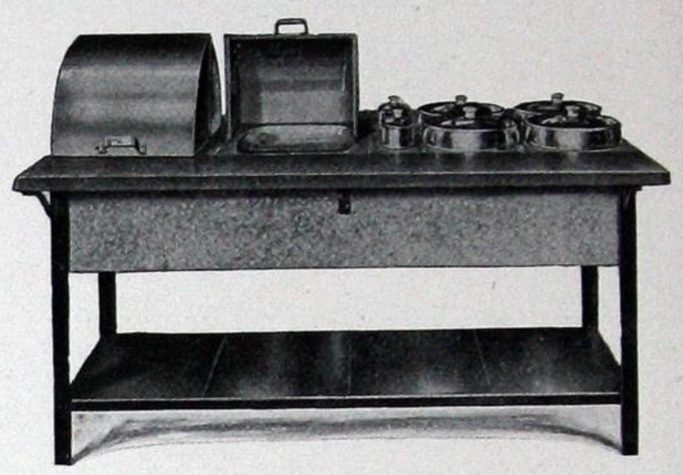
HOSPITAL WARD OR DIET TABLE

"THE TABLE WITH THE SANITARY TOP"

"G SERIES" CARVING TABLE.

SPECIFICATION.—These Tables can be made up in any combination of meat, vegetable, soup or gravy sections, and with warming closet or skeleton type, as illustration.

One meat section is 18 in. long.
One vegetable section comprises 2 kettles; is 12 in. long.
One soup section comprises 2 vessels; is 12 in. long.
One gravy section comprises 2 boats; is 6 in. long.
224-G: 5 ft. 6 in.—2 meats, 2 gravies, 4 vegetables.
226-G: 6 ft. 6 in.—2 meats, 2 gravies, 4 vegetables, 2 soups.
324-G: 7 ft. 0 in.—3 meats, 2 gravies, 4 vegetables.
326-G: 8 ft. 0 in.—3 meats, 2 gravies, 4 vegetables, 2 soups.
444-G: 9 ft. 0 in.—4 meats, 4 gravies, 4 vegetables.
446-G: 10 ft. 0 in.—4 meats, 4 gravies, 4 vegetables, 2 soups.

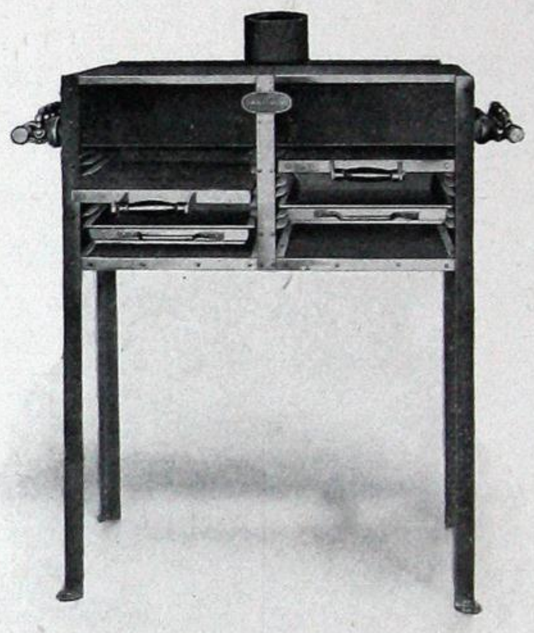


CARVING TABLE.

GURNEY-OXFORD GAS GRIDDLE AND TOASTER.

Fitted with cast iron, polished griddle plate on top. A complete toaster and broiler underneath is heated from same burners as griddle. Made in two sections, entirely independent, and, as each section has five burners, any degree of heat may be obtained.

Size of Griddle	16 in. wide, 33 in. long.
Number of Burners	10.
Size of Gas Connection	1 in.
Approximate Shipping Weight	300 lbs.
Height to Top of Griddle	44 in.



GURNEY-OXFORD GAS GRIDDLE AND TOASTER.

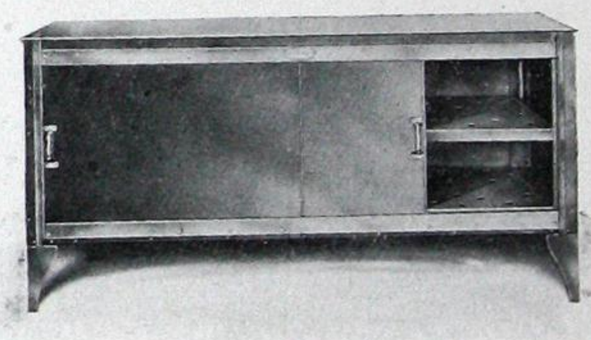
COMBINATION WARMER AND SERVING TABLE

These Warmers are built of planished, polished steel, with nickel-plate trimmings, or of galvanized iron, with black japanned trimmings. Top is made of heavy ¼-in. polished steel plate.

Can be fitted with hot water or steam coils, or fitted for gas heating.

Any number of units can be combined.

	No. 60.	No. 100.
Dimensions...	6 ft. x 3 ft. x 3 ft. high	10 ft. x 3 ft. x 3 ft. high
Weight.....	600 lbs.	1,000 lbs.



COMBINATION WARMER AND SERVING TABLE.

GURNEY-OXFORD URNS, WITH CUP WARMER AND URN STAND.

GURNEY-OXFORD URNS.

SPECIFICATION, 3-PIECE SET.

NO.	CAPACITY OF EACH COFFEE URN.	CAPACITY OF H.W. URN.
400	4 gal.*	6 gal.*
600	6 gal.	10 gal.
800	8 gal.	12 gal.
1,000	10 gal.	15 gal.
1,200	12 gal.	18 gal.

SPECIFICATION, 2-PIECE SET.

NO.	SIZE OF COFFEE URN.	SIZE OF WATER URN.
40	4 gal.*	6 gal.*
60	6 gal.	10 gal.
80	8 gal.	12 gal.
100	10 gal.	15 gal.
120	12 gal.	18 gal.

SPECIFICATION, SINGLE COFFEE URN.

NO.	SIZE.
3	3 gal.*
4	4 gal.
5	5 gal.
6	6 gal.
8	8 gal.
10	10 gal.

*Wine Measure.

CONTINUED ON NEXT

PATENT CAST IRON STEAM JACKET KETTLE OR COOKER.

STEAM JACKET KETTLE.

SPECIFICATION.—Accompanying cut illustrates the very latest pattern of Steam Jacketted Iron Kettle, which is conceded to be the very best and cheapest steam jacketted kettle made. These kettles are Cast Seamless—that is, without bolted or packed joints of any kind to wear out or leak. They are extremely quick and satisfactory in operation, arising from the fact that the area of steam surface on the sides is unusually large, keeping the contents constantly agitated and preventing adhesion of same to bottom of kettle. Galvanized iron cover is fitted with brass hinges and trimmings. Fitted with brass draw-off cock.

CAPACITY.	OUTSIDE DIMENSIONS. DIAMETER.	HEIGHT.
30 gal.	2 ft. 7½ in.	3 ft. 2 in.
40 gal.	2 ft. 7½ in.	3 ft. 2 in.
50 gal.	2 ft. 10¼ in.	3 ft. 2 in.
60 gal.	2 ft. 10¼ in.	3 ft. 5¼ in.



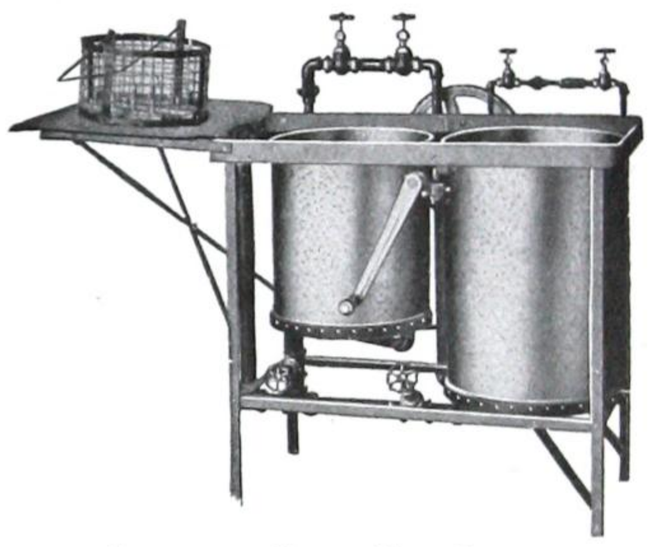
JACKET KETTLE.

BLAKESLEE DISHWASHING MACHINES.

DISHWASHING MACHINES.

NO.	POWER.	CAPACITY, DISHES PER HOUR.	FLOOR SPACE.	SUD TANKS.	RINSING TANKS.
1	Hand	1,000	20 x 40 in.	1	1
2	¼ H.P.	2,000	20 x 40 in.	1	1
3	½ H.P.	3,000	30 x 46 in.	1	1
5	½ H.P.	7,000	48 x 32 in.	1	1
6	1 H.P.	8,000	76 x 36 in.	2	1
7	1½ H.P.	12,000	102 x 36 in.	3	1

All above sizes made for steam, gas or gasoline heaters. Equipped with trolley attachments for lifting baskets; smaller sizes may be equipped with this attachment if desired, but is an extra. Where electric motor is used, specify type and voltage current. Blakeslee Niagara—No. 50, ½ H.P.; No. 80, 1 H.P.



DISHWASHER NO. 1—HAND POWER.

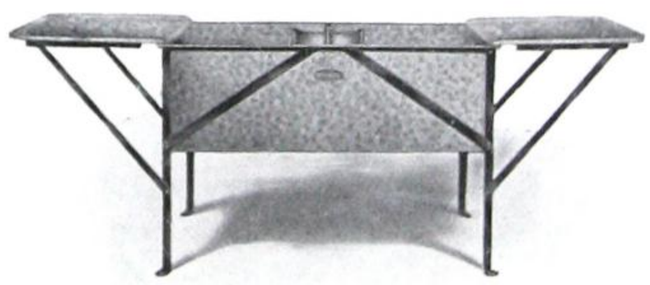
GURNEY-OXFORD GALVANIZED SINKS.

SINKS.

These Sinks are made of heavy gauge galvanized steel on japanned angle steel frames. Made with one, two or more compartments, as desired, with or without drain boards. Fitted with waste and standing overflow plugs and strainer.

NO.	COMPARTMENTS.	LENGTH.	WIDTH.	DEPTH.	WEIGHT.
124	1	24 in.	24 in.	14 in.	115 lbs.
130	1	30 in.	24 in.	14 in.	150 lbs.
136	1	36 in.	24 in.	14 in.	190 lbs.
224	2	48 in.	24 in.	14 in.	220 lbs.
230	2	60 in.	24 in.	14 in.	285 lbs.
324	3	72 in.	24 in.	14 in.	330 lbs.

Size of Drainboard, 24 x 24 in. Other sizes made to order.



GURNEY-OXFORD GALVANIZED SINKS.

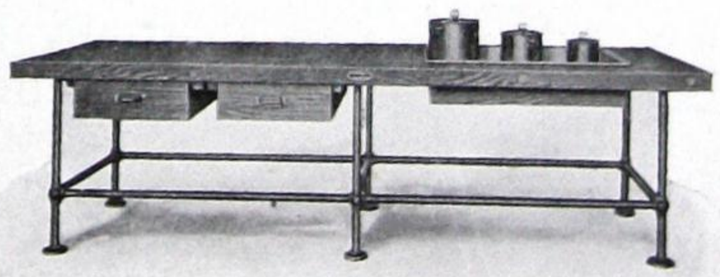
GURNEY-OXFORD SECTIONAL TOP COOKS' TABLE.

COOKS' TABLES.

The top of this table is built of thoroughly seasoned hard maple, put together in strips 2 in. wide by 3 in. thick, with bolts running through from side to side. Into this top is set flush a bain marie. The price on table does not include bain marie or dishes. Below the table top are well made and easy running locked drawers for the chef's tools. The table is mounted on heavy black japanned pipe legs, with flanges to fasten to the floor.

NO.	DIMENSIONS.	WEIGHT.
8	8 ft. x 3 ft. 6 in.	475 lbs.
10	10 ft. x 3 ft. 6 in.	600 lbs.
12	12 ft. x 3 ft. 6 in.	725 lbs.

Other sizes on application.



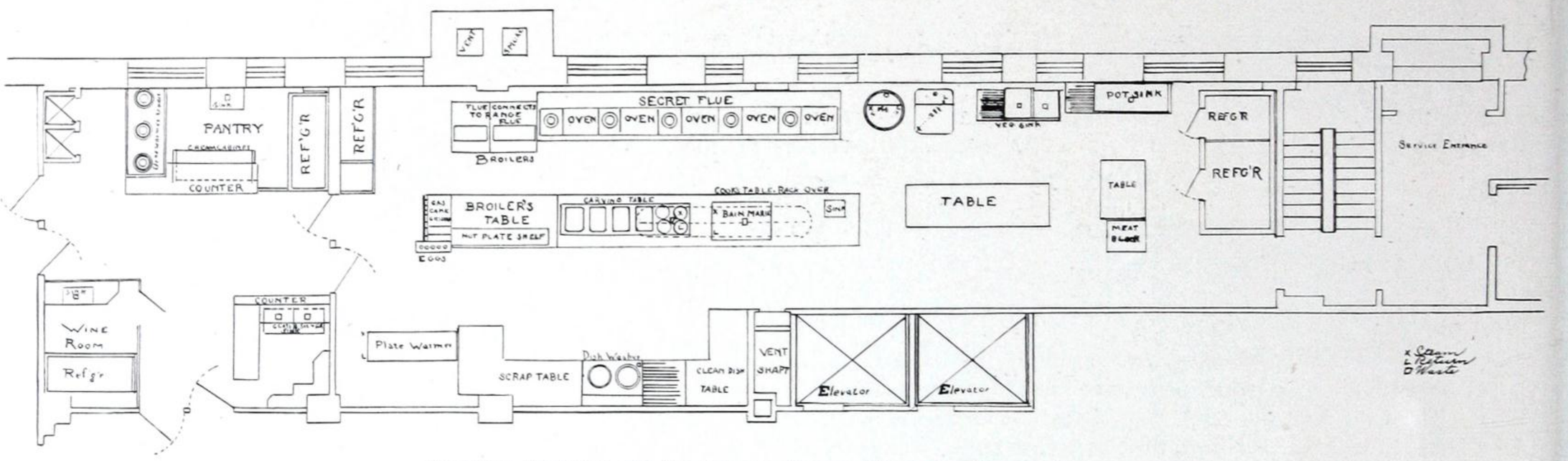
WROUGHT IRON RANGE COMPANY

151 KING STREET WEST,
TORONTO, ONT.

PRODUCTS. We are manufacturers of "HOME COMFORT" KITCHEN OUTFITS for Hotels, Restaurants and Institutions, including RANGES, BROILERS, TEA AND COFFEE URNS, CARVING TABLES, DISH WASHERS, POTATO PARERS, etc.

We make a specialty of Re-tinning and Repairing.

"HOME COMFORT" STEEL HOTEL RANGES. Are built of No. 10 gauge open hearth, close-annealed, cold-rolled steel; are equipped either with duplex, triplex or oscillating grates for operating every known kind of fuel. All working parts or parts liable to damage are of malleable iron, making the range practically indestructible.



PRACTICAL WORKING AND CONVENIENT KITCHEN PLAN FOR MODERN HOTEL.

SPECIAL DESIGNS. To the architect, builder, etc., who may be contemplating buying a Kitchen Outfit, and will furnish us with a rough pencil sketch of the kitchen, showing location of dining-room, entrance from kitchen, and chimney flue, we will be pleased to furnish a diagram showing the proper layout of same. This is a feature in connection with large kitchens, where space is an important consideration, which we are well equipped to deal with.

INFORMATION. Write for catalogue illustrating complete list of lines handled by us, together with prices on same.

INSTALLATIONS. We have installed complete kitchen equipments in many of the largest Hotels and Institutions throughout Canada. The following are a few of the many:

King Edward Hotel, King Street East, Toronto, Ont.
Walker House, Front Street West, Toronto.
Woodbine Hotel, 102 King Street West, Toronto, Ont.
Palmer House, 146 King Street West, Toronto, Ont.
Grand Union Hotel, 174 Front Street West, Toronto, Ont.
Municipal Hotel, 67 Queen Street West, Toronto, Ont.
Hotel Cadillac, 6 Terauley Street, Toronto, Ont.
Bay Tree Hotel, Cor. Adelaide and Bay Streets, Toronto, Ont.
Humber Beach Hotel, Humber Bay, Toronto, Ont.
Union Station Hotel, Front Street West, Toronto, Ont.
Orillia Hospital, Orillia.
Northern Navigation Company's Steamers.
R. & O. Navigation Company's Steamers.
Cafeterias, Limited, 16 King E., Toronto, Ont.
Westminster Private Hotel, Toronto.
Tusco Apartments, Toronto.

JAS. G. WILSON MFG. CO.

MANUFACTURERS OF VENETIAN BLINDS AND AWNINGS,

332 So. MICHIGAN AVENUE, CHICAGO, ILL.

3 WEST 29TH STREET, NEW YORK, U.S.A.

FACTORY, NORFOLK, VA.

PRODUCTS.

VENETIAN BLINDS, Plain Style and Sliding (in Grooves); VENETIAN-BLIND AWNINGS, Closed or Open Sides; VENETIAN ROLLING BLINDS.

WILSON'S "MODERN" VENETIAN BLINDS.

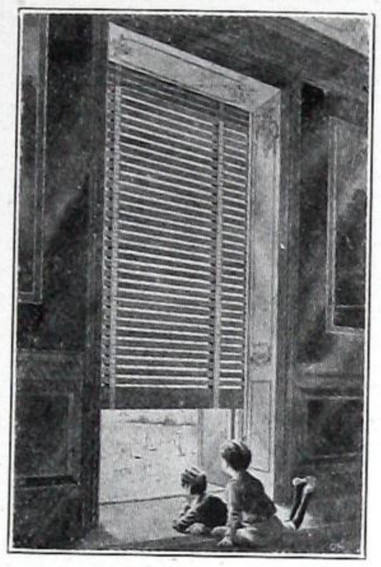
The "Modern" differs from the common Venetian in that its slats are readily fixed at any angle and a movement of the hand controls their position.

The "Modern" Venetian Blind roller hangs on steel brackets, bronze-plated, and all working parts are most durable. The ladder tapes, upon which the slats are hung, can be of linen, silk, or bronze metal of choice design and attractive finish.

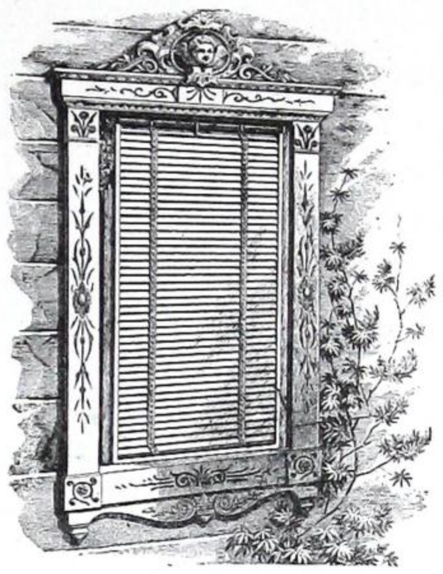
This blind cannot be pulled up *unevenly* and the most careless handling cannot disturb the even adjustment of the slats.



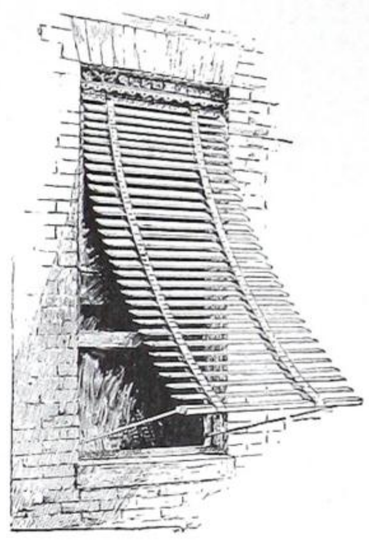
INSIDE VENETIAN BLIND.



SLIDING VENETIAN BLIND.



OUTSIDE VENETIAN BLIND, CLOSED.



NO. 3 AWNING BLIND.

WILSON'S SLIDING VENETIAN BLINDS.

Constructed the same as the "Modern" except that the slats run in guide ways or grooves, which prevent disturbance by the wind when the window is open and thus obviate all possibility of noise or rattling. This blind can be placed on the inside or outside of the window.

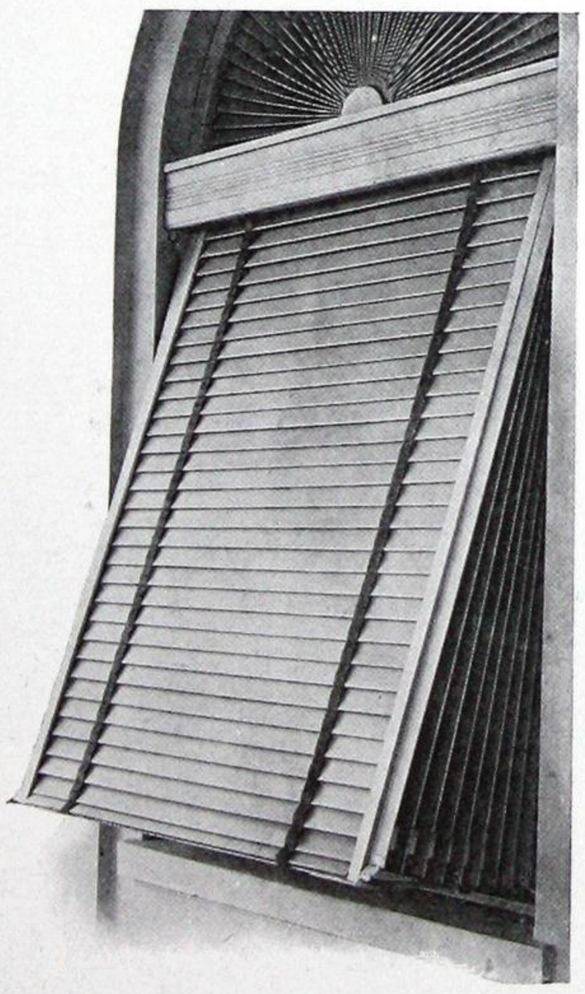
WILSON'S OUTSIDE VENETIAN BLIND AND AWNING COMBINED.

Excludes the sun rays without interfering with the view or with the admission of air. The complete blind with sides cannot rattle or creak as the slats are set in a grooved firm frame. The jointed arms greatly facilitate its use.

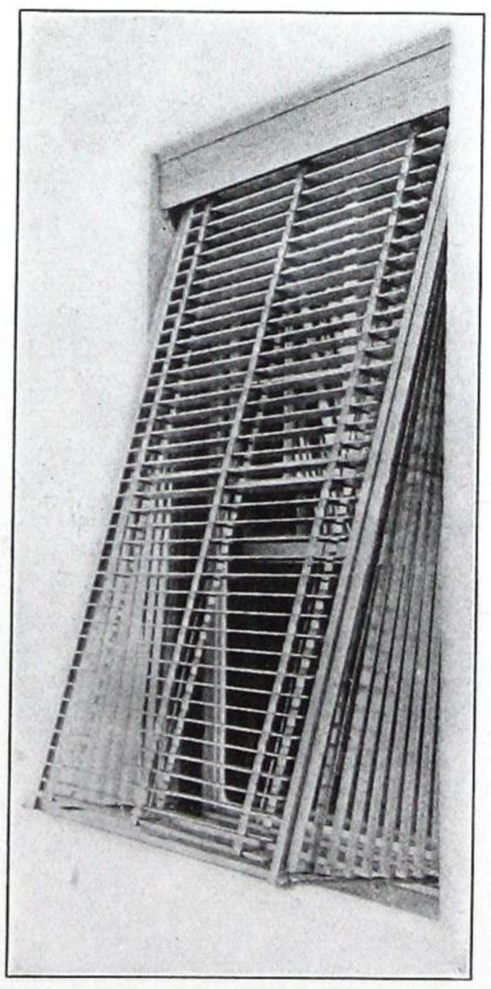
The frame, when not extended, sets close to window sash, and the side slats fold up closely in a small space. This style can be furnished without the side slats.

In new buildings an invisible pocket can be provided to receive the blind when pulled up.

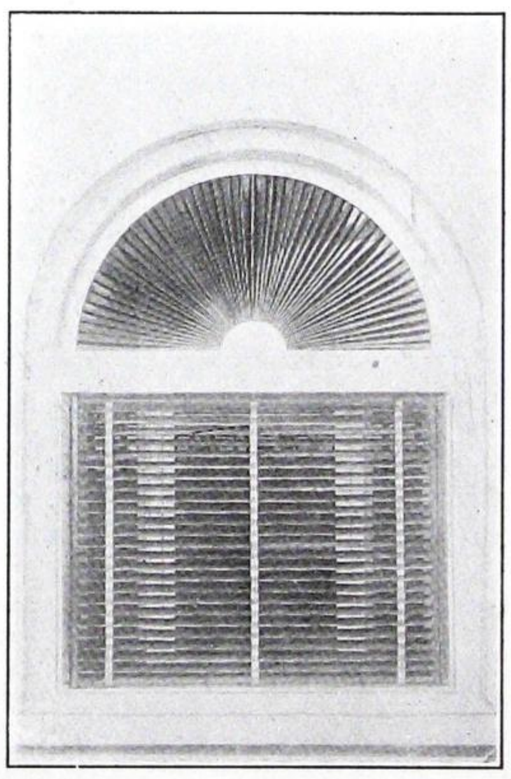
PRICES, CATALOGUES AND TESTIMONIALS—Furnished upon request to the New York Office or nearest agent.



WINDOW IN RESIDENCE OF HENRY GOLDMAN, ESQ., ELBERON, N.J.
Showing Wilson's Outside Venetian Awning Blind Extended with Slats Closed.
Note—Also the Sunburst Panel in circular head. This is a very artistic arrangement.



WINDOW IN RESIDENCE OF SAMUEL SACHS, ESQ.
ELBERON, N.J.
Showing Wilson's Outside Venetian Awning Blind Extended with Slats Wide Open.



WINDOW IN WHITE HALL RESIDENCE OF H. M. FLAGLER, ESQ., PALM BEACH, FLA.
Note—New treatment of circular head.

For our SPECIAL PROTECTIVE STEEL ROLLING DOORS AND SHUTTERS see our advertisement on page 360.
For our WOOD ROLLING PARTITIONS AND WARDROBES see our advertisement on page 83.

THE THORNTON-SMITH COMPANY

INTERIOR DECORATORS,

11 KING STREET WEST,
TORONTO.

PRODUCTS. All kinds of Interior Decoration. Church Interiors a specialty. Wall Coverings, Decorative Plaster Work and Compo; Staff Mouldings, Carton Pierre, Gesso, Tube Work, etc. Fabrics in silk, wool, cotton or linen, suitable for draperies, upholstering, etc. Imported and Domestic Carpets, Oriental Rugs, Hand-Tufted European Rugs, Scotch Wool Rugs, Linoleum, Cork Carpets. Leaded and Stained Glass, Glass Mosaics, Special Design Furniture. Period Reproductions. Electric Fixtures, etc.



FACILITIES. We are thoroughly equipped to undertake the execution of contracts for the decoration of buildings from designs received from architects, or drawn by our own artists. We are experts as to the goods in which we deal, and our close association with the manufacturers of Europe and this continent enables us to place at the command of our patrons the highest grade of Wall Coverings, Fabrics, Furniture, Carpets, Rugs, Electric Fixtures, etc.

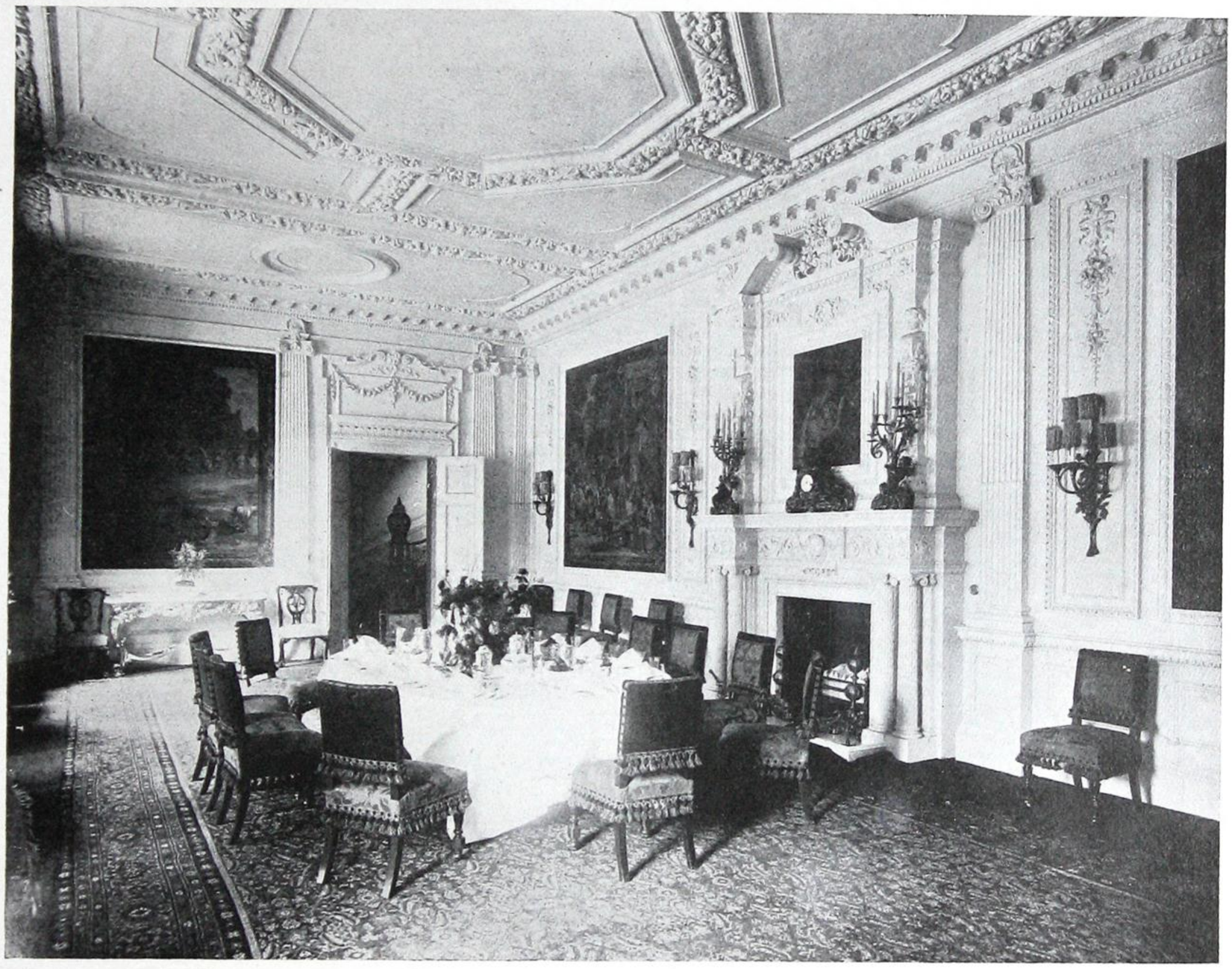
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INTERIOR DECORATIONS. We have our own staff of artists, capable of undertaking Mural decorations of the highest order, either in oil painting, fresco, plaster relief or gesso, also a large corps of skilled artisans.

CONTRACT WORK. We are prepared to submit tenders for plain painting and glazing, as well as the more elaborate forms of decoration, etc.

WALL COVERINGS. Wall Papers.—We carry a large, well-selected stock of imported papers of the highest quality, as well as inexpensive papers of good design, and have sample books of the leading manufacturers, orders from which can be promptly delivered.

Other Wall Coverings.—Leathers, plain, tooled and embossed. American and Japanese make, to order in any colour desired.



SILK FLOCK.

Specially suited for panelled drawing rooms, as a substitute for silk brocade.



A Printed Linen.

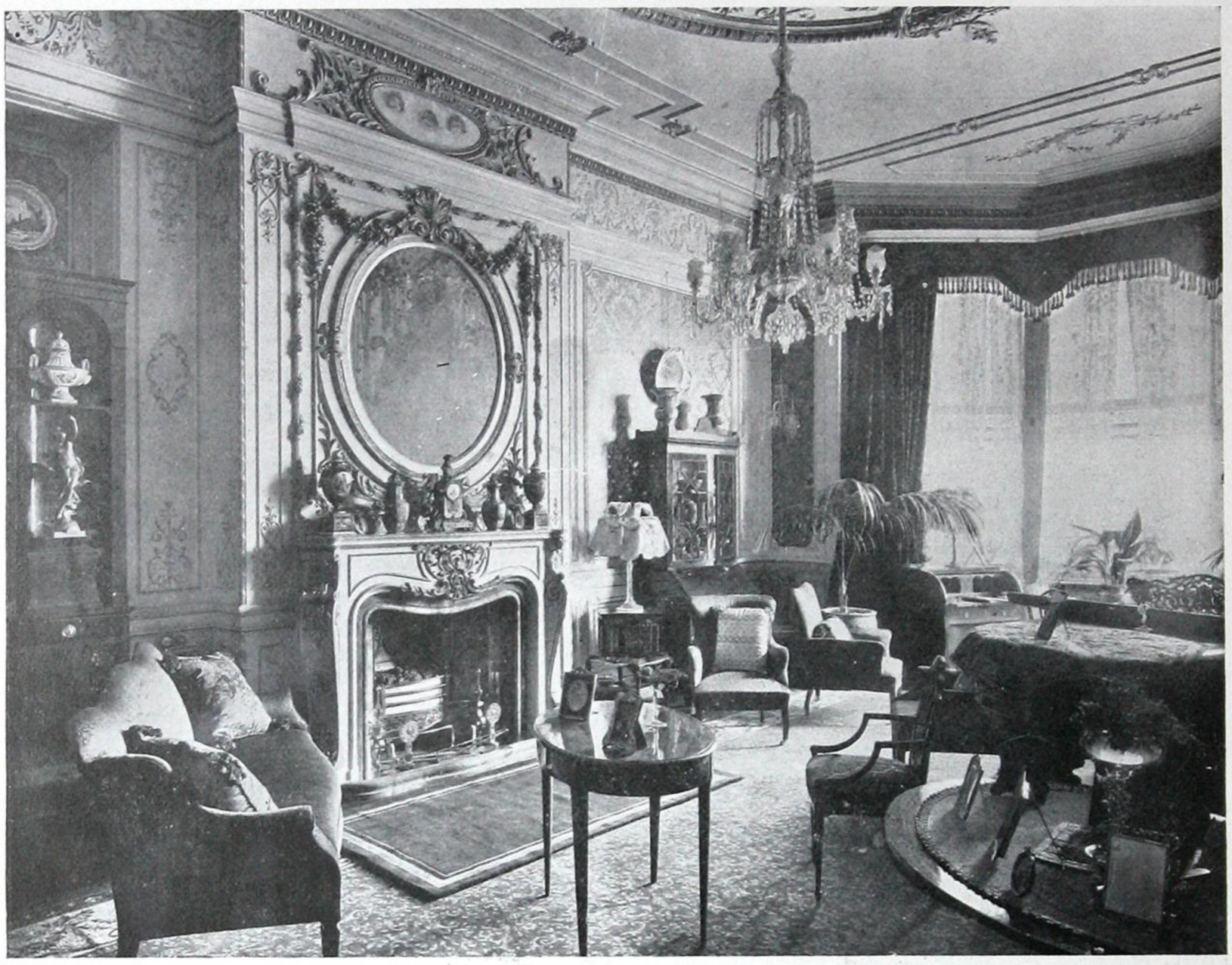
TEKKO.

An admirable imitation of silk.

CONTINUED ON NEXT PAGE

SANITAS. An excellent sanitary wall covering for bathrooms, kitchens and hospitals.

ANAGLYPTA AND LEATHEROLE. Decorative materials embossed in high and low relief; can be decorated to suit individual taste; are washable and sanitary, and make an excellent covering when the plaster is defective.



GRASS CLOTH. An artistic Japanese wall covering, making a successful background for pictures.

BURLAPS. Obtainable in every shade, can be had up to 72 inches in width; also Tex-ta-dor-na and Fabricona, dyed and backed burlaps.

DECOTEX. Printed in good designs; backed.

CANVASSES. We make a specialty of painted and stippled effects on canvas. Samples submitted on request.

SILKS. Suitable for French panelled rooms.

TAPESTRIES. Reproductions of old designs and foliage effects.

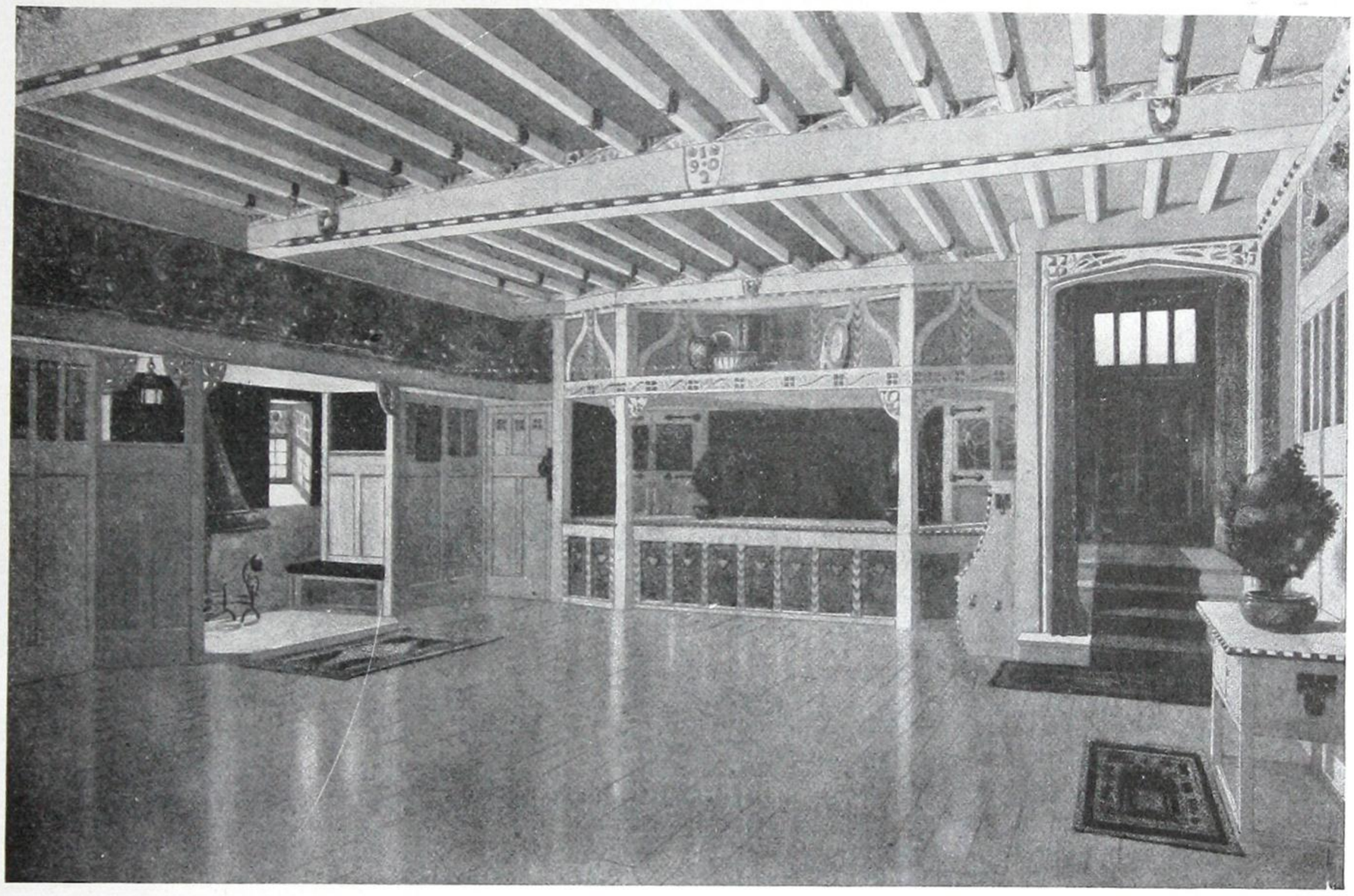
PLASTER WORK AND COMPO. We are equipped to carry out plastering contracts of any size or description.

TUBE WORK. An inexpensive method of obtaining relief, giving decorative effect when harmoniously coloured.

CONTINUED ON NEXT P

FABRICS. An exclusive and carefully selected stock of fabrics always on hand, suitable for Curtains, Portieres and Furniture Coverings. Our tapestries and printed linens include both modern designs by such men as Walter Crane and William Morris, and faithful reproductions of Elizabethan and Jacobean embroideries. Materials for casement curtains in many varieties. Velours obtainable in all shades. Applique and embroidered curtains made to order.

We also carry a very large stock of samples from which import orders will receive our immediate attention.



SCHEME FOR SUMMER HOTEL.

RUGS AND CARPETS. Hand-tufted rugs made to order in any design, colour, shape or size—special designs submitted. Oriental rugs sent on approval.

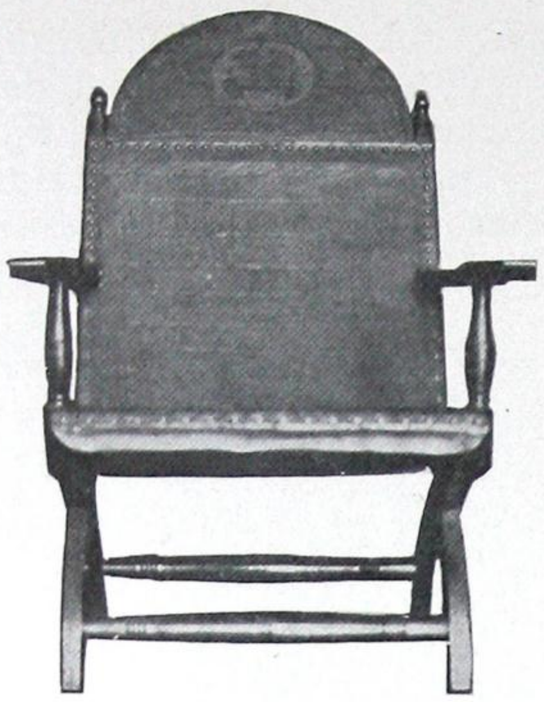
The Caledon Rug.—An inexpensive Scotch wool rug, artistic in design and colour, suitable for bedrooms or country houses.

GLASS. Designs and tenders submitted for leaded and stained glass.

GLASS MOSAIC. Rich and brilliant effects obtainable in church work with this medium, also suitable for any place where tiles might be used. Effective for shop and pavement signs.

ELECTRIC FIXTURES. See matter and cuts on pages 238-40.

CONTINUED ON NEXT PAGE



WOLFE'S CHAIR.

This Chair is made of Mahogany, inlaid in Satin and Tulip Woods, the seat being of Leather and elaborately tooled.



The Original Chair was presented to the Nation by H.R.H. The Prince of Wales, on the occasion of the Quebec Tercentenary, and was reproduced by us at the command of His Excellency the Governor-General.



LOUIS XIV.

FURNITURE.

Specially designed and executed to order.

Period Pieces faithfully reproduced.

Board Room Furniture and Fittings. Sketches submitted.



CHIPPENDALE LADDER-BACK.



LOUIS XV.

Examples submitted for the complete furnishing of Clubs, Apartment Houses, Hotels, Yachts, and Private Houses.



LOUIS XVI.

THE BEAVER BOARD COMPANIES

931 Wall Street,
Beaverdale, Ottawa, Canada.

MANUFACTURERS OF BEAVER BOARD AND BEAVER TILE.

PLANTS: Beaverdale, Ottawa, Canada; Beaver Dams, Thorold, Ontario; Buffalo, N.Y.; Beaver Falls, N.Y.; Roanoke Rapids, N.C.

EUROPEAN OFFICES: 4 Southampton Row, London, W.C., England.

BEAVER BOARD.

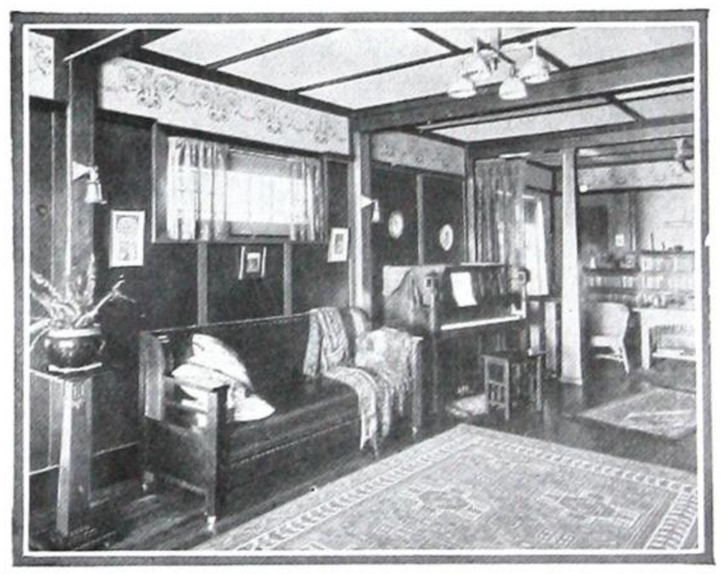
Beaver Board is a pure-wood-fibre wallboard that is used to build walls and ceilings in every type of new or remodelled building—residences, stores, offices, churches, theatres, hotels, public buildings, factories, etc.

Beaver Board is made of selected woods reduced to fibrous form and pressed into panels about three-sixteenths of an inch thick, weighing about one-half pound per square foot. It is very strong, and blows which would ruin plaster do not injure Beaver Board.

Beaver Board is cream-white in colour and has a pebbled surface, which is painted after application. It is usually sized and covered with two coats of oil paint. Hot and cold water paints may also be used. Great opportunity is offered for artistic decoration.

Beaver Board is put up in panels, nailed directly to studding, joists and headers in new work, or over old material in remodelling. It is easily cut with a fine-tooth saw, and may be applied by any carpenter. The panel edges are covered with wood decorative strips, thus making possible an infinite variety of artistic and original effects.

Beaver Board will not crack, chip or crumble. It resists heat, cold and sound, and retards fire. Shocks, strains and vibration have no effect on Beaver Board, and it is elastic enough to meet ordinary shrinking and expansion of timbers, settling of building, etc.



LIVING ROOM WITH BEAVER BOARD WALLS AND CEILING.

BEAVER TILE.

Beaver Tile is made from the same materials as Beaver Board. It is marked in oblongs on the panels, and, when enamelled, has all the indentations and appearance of tile. Used for the walls of kitchens, bath-rooms, lavatories, laundries, restaurants; in fact, wherever a tile effect is desired and appropriate.

SIZES OF BEAVER BOARD AND BEAVER TILE.

Beaver Board is sold by building material, lumber and hardware dealers in panels 32 and 48 inches wide by 6, 7, 8 and 9 feet long. Beaver Tile is furnished in panels 48 inches wide by 8 feet long.

Additional sizes of Beaver Board and Beaver Tile in stock at factory for immediate shipment are: 32, 36 and 48 inches wide, in even foot lengths from 4 to 16 feet.

Beaver Board is put up in bundles containing about 300 square feet. Lengths 11 feet and over are crated.

Estimates are based on actual space, excluding openings.

SAMPLES AND LITERATURE.

Samples and booklets will gladly be mailed on request.

GORDON USBORNE

181 LYTTON BOULEVARD,
TORONTO, ONT. PHONE: MAIN 2615.

PROFESSION. FIGURE AND ORNAMENTAL SCULPTURE IN BRONZE, MARBLE, TERRA COTTA, CAEN STONE AND PLASTER. Figure and Animal Subjects a specialty.



FONT EXECUTED IN CAEN STONE.

FACILITIES. Having a thorough equipment, am prepared to undertake any plaster figure or ornament work desired.

DESIGNS. Sketches in pencil will be submitted if requested or work done from architects' designs. Wax models made on a small scale for architects' approval before enlargement.

If desired, the finished work may be packed, shipped and placed in position at my risk.

Architects, or others interested, desiring further information will be supplied with photographs of work already executed.

THE GREENFIELD CONDUIT CO., LIMITED

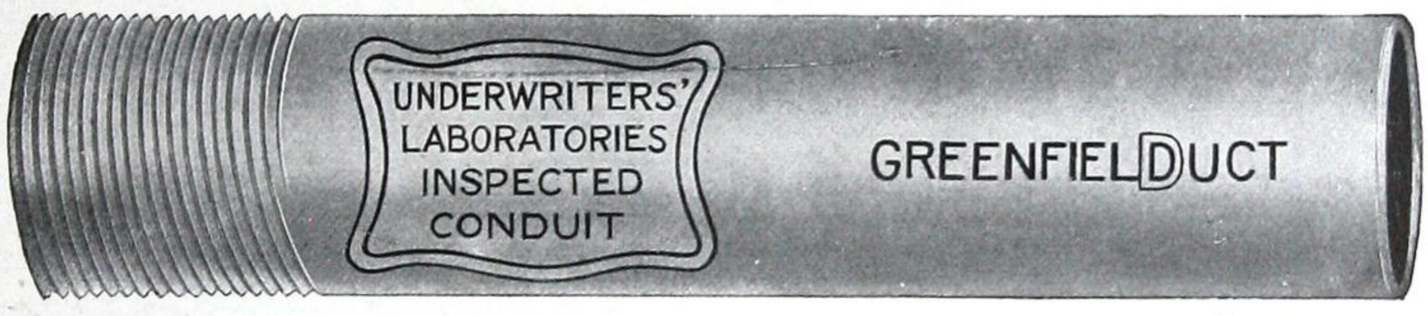
TORONTO, ONT.

PRODUCT. We are sole manufacturers under patents of "GREENFIELDUCT" RIGID IRON CONDUIT.

DESCRIPTION. "GREENFIELDUCT" is a Hot Galvanized Conduit, both the Interior and Exterior surfaces being treated by a Patented Hot Galvanized Process. Molten Zinc is wiped over these surfaces in such a manner as to produce a perfectly smooth finish and a homogeneous coating of zinc throughout. It is afterward treated interiorly with a black japan finish, the accidental removal of which will not impair the integrity of the Conduit.

The threaded ends are clean and well cut and insure a rapid coupling.

UNDERWRITERS' INSPECTION. "GREENFIELDUCT" is inspected and labelled under the supervision of the Underwriters' Laboratories (Inc.).



ADVANTAGE. Because of the high temperature to which the "GREENFIELDUCT" is subjected when the molten zinc is applied, the completed conduit is rendered more easily bent for installation purposes.

It is, to the greatest degree, proof against rust, and the finish will not crack, flake or scale.

It is the only Conduit manufactured in which the interior and exterior surfaces have the same treatment and finish.

It will withstand a test of at least seven dips in Standard Solution of Sulphate of Copper.

Other methods of treatment with zinc of the Interior and Exterior surfaces of Conduit do not afford the same smooth treatment as does ours.

LIST PRICE.

Standard Size Pipe. Inches.	Conduit. Price per 100 Feet.	Elbows. Price per 100.	Couplings. Price per 100.	Internal Diameter. Inches.	Outside Diameter. Inches.	Number of Threads per Inch of Screw.	Nominal Weight per Foot. Pounds.
½	$ 12.50	$ 32.00	$ 10.00	.62	.84	14	.85
¾	16.00	41.00	15.00	.82	1.05	14	1.12
1	24.00	62.00	18.00	1.04	1.31	11½	1.67
1¼	32.00	84.00	31.00	1.38	1.66	11½	2.24
1½	38.00	115.00	37.00	1.61	1.90	11½	2.68
2	52.00	200.00	53.00	2.06	2.37	11½	3.61
2½	80.00	340.00	76.00	2.46	2.87	8	5.74
3	107.00	900.00	113.00	3.06	3.50	8	5.54
3½	141.00	2,000.00	200.00	3.54	4.00	8	9.00
4	175.00	2,295.00	280.00	4.02	4.50	8	10.66

In writing specifications, specify "GREENFIELDUCT" Rigid Conduit.

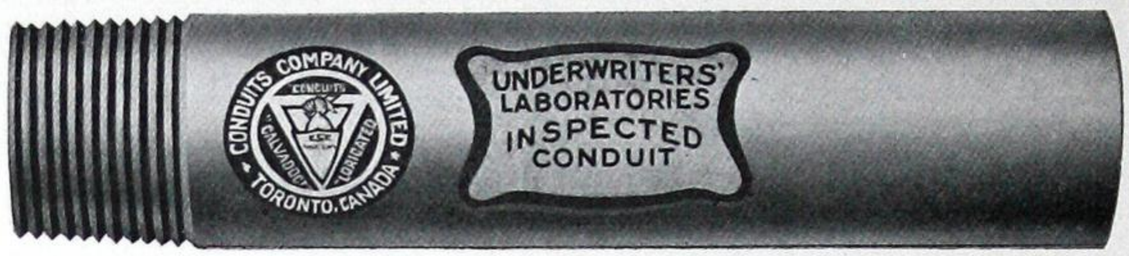
INFORMATION, BOOKLETS, ETC. We solicit enquiries from architects, engineers, builders and contractors, and full information, booklets, etc., will be sent promptly upon receipt of such enquiries.

CONDUITS COMPANY, LIMITED

HEAD OFFICE AND WORKS: DON ROADWAY,
TORONTO, ONTARIO.

BRANCH OFFICE: MONTREAL, QUE.

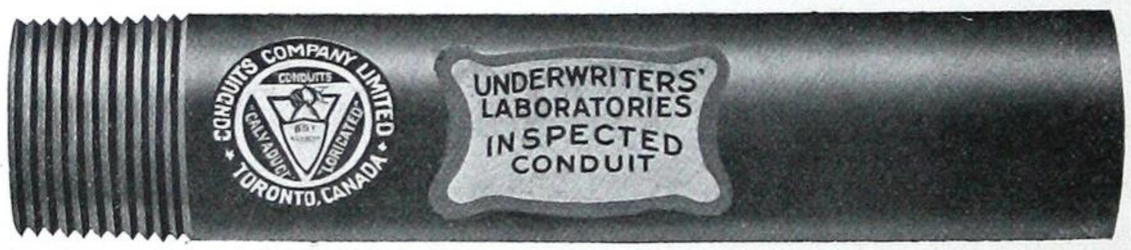
PRODUCTS. We are sole manufacturers under patents of "GALVADUCT" and "LORICATED" IRON ARMOURED CONDUITS for interior construction.



GALVADUCT.

DESCRIPTION "GALVADUCT" CONDUIT. Is a welded tube of high-grade mild steel of gas pipe thickness of wall, carefully cleaned of silicates, scale and burrs, and then electro-galvanized on the outside and coated inside with a superior and flexible enamel, which absolutely protects the tube from rust or the action of acids and alkalies contained in plaster and cement.

We call particular attention to the fact that the threads of "Galvaduct" Conduit being clean and free from any insulating substances, electrical conductivity is had at each joint; it is therefore positive that when properly grounded at any point, the metal of the entire conduit system is "permanently and effectually grounded," as required by the Rules and Requirements of the National Board of Fire Underwriters. With enamelled threads, this grounding is entirely problematical.



LORICATED

DESCRIPTION "LORICATED" CONDUIT. The same grade of pipe is used in the manufacture of "LORICATED" CONDUITS as in "GALVADUCT," which, after it has been cleaned by the same method, is coated outside and inside with a superior flexible and moisture-proof enamel, which renders it impervious to the action of acids and other chemicals. "Loricated" Conduits are coated and "baked" three times, which results in an enamel which will not "crack" or "scale" even when bent in coldest weather, and renders the pipe moisture and acid proof for all time.

APPROVAL OF UNDER-WRITERS. Each tube is ten feet long, "threaded" on both ends, with coupling, and bears our name and Underwriters' Inspection Label.

Our Conduits are included in the list of Conduits examined under the standard requirements of the National Board of Fire Underwriters and by the Underwriters' National Electric Association, after exhaustive tests by the Underwriters' Laboratories, and have their approval.

STOCK CARRIED. We carry a large and well-assorted stock of each of the above types of Conduits at Toronto and Montreal, and can at all times make prompt shipments of extensive orders.

CONTINUED ON NEXT P

REMARKS.

Electrical Conduits for interior construction have developed through various types of wood moulding, paper tube, thin sheet metal encasing paper, wood or composition, and heavy iron or steel tubing lined, until they reached their highest state of perfection in "GALVADUCT" and "LORICATED" Conduits as manufactured in Canada solely by CONDUITS COMPANY, LIMITED, under Canadian and United States Letters Patent.

PRICE LIST OF "GALVADUCT" AND "LORICATED" CONDUIT, COUPLINGS AND ELBOWS.

STANDARD PRICE LIST IN EFFECT AUGUST 1ST, 1912.

CONDUIT						COUPLINGS			ELBOWS			
Size	Actual Outside Diameter Inches	Nominal Inside Diameter Inches	Number Threads Per Inch of Screw	Nominal Weight Per Foot Lbs.	Conduit Price Per 100 Ft.	Size	Weight Per 100 in Pounds	Price Per 100	Weight Per 100 in Pounds	Radius Inches	Offset Inches	Price Per 100
¼	.54	.36	18	.42	$ 12.50	¼	6	$ 10.00	42	4.25	7.50	$ 32.00
⅜	.67	.49	18	.56	12.50	⅜	8	10.00	53	4.25	7.50	32.00
½	.84	.62	14	.84	12.50	½	15½	10.00	73	4.25	7.50	32.00
¾	1.05	.82	14	1.12	16.00	¾	25½	15.00	132	5.37	9.25	41.00
1	1.31	1.04	11½	1.67	24.00	1	40½	18.00	200	5.75	10.12	62.00
1¼	1.66	1.38	11½	2.24	32.00	1¼	57½	31.00	300	7.25	11.50	84.00
1½	1.90	1.61	11½	2.68	38.00	1½	71¼	37.00	415	8.50	12.62	115.00
2	2.37	2.06	11½	3.61	52.00	2	132	53.00	700	9.50	15.25	200.00
2½	2.87	2.46	8	5.74	80.00	2½	185	76.00	1138	10.50	17.75	340.00
3	3.50	3.06	8	7.54	107.00	3	300	113.00	1885	13.00	19.37	900.00
3½	4.00	3.55	8	9.00	141.00	3½	400	200.00	2100	15.00	21.00	2000.00
4	4.50	4.02	8	10.66	175.00	4	412	280.00	2160	16.00	22.50	2295.00
4½	5.00	4.50	8	12.49	190.00	4½	540	300.00	3625	18.00	24.50	3500.00
5	5.56	5.04	8	14.50	200.00	5	600	330.00	5700	24.00	32.00	4850.00
6	6.62	6.06	8	18.76	250.00	6	1062	450.00	9375	30.00	52.00	6015.00

Tubes in 10 foot lengths, threaded both ends, with couplings. Prices subject to change without notice.

REFERENCES.

The appended list of buildings in which our Conduits have been installed is but a suggestion; this list is by reason of limited space cut down to a few buildings, and is intended solely to show the variety of buildings in which "GALVADUCT" and "LORICATED" Conduits have been used.

TORONTO.	"Casa Loma," home of Col. Sir Henry Pellatt.	Seminary of St. Augustine.
	Shea's Theatre.	Lumsden Building.
	Loew's Theatre.	C.P.R. Building.
	Government House.	Toronto Stock Exchange.
	Traders Bank Building.	Head Office of the Bank of Toronto.
	Home of J. C. Eaton.	Toronto General Hospital.
MONTREAL.	Harbour Commission Elevator.	C.P.R. Windsor Station.
	Bank of British North America.	Ritz Carlton Hotel.
	Bank of Montreal.	Royal Trust Building.
WINNIPEG.	Lindsay Building.	Fort Garry Hotel.
	Boyd Building.	Winnipeg General Hospital.
	Agricultural College.	Confederation Life Building.
	Law Courts Building.	Free Press Building.
CALGARY.	C.P.R. Hotel, Piedmont.	Lougheed Building.
	Hudson's Bay Stores.	Judge Travis Block.
	Canada Life Building.	Calgary Furniture Store.
	Anderson Apartments.	Herald Building.

VARIOUS PLACES.	Louise Dock and Elevator	Quebec, Que.
	Connaught Rifle Range	South March, Ont.
	Chateau Laurier Hotel	Ottawa, Ont.
	Maple Leaf Elevators	Port Colborne, Ont.
	C.P.R. Shops	Ogden, Alta.
	World Building	Vancouver, B.C.
	Vancouver Hotel	Vancouver, B.C.
	New Burns Block	Vancouver, B.C.
	G.T.P. Hotel MacDonald	Edmonton, Alta.
	Steamer "Hamonic"	G.T.R. Fleet.

ORPEN CONDUIT MANUFACTURING COMPANY OF CANADA

HEAD OFFICE AND WORKS: QUEEN AND DUFFERIN STREETS,
TORONTO, ONTARIO,

BRANCH OFFICE: MONTREAL, QUE.

PRODUCTS. We are sole Manufacturers of "XCELADUCT" GALVANIZED and "ORPENITE" ENAMELLED RIGID STEEL CONDUIT for interior construction.



DESCRIPTION, "XCELADUCT" CONDUIT. Is a High Grade of Spellerized Steel Tube, and is carefully inspected before our Modern System of Pickling and Plating begins, and then this material is doubly protected against rust, corrosion, atmospheric and climatic conditions by copper-plating and zinc-coating, with a smooth enamelled interior, which allows easy and rapid fishing.

We call particular attention to the fact that the threads of "Xceladuct" Conduit are cut clean, and, being free from any insulating substances, electrical conductivity is had at each joint; therefore, when properly grounded at any point, the metal of the entire conduit system is permanently and effectually grounded as required by the rules and requirements of the National Board of Fire Underwriters.



DESCRIPTION, "ORPENITE" CONDUIT. The same grade of pipe is used in the manufacture of "Orpenite" Conduit as in "Xceladuct," which, after being cleaned by the same method, is coated, both inside and outside, with Flexible Black Enamels, which have been selected with the utmost care as to finish, lustre, elasticity, and durability, being positively acid-resisting and are not affected by any dampness in walls or contact with lime, mortar or cement. The wires are constantly free from every disturbing influence on the insulation.

APPROVAL OF UNDER-WRITERS. Each tube is ten feet long, "threads" on both ends, with coupling, and bears Underwriters' Inspection Label, and label bearing our name.

STOCK CARRIED. We carry a large and well-assorted stock of both "Xceladuct" and "Orpenite" Conduits at Toronto and Montreal, and can at all times make prompt shipments of large orders.

PRICE LIST.

"XCELADUCT" GALVANIZED AND "ORPENITE" ENAMELLED CONDUIT COUPLINGS AND ELBOWS.
WEIGHTS AND DIMENSIONS ARE NOMINAL.

Size.	Price. 100 Feet.	Diameters. External.	Diameters. Internal.	Thickness.	Weight per Foot.	Threads per Inch.	Couplings. Size.	Couplings. Price per 100.	Couplings. Wt. per 100 in lbs.	Elbows. Price per 100.	Elbows. Wt. per 100 in lbs.	Elbows. Radius. Inches.	Elbows. Offset. Inches.
¼"	$ 12.50	.540	.364	.088	.425	18	¼"	$ 10.00	6.0	$ 32.00	42	4.250	7.500
⅜"	12.50	.675	.493	.091	.568	18	⅜"	10.00	9.5	32.00	53	4.250	7.500
½"	12.50	.840	.622	.109	.852	14	½"	10.00	11.6	32.00	75	4.250	7.375
¾"	16.00	1.050	.824	.113	1.134	14	¾"	15.00	20.9	41.00	120	5.375	8.375
1"	24.00	1.315	1.049	.133	1.684	11½	1"	18.00	34.3	62.00	200	5.750	9.500
1¼"	32.00	1.660	1.380	.140	2.281	11½	1¼"	31.00	53.5	84.00	300	7.250	10.875
1½"	38.00	1.900	1.610	.145	2.731	11½	1½"	37.00	74.3	115.00	427	8.250	12.625
2"	52.00	2.375	2.067	.154	3.678	11½	2"	53.00	120.8	200.00	1700	9.500	15.250
2½"	80.00	2.875	2.469	.203	5.819	8	2½"	76.00	172.0	340.00	1300	10.500	17.375
3"	107.00	3.500	3.068	.216	7.616	8	3"	113.00	249.8	900.00	2700	13.000	19.500
3½"	141.00	4.000	3.548	.226	9.202	8	3½"	200.00	424.1	2000.00	3100	15.000	21.250
4"	175.00	4.500	4.026	.237	10.889	8	4"	280.00	474.1	2295.00	2700	16.000	22.500
4½"	190.00	5.000	4.506	.247	12.642	8	4½"	300.00	550.0	3500.00	3100	18.000	24.375
5"	200.00	5.563	5.047	.258	14.810	8	5"	330.00	700.0	4850.00	5500	24.000	32.000
6"	250.00	6.625	6.065	.280	19.185	8	6"	450.00	750.0	6015.00	9000	30.000	39.750

Conduits in 10-foot lengths threaded on both ends with one coupling.
Conduit pipe is known and spoken of by its nominal inside diameter.

THE ROBERT MITCHELL CO., LIMITED

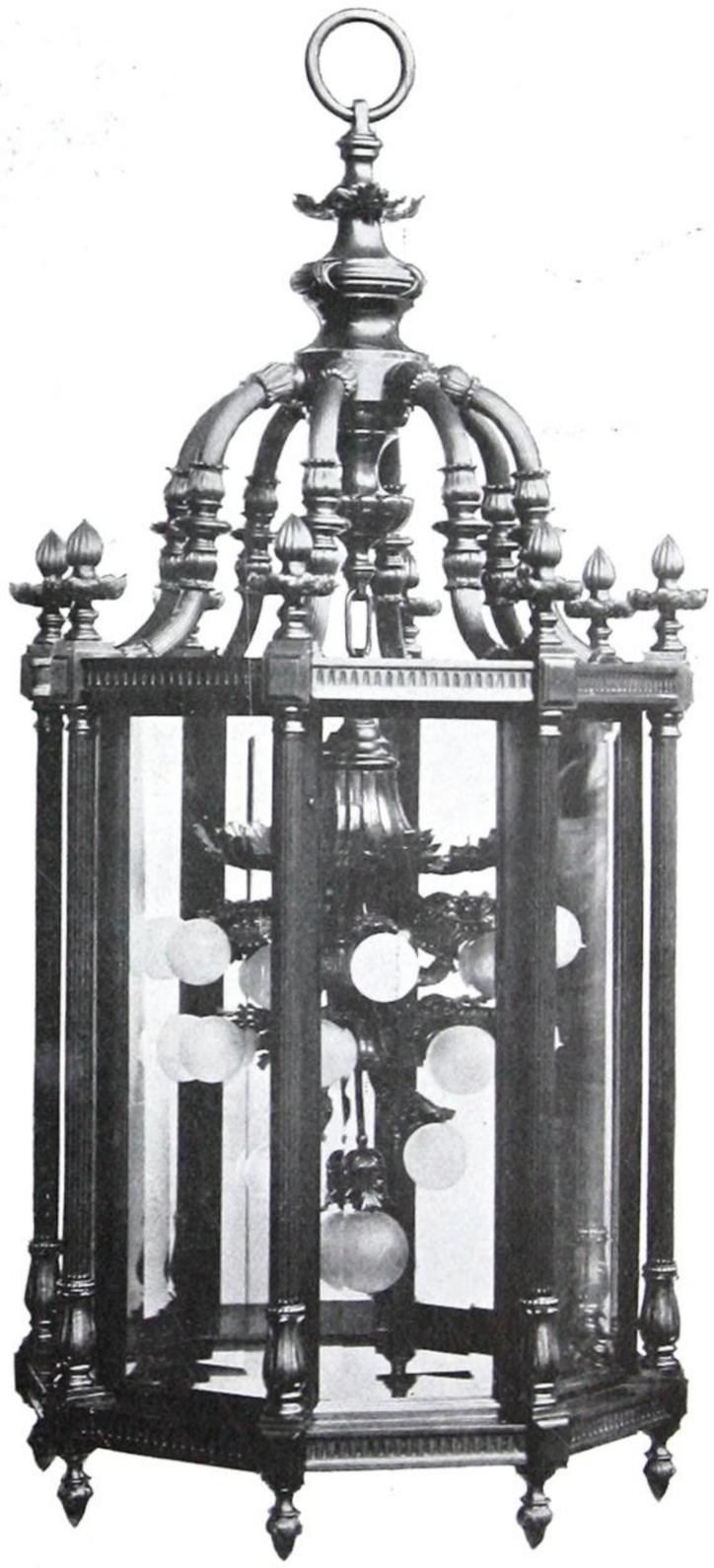
ESTABLISHED 1851.

OFFICE AND FACTORY:
BEL-AIR AVENUE, ST. HENRI,
MONTREAL.

PRODUCTS. We are makers of ELECTRIC LIGHTING FIXTURES, ORNAMENTAL IRON, BRASS AND BRONZE WORK, including Bank and Office Fittings, Memorial Tablets, Outside Lanterns, and Standards in Bronze and Wrought Iron, etc.



LIGHTING FIXTURES.
St. Sulpice Library, St. Denis Street, Montreal, Que.
Eugene Payette, Architect.



7 ft. high, 3 ft. 6 in. wide.

SPECIAL DESIGNS. As a result of our large experience in the manufacture of Electric Lighting Fixtures we are in a unique position to submit or make special designs for the architect or owner, to conform to any style of exterior or interior architecture. We will also, if desired, assist the architect in laying out a proper system of lighting in order that the best effects may be achieved.

Photos and designs supplied on application.

CANADIAN GENERAL ELECTRIC COMPANY, LIMITED

MANUFACTURERS OF

ELECTRICAL APPARATUS AND SUPPLIES FOR RAILWAY, LIGHT AND POWER PURPOSES.

HEAD OFFICE, - - TORONTO.

DISTRICT OFFICES:

MONTREAL.	SOUTH PORCUPINE.	SASKATOON.	VANCOUVER.
HALIFAX.	FORT WILLIAM.	CALGARY.	VICTORIA.
OTTAWA.	WINNIPEG.	EDMONTON.	PRINCE RUPERT.
COBALT.	REGINA.	NELSON.	

FIXTURES. Our Fixture Section is exceptionally well equipped to take care of the most exacting demands for high-class Fixtures.



DESIGNS. We shall gladly co-operate with the architect or contractor, submitting designs and making recommendations for the most up-to-date lighting.

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CANADIAN GENERAL ELECTRIC COMPANY, LIMITED

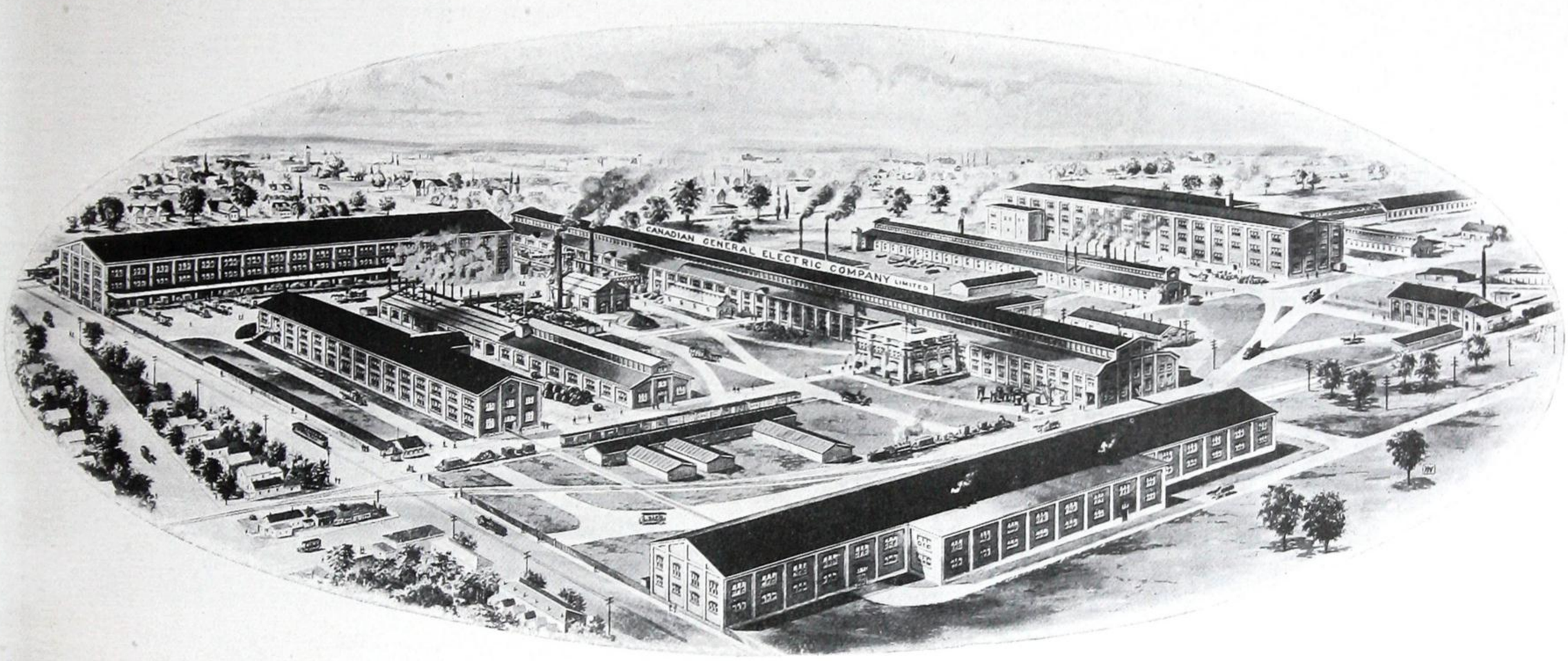
MANUFACTURERS OF

ELECTRICAL APPARATUS AND SUPPLIES FOR RAILWAY, LIGHT AND POWER PURPOSES.

HEAD OFFICE, - - TORONTO.

DISTRICT SALES OFFICES:

MONTREAL.
HALIFAX.
OTTAWA.
COBALT.
PORCUPINE.
FORT WILLIAM.
WINNIPEG.
REGINA.
SASKATOON.
CALGARY.
EDMONTON.
NELSON.
VANCOUVER.
VICTORIA.
PRINCE RUPERT.



PETERBORO WORKS.

PRINCIPAL PRODUCTS.

Arresters, Lightning.
Annunciators.
Batteries.
Bell Goods.
Brushes.
Cable, Insulated.
Carbons.
Circuit Breakers.
Cords.
Conduits.
Controllers.
Cooking Appliances.
Fixtures.
Fans.
Generators.
Glassware.
Heating Appliances.
Insulators.
Instruments.
Ignition Appliances.
Lamps: Arc.
Mazda.
Carbon.
Locomotives.
Motors.
Motor-Generators.
Meters.
Ozonators.
Panel Boards.
Railway Overhead Material.
Railway Line Material.
Rectifiers.
Reflectors.
Regulators.
Rheostats.
Search Lights.
Storage Batteries.
Switches.
Switchboards.
Shades.
Street Fixtures.
Transformers.
Turbines.
Wire (Insulated and Bare).
Wiring Devices.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

ELECTRICAL MATERIALS.

PRODUCTS. The FRINK AND J-M LINOLITE SYSTEMS OF ELECTRIC LIGHTING, J-M LINOLITE AND FRINK REFLECTORS, FRINK INDIRECT AND DIRECT-INDIRECT REFLECTING CHANDELIERS, DESK AND TABLE LAMPS.

Also, "NOARK" NATIONAL ELECTRICAL CODE FUSE DEVICES; "NOARK" FUSE, SERVICE AND SUBWAY BOXES; "NOARK" SERVICE METER PROTECTIVE DEVICES; J-M FIBRE CONDUIT, Etc.

FACILITIES. We have a fully organized Engineering Department, including illuminating engineers and specialists, and are prepared to submit proposals for the most efficient and economical illumination of art galleries, libraries, armories, squash courts, schools, churches, gymnasiums, billiard tables, bowling alleys, public buildings, show windows, show cases, stores, hospitals, banks, insurance companies, railway stations, offices, and theatres; also, border and footlights, exit signs, etc.



SYSTEM OF STORE WINDOW LIGHTING.

FRINK AND J-M LINOLITE SYSTEMS OF ELECTRIC LIGHTING. The J-M Systems consist of J-M Linolite Lamps placed end to end in Frink Reflectors. The lamps are about one foot long and one inch in diameter, and have a straight carbon or Tungsten filament extending the entire length of the tube.

ADVANTAGES. The tubular form of these lamps, together with the scientifically constructed reflectors, insures an even distribution of light over the entire area to be illuminated, thereby eliminating deep shadows. While the light produced by these systems is extremely powerful, it is soft in quality, and is the nearest approach to daylight known. There is an entire absence of glaring "spots" caused by ordinary bulb lamps. And as the source of illumination is hidden from view, there is no eye-strain.

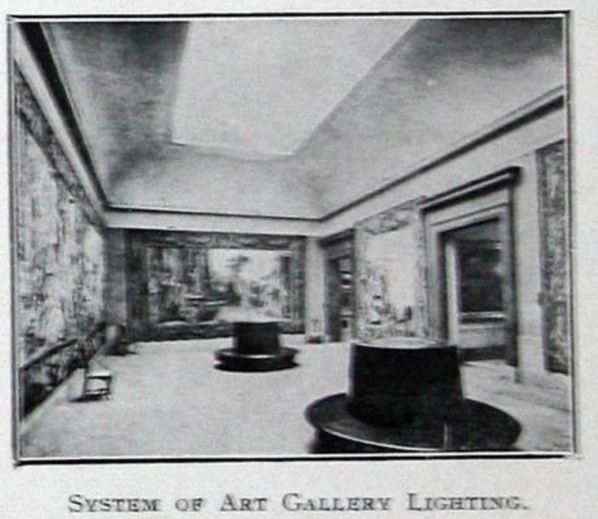
These systems not only give more and better illumination than the ordinary systems, but are more economical, owing to the fact that fewer lamps are needed.

The terminals of J-M Linolite Lamps are formed by metal caps. The socket has a fixed contact at one end and a spring contact at the other, permitting the lamp to be removed or replaced instantly. As these contacts are protected by the reflector, the danger of fire from defective wiring and sockets is eliminated.



SYSTEM OF BANK LIGHTING.

Frink and J-M Linolite Systems occupy less space in showcases and cabinets, book stacks, bank and insurance companies, squash courts, bowling alleys, billiard rooms, etc., than any other desirable form of illumination. The silver plate corrugated glass in the reflectors delivers 50 per cent. more light with the same current than any all-glass, unsilvered reflectors on the market. The silvering cannot be scratched or marred. Ample ventilation is provided for in the design of the reflectors, and there is no breakage from expansion or contraction.

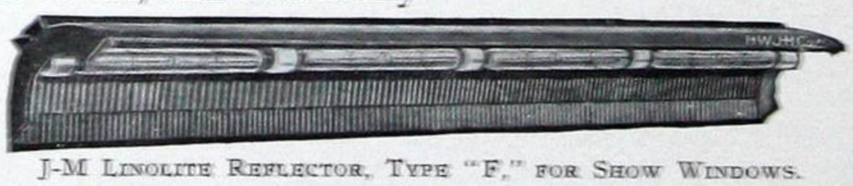


SYSTEM OF ART GALLERY LIGHTING.

TYPES OF REFLECTORS. Among the Frink Products, which have long been recognized as embodying the highest perfection in art, efficiency and quality, are Patent Approved Window Reflectors, Show-Case Reflectors, Mirror-Lined and Porcelain-Enamelled Steel Shades, Patent Portable Lamp Guards, Picture Reflectors, Cluster Reflectors, Reflectors for Bank Screens and Double Desks, and artistically designed Lighting Specialties in brass, bronze, and plain metal.



FRINK VENTILATED OPERATING TABLE REFLECTOR.

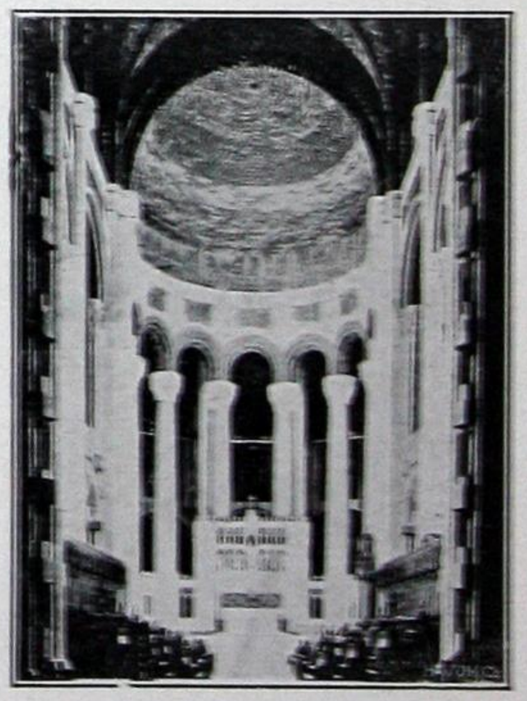


J-M LINOLITE REFLECTOR, TYPE "F," FOR SHOW WINDOWS.

FRINK DIRECT-INDIRECT LIGHTING. This system of lighting with Tungsten lamps is the most modern method of lighting dry goods and department stores.

The framework of these electroliers conceals a powerful reflector, which distributes the light over the entire ceiling. There are no glaring spots directly above. The translucent bowl at the bottom diffuses a soft light, and, by revealing the light source, the hollow, unnatural appearance of indirect lighting is avoided.

Frink Semi-Indirect Electroliers are made square, round or octagonal, plain or ornamental in design, of brass or bronze, in any finish desired.



SYSTEM OF CHANCEL LIGHTING.

NORTHERN ELECTRIC COMPANY, LIMITED

SUCCESSORS TO IMPERIAL WIRE AND CABLE CO., LIMITED.

MONTREAL.	WINNIPEG.	EDMONTON.
HALIFAX.	REGINA.	VANCOUVER.
TORONTO.	CALGARY.	VICTORIA.

Correspondence previously addressed to Imperial Wire & Cable Co., Limited, at 611 C.P.R. Building, Toronto, and 902 Electric Railway Chambers, Winnipeg, should now be addressed to Northern Electric Company, Limited, Simcoe Street, Toronto, and 599 Henry Ave., Winnipeg.

PRODUCTS.

We have standardized three grades of Rubber Insulated Wire—"Adanac" Red Core, White and Black Core, "Imperial Higrade" Black Core, and "Adanac" 30% Para. These wires are made to exceed the requirements of the National Board of Fire Underwriters, and are used principally for wiring buildings.

"Adanac" Red Core, White and Black Core.—The conductors are thoroughly tinned, and are covered with two thicknesses of rubber compound, which is thoroughly vulcanized: the wires are braided with cotton yarn, the braids being thoroughly saturated with a wax compound having a high melting point, and are smoothly and evenly finished. The smooth, hard finish given these wires enables them to be handled readily, and makes them especially desirable for conduit work.

"Imperial Higrade" Black Core is a special insulation designed to meet the demand for a very high-grade wire, to be used where a somewhat better grade than the ordinary is required, and where the requirements of the customer do not justify the use of "Adanac" 30% Para.

"Adanac" 30% Para Insulation is made in accordance with the Rubber-Covered Wire Engineers' Specification, and is the best compound for special high-class work. This insulation is made in Black Core only.

All our Rubber-Covered Wires and Cables No. 1/0 B. & S. and larger are covered with a tape and single braid, and are suitable for unlined conduit work. Smaller sizes are supplied with either single or double braid as called for by the customer.

We also manufacture Single, Twisted-Pair and Triple-Conductor Telephone Wires to meet the various Specifications of The Bell Telephone Company, Independent Telephone Companies, and Provincial Government Telephone Systems.

"Adanac" Incandescent Lamp Cord.—The conductor is composed of fine copper wires stranded together; wound with cotton, insulated with rubber wall at least 1/32" thick, and braided with either silk or cotton.

"Adanac" Elevator Light or Control Cable.—Conductor is composed of 40 No. 30 B. & S. tinned copper wires wrapped with cotton, insulated with rubber at least 3/64" thick, and covered with glazed cotton braid; conductors are stranded together, covered with an asbestos braid, and finished with a worsted braid.

"Adanac" Elevator Bell Cable.—Conductor is composed of 16 No. 30 B. & S. bare copper wires, stranded together, and covered with fine and coarse cotton in reverse directions; conductors are braided and stranded together, covered over all with white cotton braid, and finished with a coloured soft cotton braid.

"Wacco" Weatherproof Wire and Cable is made with either double or triple braid, and is thoroughly saturated with compound. It has a hard, smooth, highly-polished finish.

"Wacco" Slow-Burning Weatherproof Wires and Cables are triple braided. The inner braid is saturated with black weatherproof compound, and the two outer braids with a white fireproof compound, giving a smooth, hard finish.

"Wacco" Slow-Burning Wire and Cable, formerly known as "Underwriters," has three close braids of cotton, all saturated with a white fireproof compound. It has a smooth, highly-polished surface. As this insulation does not deteriorate in continued high temperature, it is especially suitable for boiler and engine rooms, furnaces and foundries.

"Wacco" Weatherproof Iron Wire, double and triple braided, is extensively used in telephone and telegraph work, and has the same insulation as the regular "Wacco" Weatherproof line wires. It is finished with the same smooth polish as all our other wires, and is put up for shipment in coils only, thoroughly wrapped with burlap.

Annunciator Wire is insulated with two winds of cotton yarn applied in opposite directions, saturated with our special wax compound and highly polished. Furnished in colours and styles as follows: White, red, blue, green, brown, black, red-white, blue-white, green-white, brown-white, and blue-brown.

Weatherproof Annunciator Wire.—The same as above, saturated with weatherproof compound, furnished in black only.

Damp-proof Office Wire.—Insulated with two winds of cotton yarn applied in opposite directions, saturated with our regular black weatherproof compound, then braided and specially treated with wax. It is highly polished and will not collect dust. Office Wires are made in the combination colour red and white.

Our Bare Copper Wire is made in accordance with the most approved methods. It is drawn accurately to gauge, and is of high conductivity. We can furnish this in all sizes, either hard drawn or annealed, or to special specifications.

Trolley Wire, hard-drawn, is furnished in either of the two standard styles, round and grooved. Sizes 1/0 and 2/0 are put up in mile lengths; 3/0 and 4/0 in lengths of two-thirds of a mile.

Stranded Bare Copper is furnished in standard or special number of strands, according to specifications. Concentric stranding is our standard, as it gives a smaller diameter of conductor for a given capacity.

Below is given a more complete list of the various wires and cables we manufacture:—

Annunciator Wire.
Armature Wire.
Asbestos Covered Wire.
Automobile Wire.

Bare Copper Wire.
Bell Cord.
Brass Wire.
Brewery Cord.
Bridle Wire.

CABLE SPLICING COMPOUND.
CABLE TERMINALS.
Canvassite Cord.
Car Wire.
Copper Steel Wire.
Counterweight Cord.

Deck Cable.
Drop Wire.

Electric Heater Cord.
Elevator Cable.

Fixture Wire.
Flameproof Wire and Cable.

Lamp Cord.
Lead Covered Cable.

Magnet Wire.
Marine Wire.
Motor Boat Wire.

Office Wire.

Packinghouse Cord.
Paper Insulated Power Cable.
Paper Insulated Telephone Cable.
PAPER TAPE.
Portable Lamp Cord.
POTHEAD COMPOUND.
Pothead Wire.

Rubber-Covered Cable.
Rubber-Covered Wire.

Show Window Cord.
Signal Wire.
Slow Burning Wire.
Slow Burning Weatherproof Wire.
Switchboard Cable.
Switchboard Cords.
Switchboard Wire.

Telegraph Cable.
Telephone Cords.
Telephone Wires and Cables.
Theatre Cable.
Trolley Wire.

Weatherproof Aluminum Wire
Weatherproof Copper Wire.
Weatherproof Iron Wire.

Etc., etc., etc.

CATALOGUE.

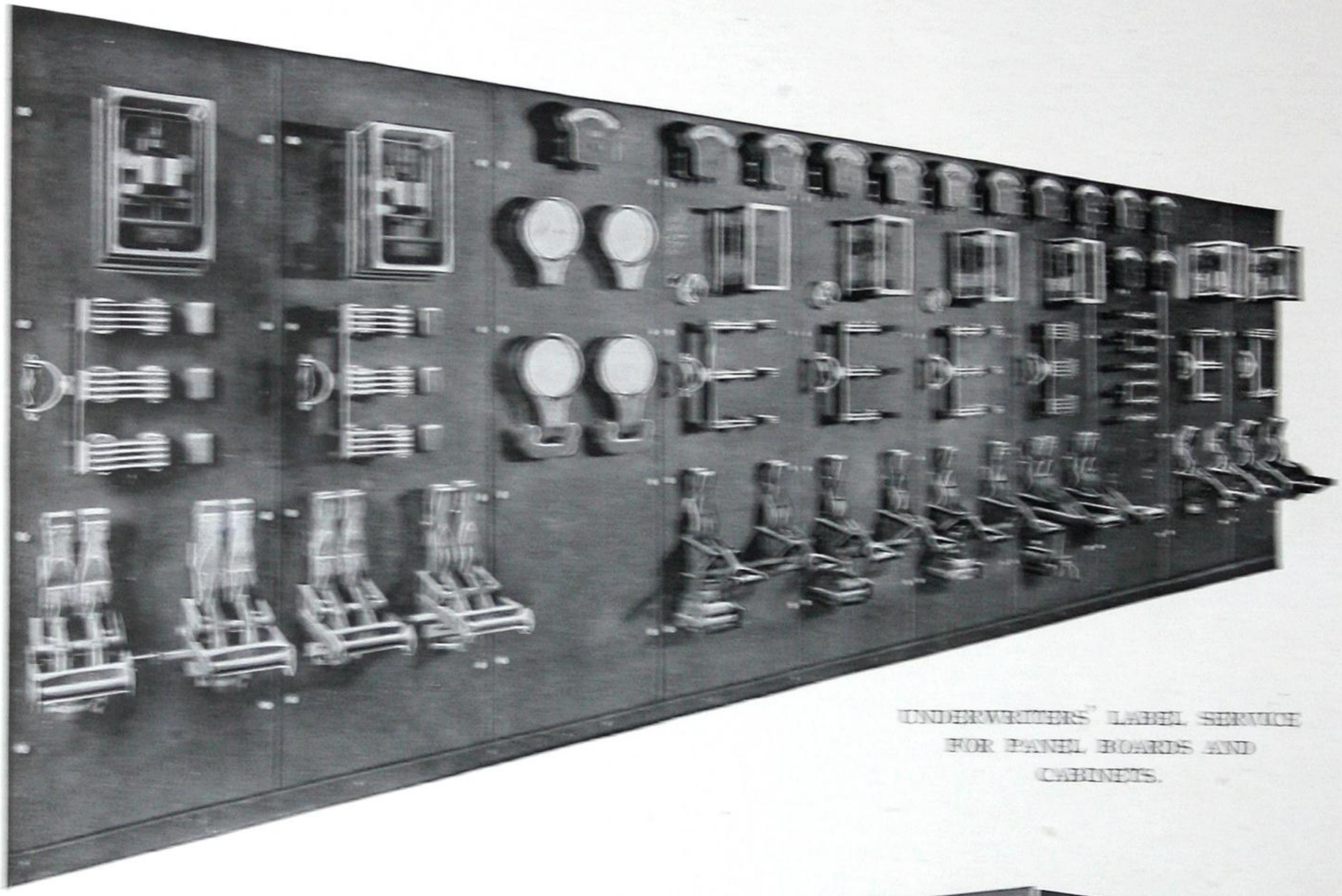
On request we will be glad to send Catalogue or Specifications covering these lines in detail.

FRANK ADAM ELECTRIC CO.

904–914 Pine St.,
ST. LOUIS, MO., U.S.A.

PRODUCTS.

- Electric Light and Power Switchboards.
- Distributing and Feeder Panel Boards.
- Meter Control Panel Boards.
- Knife Switches, Front and Back Connected.
- Boxes, Floor, Wall, Underground and Overhead Service.



UNDERWRITERS' LABEL SERVICE FOR PANEL BOARDS AND CABINETS.

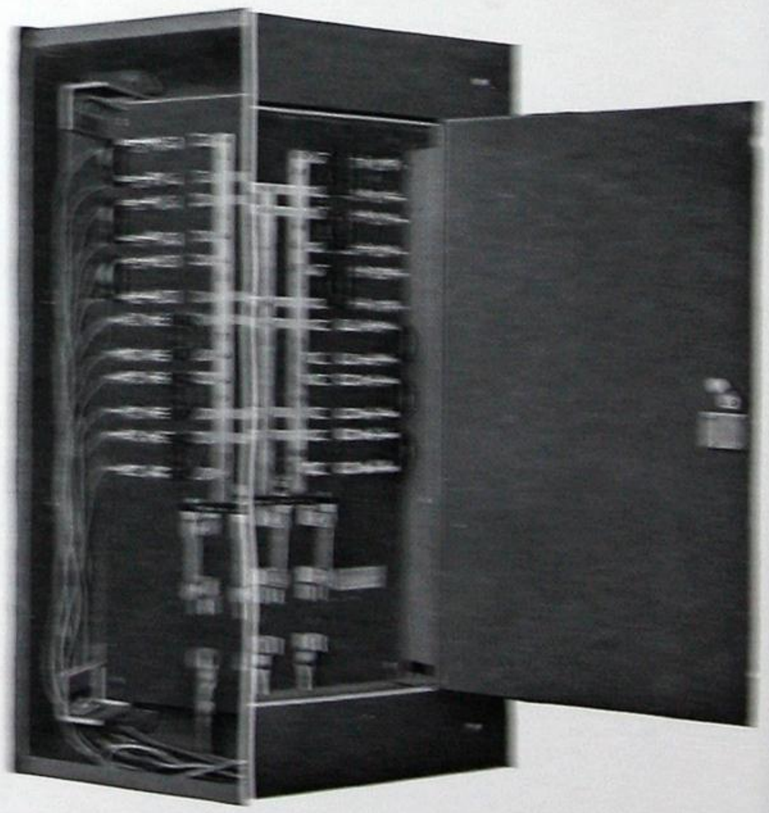
GENERAL.



Panel-Boards and Steel Cabinets. Meter-Control Panels and Switchboards.

Made for voltages of 125, 125-250, and 250 volts, 2 and 3 wire, without branch switches and with either knife, push button or snap switches on branches, and cable terminals, fuses, or knife switch on bus bar. With fuse terminals for Edison Plug or New Code Cartridge enclosed fuses. The Standard Panels as per catalogue, or special panels on specifications. Also panels with through feed and convertible from 3 to 2 wire feeder and Meter Control Panels.

SEND US YOUR SPECIFICATIONS



CATALOGUES. Catalogues and other descriptive matter, illustrating our material, will be mailed on request.
Write for Catalogue No. 21, on Panel Boards and Steel Cabinets, Switchboards, etc.
Send for Bulletin No. 19, listing our line of Type A, B, and F Knife Switches.

THE JEFFERSON GLASS COMPANY, LIMITED

TORONTO, CANADA.



No. 6052.

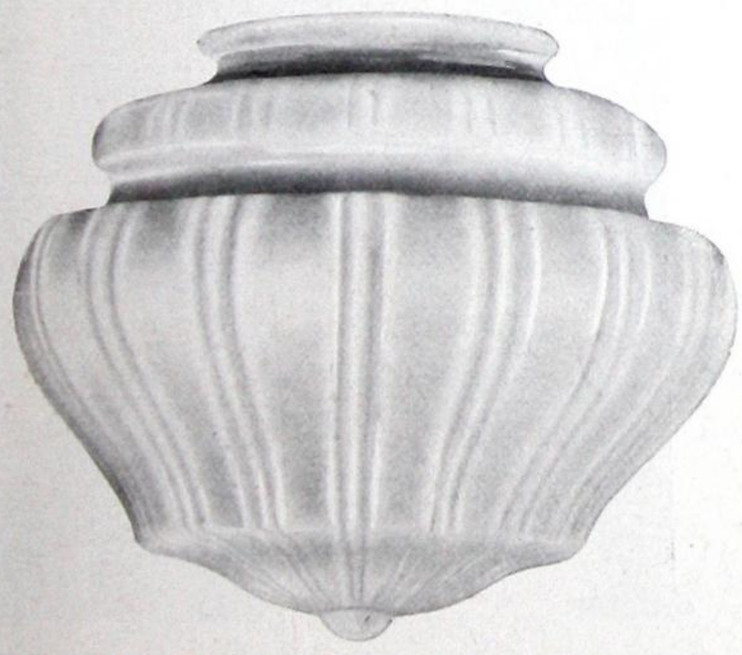
18-IN. MOONSTONE SEMI-INDIRECT BOWL.
Finished in White, Old Ivory, Antique Bronze, Verde Green, Pink and Blue.

GENERAL.

In this age, where efficiency is the keynote of all successful attainments, architects, builders and owners of buildings now look upon efficient lighting as an investment; not an expense, as heretofore.

To keep abreast of the times, we have spared no pains or expense to produce a glass that will give maximum lighting efficiency embodied with designs to meet the requirements of every service. The result of our efforts is MOONSTONE Glass, and we recommend it for all installations where good lighting is wanted. It is the BEST we make, and we make every kind.

MOONSTONE is strictly a CANADIAN PRODUCTION, made by CANADIAN LABOUR for CANADIANS.



MOONSTONE GRECIAN LANTERNS.

No. 9070— 7 inch diameter.
No. 9072—10 inch diameter.
No. 9074—12 inch diameter.
No. 9076—14 inch diameter.
No. 9078—16 inch diameter.



MOONSTONE EXTENSIVE REFLECTORS.

No. 4051— 40 watt.
No. 4053— 60 watt.
No. 4057—100 watt.
No. 4059—150 watt.



MOONSTONE INTENSIVE REFLECTORS.

No. 4050— 25 watt.
No. 4052— 40 watt.
No. 4054— 60 watt.
No. 4056—100 watt.
No. 4058—150 watt.
No. 4060—250 watt.



MOONSTONE CANTALOUPE BALLS.

No. 9050— 6 inch diameter.
No. 9052— 8 inch diameter.
No. 9054—10 inch diameter.
No. 9056—12 inch diameter.
No. 9058—14 inch diameter.

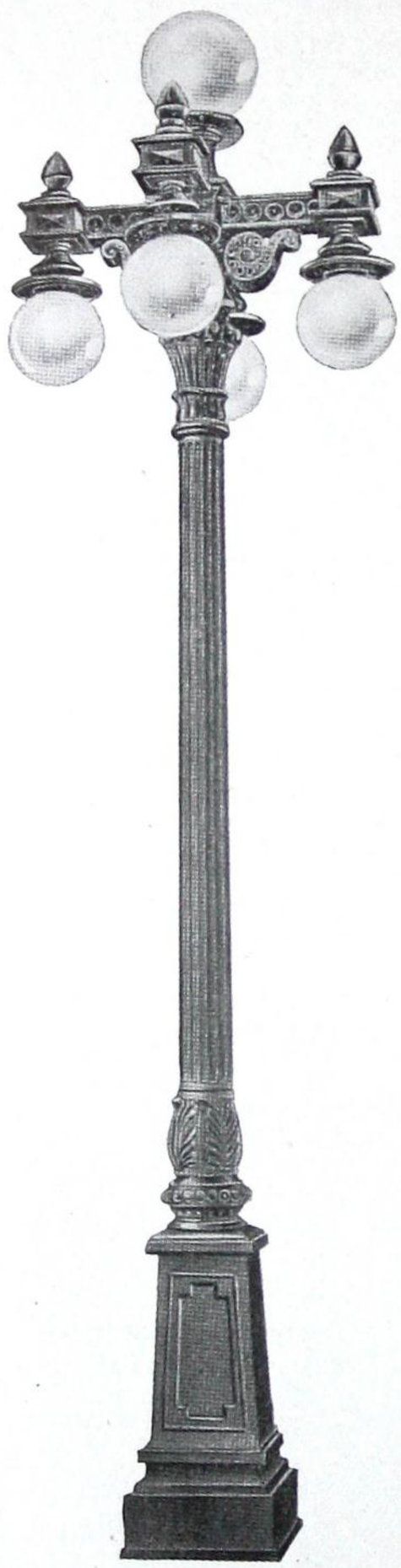
CO-OPERATION. USE our Engineering Department in laying out your lighting plans.

L. H. GAUDRY & CO., LIMITED

76 St. Peter Street,
QUEBEC.

PRODUCTS. "MORRIS" STREET LIGHTING POLES. Modern ideas in street lighting.

QUALITY. These poles are manufactured with the best grey iron, to a very fine finish, and represent the most modern ideas in street lighting.



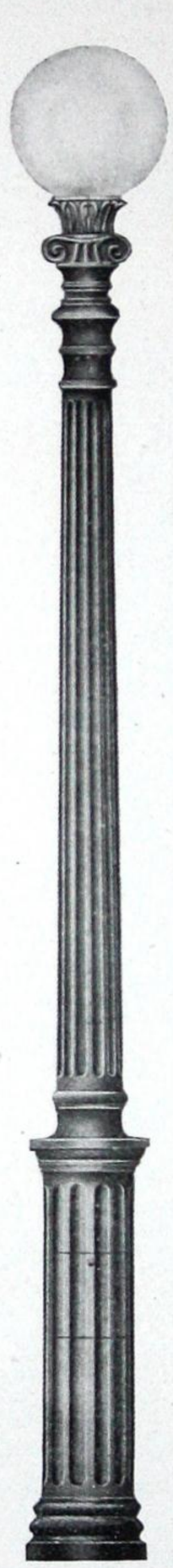
No. 40103

Height from ground to bottom of lower globes, 12 ft.; Height from ground to top of upper globes, 15 ft.; Base, 18 ins. square; Spread of arms, 3 ft. Price.....$100.00
Globes, Sockets, Lamps or wiring not included.



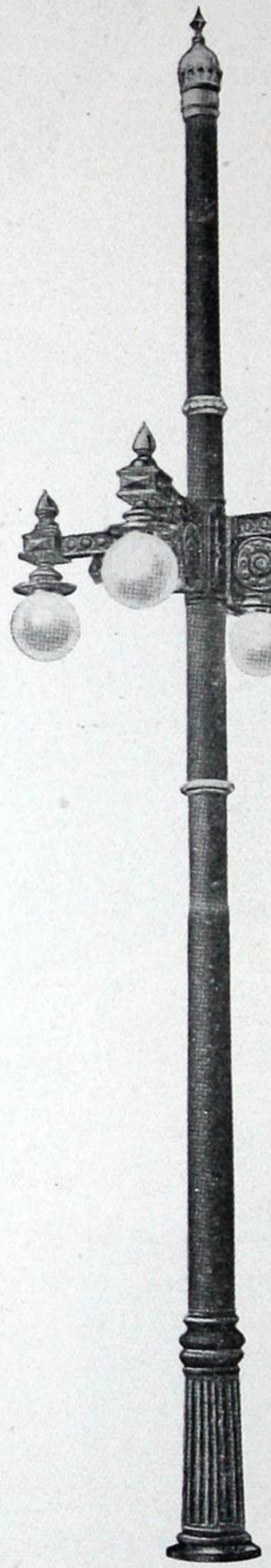
No. 31108

Height from ground line to centre of globe, 14 ft. 6 ins.; Base, 18 ins. diameter at ground line. Price.....$70.00
Globe, Lamps or casing not included.



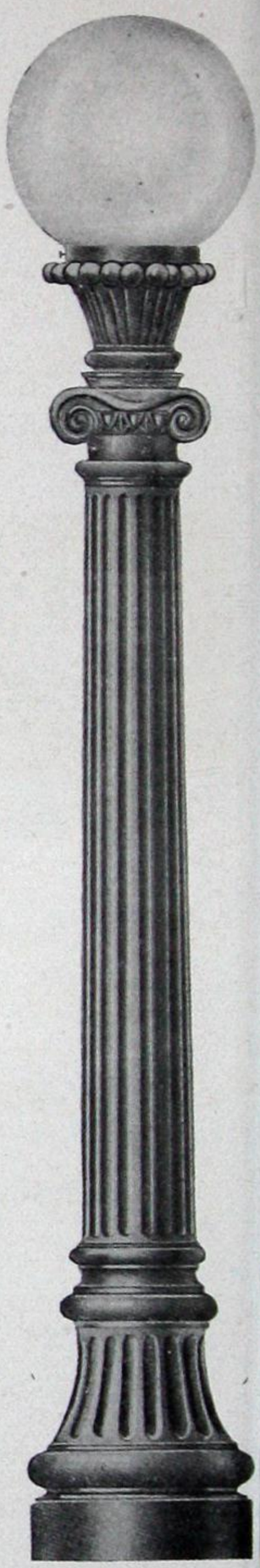
No. 31006

Height from ground to top of globe, 9 ft. 6 ins.; Base, 10 ins. diameter. Price $35.00
Lamp, Sockets or wiring not included.



No. 41008

Height from ground to bottom of globes, 13 ft.; Height from ground to top of pole, 24 ft.; Base, 15 ins. diameter; Spread of arms, 5 ft.
Price.....$120.00
Globes, Sockets, Lamps or wiring not included.



No. 37929

Height from ground line to top of globe, 5 ft.; Base, 10 ins. diameter at ground line.
Price.....$30.00
Globe, Socket, Lamp or wiring not included.

SPECIAL DESIGNS. Special designs submitted on request.

NOTE. Poles supplied with or without ground extensions.

INFORMATION. Send for descriptive bulletin and prices.

CANADIAN INDEPENDENT TELEPHONE CO., LIMITED

20 DUNCAN STREET,
TORONTO, ONT.

PRODUCT.

We manufacture TELEPHONES—both Manual and Automatic—for all kinds of service—for the city, the town, the rural lines or for private systems. We here call special attention to the PRESTO-PHONE, an Automatic Telephone System for Private Inside Service—a Central Station Intercommunicating System.

DESCRIPTION.

The Presto-Phone is an Automatic Telephone System by which any number of telephones up to one hundred may be installed in a building or series of buildings, and private communication had from one telephone to any of the others by means of an automatic switchboard, requiring the services of no operator. This switchboard is compact in design and may be installed at any convenient place in a building. It is sightly enough to be an ornament in any office. It will not get out of order and can be maintained at a very small annual cost.

The Presto-Phone is a central energy system, there being no batteries in the telephones. The necessary battery current for signalling and talking is supplied by a storage battery of small capacity.

SIMPLICITY OF WIRING.

There are but a single pair of wires from each telephone to the switchboard. They can be installed by anyone having even a limited knowledge of telephone matters.



PRESTO-PHONE CALL SENDER.
FOR USE WITH AN ORDINARY DESK TELEPHONE.



PRESTO-PHONE SWITCHBOARD.
25 LINE CAPACITY.



WALL PRESTO-PHONE

IMPORTANT FEATURES.

Compactness of the switchboard and its sightly appearance.

Compactness of the telephone and the clever method devised for making calls automatically.

Simplicity of operation, both of the telephone and the switchboard.

Accuracy of service. Automatic switches, which never make mistakes, never get tired, always give undivided attention and work perfectly all the time—nights, holidays and Sundays.

Absolutely secret service—no one to listen, no one able to come in on the line when you are talking, unless called.

Quick service—connection in three seconds and instant release.

The Presto-Phone system gives an instantaneous signal telling you if the telephone you are calling is busy.

The Presto-Phone is so designed that you need install at first only the number of telephones and switches required at that time. As your business grows, you may increase the number at a nominal expense.

The first cost of a Presto-Phone is not much more than the first cost of an ordinary intercommunicating telephone system, and the Presto-Phone advantages are inestimable.

The first cost of a Presto-Phone system is practically the only cost, as the annual cost of maintenance will be very small—no operator to pay, no plugs and cords to wear out or expensive cables to become damaged.

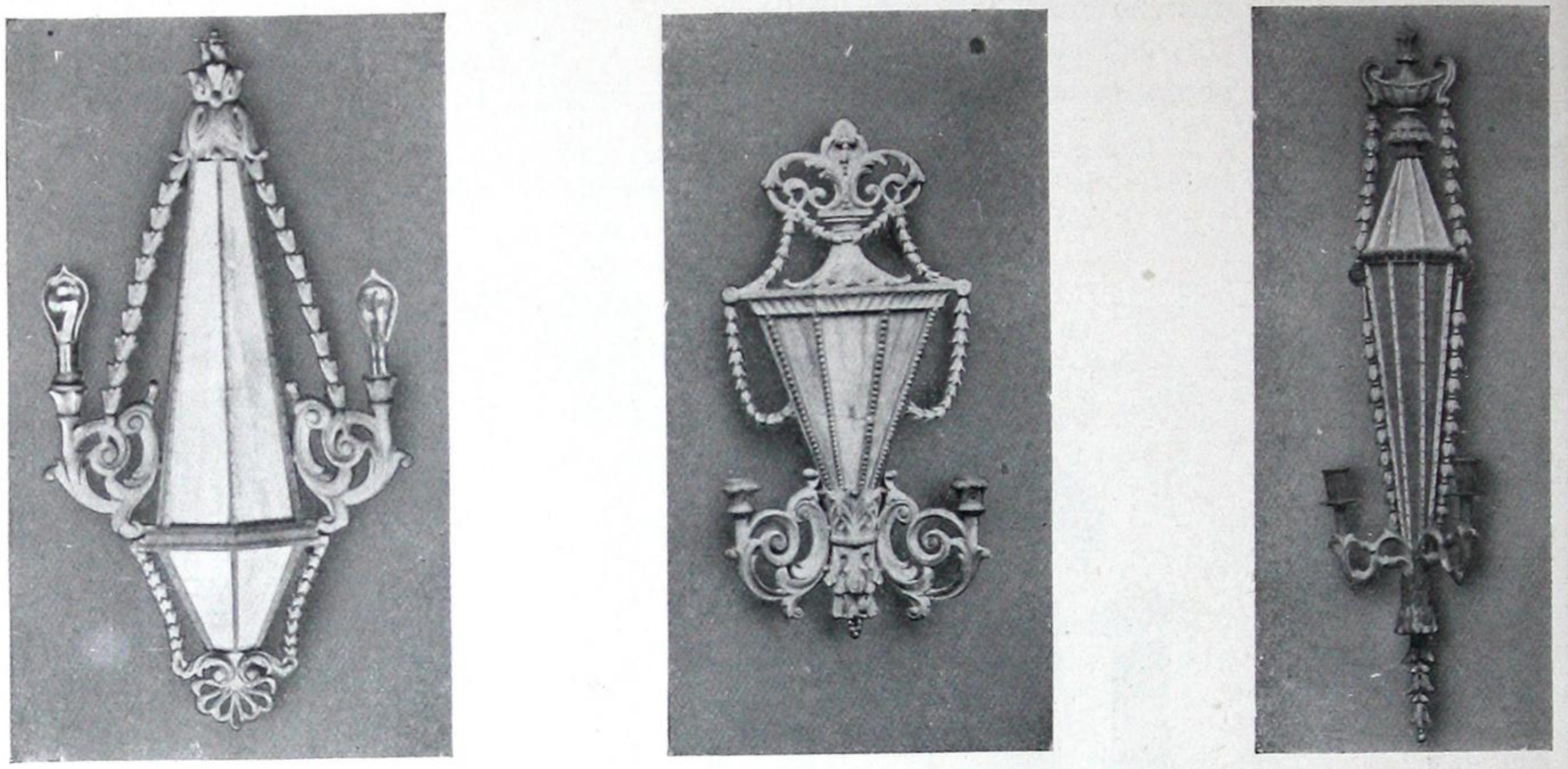
INVITATION.

We have a Presto-Phone system in operation in our factory, and we extend a cordial invitation to any and all who are interested to call and have the system thoroughly demonstrated. This is the best way to secure the full appreciation of the advantages presented by the Presto-Phone. To those who cannot conveniently call, we will gladly send further particulars and estimates upon request.

THE THORNTON-SMITH COMPANY

INTERIOR DECORATORS,

11 KING STREET WEST,
TORONTO.



Three Adams Fixtures, in carved wood, gilded, the flat spaces being filled with small mirrors, wired with sockets or either candles or bulbs.

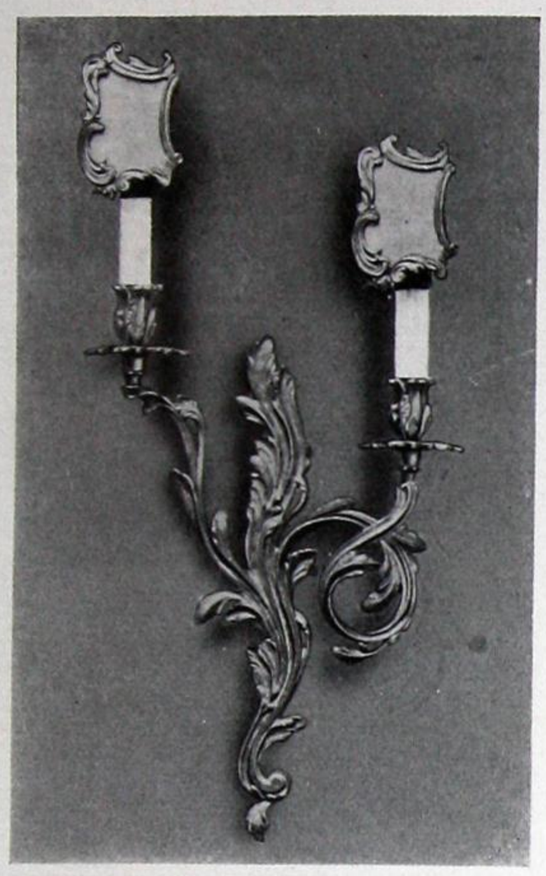
PRODUCTS. An interesting line of ELECTRIC FIXTURES, designed in the different periods, from the Classic to the Modern. The workmanship and finish of the very best. A special feature is made of the MERCURIAL GILT finish, Crystal and combinations of Wood and Metal, and Wood and Mirrors. SHADES designed in keeping with the fixtures and room.

FACILITIES, MODELS, ETC. Special designs to conform to any style of Exterior or Interior architecture. We prepare details and models to enable the architect intelligently to comprehend all the salient features of the design, and otherwise assist him in supplying all necessary data to execute the work. Orders promptly executed.

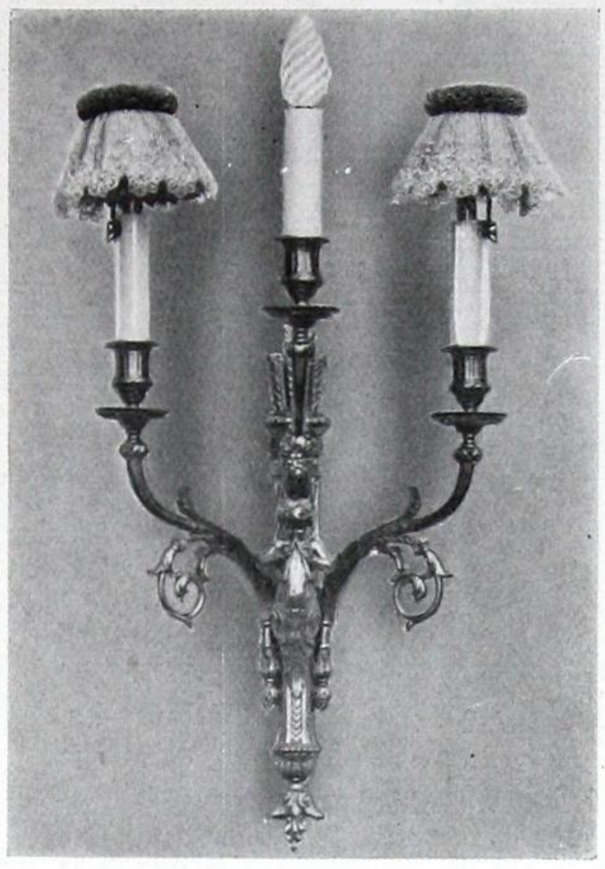
ADAPTABILITY. We carry a line covering everything requisite for the complete equipment of Private Residences, Public Buildings, Churches, Hotels, Clubs, Yachts, Etc.

CO-OPERATION. We will submit designs and estimates for work to satisfy requirements of every nature.

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LOUIS XV.



LOUIS XVI.—THE PIPING BOY DESIGN.



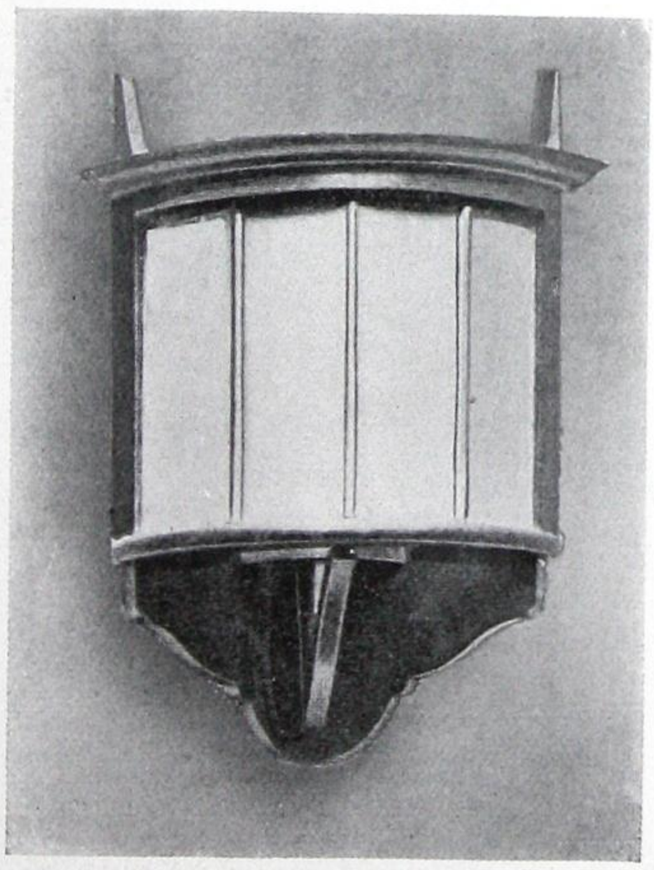
LOUIS XVI.

These fixtures are hand chiselled, perfect reproductions of the periods, of exquisite workmanship, and finished with what is known in France as the Mercurial gilt finish.

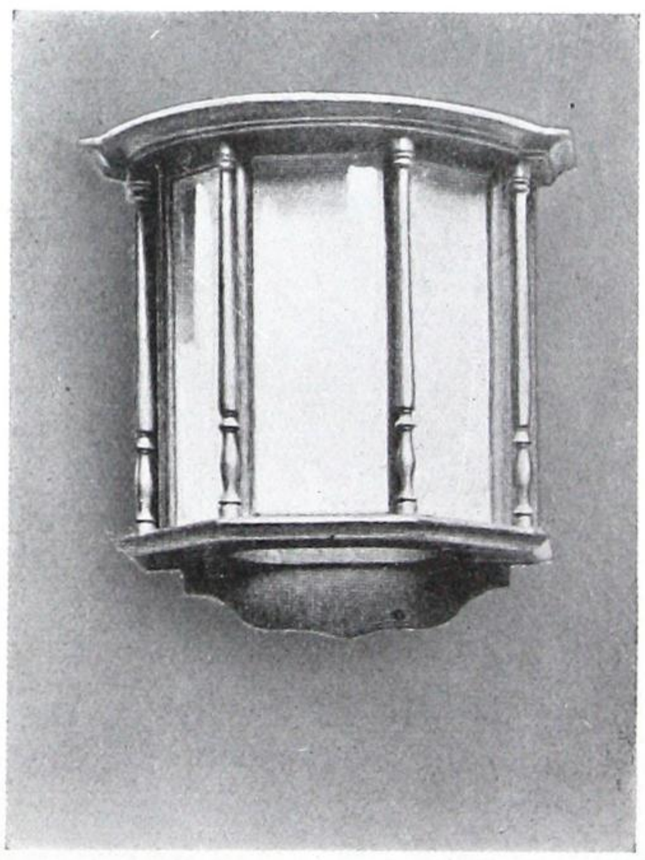
PERIOD DESIGNS. We make a special feature of faithfully reproducing designs of the different periods: Egyptian, Greek, Roman, Gothic, Italian and French Renaissance, Henry II., Louis XIII., Louis XIV., Louis XV., Louis XVI., Georgian, Adam, and adaptations from the Dutch.

CORRESPONDENCE. We will be glad to receive inquiries from architects, and in response will be happy to place our services at their disposal.

AN OAK AND CATHEDRAL GLASS HALL FIXTURE.
MADE IN ANY SIZE.



A MAHOGANY AND CATHEDRAL GLASS HALL FIXTURE.
MADE IN ANY SIZE.



The above cuts show two examples of Brackets peculiarly appropriate for halls. The first one is shown in Oak, the second in Mahogany. These are also successfully used in white enamel. The light is behind the cathedral glass, which opens with a hinge, allowing for the changing of bulbs and dusting.

These fixtures are also made in Copper, Bronze, Iron and Polished Steel, the colour of the glass being governed by the nature of the metal.

CONTINUED ON NEXT PAGE



These cuts show an example of an Adams Ceiling Fixture, and Bracket to match. The lines are very true, and the workmanship exquisite.

Fixtures are wired complete with sockets to take the "Huntalite" Candle Lamps. For further particulars of the "Huntalite" Candle see matter advertised by the Hunter Electric Candle Company. Other makes of Electric Candles can be used.

These Fixtures are made in Brass, Gun Metal, Polished Steel and Mercurial Gilt.

The price is governed by the amount of hand work, the fixtures being inexpensive when cast and not chased by hand, and give a very satisfactory effect.



Quite a large variety of shades can be used on these fixtures, giving a particularly pleasing and artistic effect. The shades are fitted with special spring over the apex of the candle, and are made in Silk, Coloured Porcelain, Translucent Glass Mosaic, Crystal Beads; also Transparent Enamels set in metal.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

SANITARY PLUMBING SPECIALTIES.

PRODUCTS. J-M WASHERLESS FAUCET, J-M SECTIONAL UNDERGROUND CONDUIT.

Also, J-M FLUSHING VALVES, J-M VITREOUS CHINA COMBINATION, J-M DIRIGO SOLDERLESS COPPER FLOATS, J-M SANITARY CLOSET FITTINGS, BATHS, SHOWERS, LAVATORIES, URINALS, DRINKING FOUNTAINS, SINKS, LAUNDRY TRAYS, FITTINGS AND FIXTURES for every purpose.

For complete List of J-M Building Materials, see our Catalogue in Roofing Section.

GENERAL. J-M Sanitary Plumbing Specialties embrace the entire fixture line, and are unique both in design and construction. They are built to meet the requirements of each specific building. Exposed metal parts have been reduced to a minimum, and the usual fouling space has been eliminated.

J-M WASHERLESS FAUCET. *Construction.*—Made from highest grade materials by experienced workmen; the only successful faucet on the market without seat washer. The seating consists of a *conical valve* or "jumper," which bears directly on a *spherical seating*. No washer to wear out or cause troublesome and expensive leaks.

In this form of seating the ideal *line-contact* is obtained. A slight turn shuts the water dead off and it *stays* shut off. It cannot leak, because contact between the surface of the spherical bearing and the hollow enveloping cone or jumper is always a true circle. The jumper *always* finds a true seat, even when the top action of the cock is not axially true with the body.



SECTIONAL VIEW OF J-M WASHERLESS FAUCET.

The J-M Faucet shuts off at a touch. It is not necessary to jam the valve down hard, as with the ordinary faucet. There is no water hammer, no whistling, no splashing, no sticking of the seat. It operates on high pressure as well as on low, and is equally efficient on hot or cold water lines.

This valve cannot "cut" or otherwise get out of order. Owing to the spherical form of the seat, solid particles rarely find a place for lodgment, and, therefore, cannot become jammed between valve and seat. The two operating parts form a separate unit in themselves, and can be easily and quickly removed.

Advantages.—The greatest advantage of the J-M Washerless Faucet is the water saving effected by its use.

It is a generally accepted idea that water leaks are too insignificant to deserve attention. Yet the annual water loss through leaky faucets is calculated at many millions of dollars.

Water under 39 pounds pressure, flowing through an opening $\frac{1}{32}$ in. in diameter, will, on meter-rate basis, amount to $11.68 annually.

This loss varies according to the size of the drip or leak, the amount of pressure, and the cost of water in different localities, but in no case is it so slight as to be a negligible quantity.

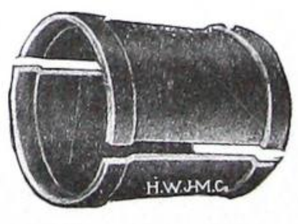
J-M Washerless Faucet puts an end for all time to loss from water waste through leakage. It reduces the bill of the big consumer who is charged by a water meter. And by conserving water in a community it tends to reduce the water cost per capita.

All parts of this faucet are interchangeable. It meets all requirements in the handling of oils, chemicals and other liquids. And in localities where the water contains salts which set up galvanic action on coming in contact with different metals or alloys, the seating and valve will be furnished in special alloys, which will remain unimpaired.

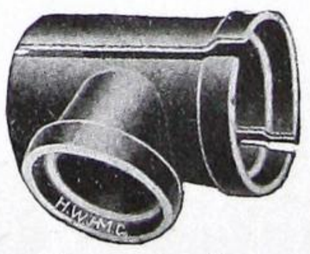
The J-M Washerless Faucet is not a theory nor an experiment, but a practical device which has withstood the test of actual service. Thousands have been in successful use for years. It has been adopted by the Metropolitan Water Board of London and other large cities, and is pronounced by prominent engineers, who have subjected it to tests of the most severe character, to be the most perfect faucet on the market.

Every faucet is thoroughly tested before leaving our works, and guaranteed free from defects.

Guarantee.—The seating in every J-M Washerless Faucet is guaranteed for ten years, and new seatings will be furnished free during that time if it fails to give satisfactory service in ordinary use.



UNION.



SUPPORTING TEE.

J-M SECTIONAL UNDERGROUND CONDUIT. Has many advantages over ordinary conduit for carrying pipes containing steam, water, gas, brine, ammonia or any other liquid underground. It will carry steam 1,000 feet with practically no loss. Saves 90 per cent. of the heat lost in transmission through unprotected or poorly insulated pipes. It is absolutely water-tight. Acids, gases, or the action of the earth do not affect it. Can be easily opened after installation. Costs nothing for maintenance and can be taken up and relaid without injury.

THE STANDARD IDEAL COMPANY, LIMITED

GENERAL OFFICES AND FACTORIES:
PORT HOPE, ONTARIO, CANADA.

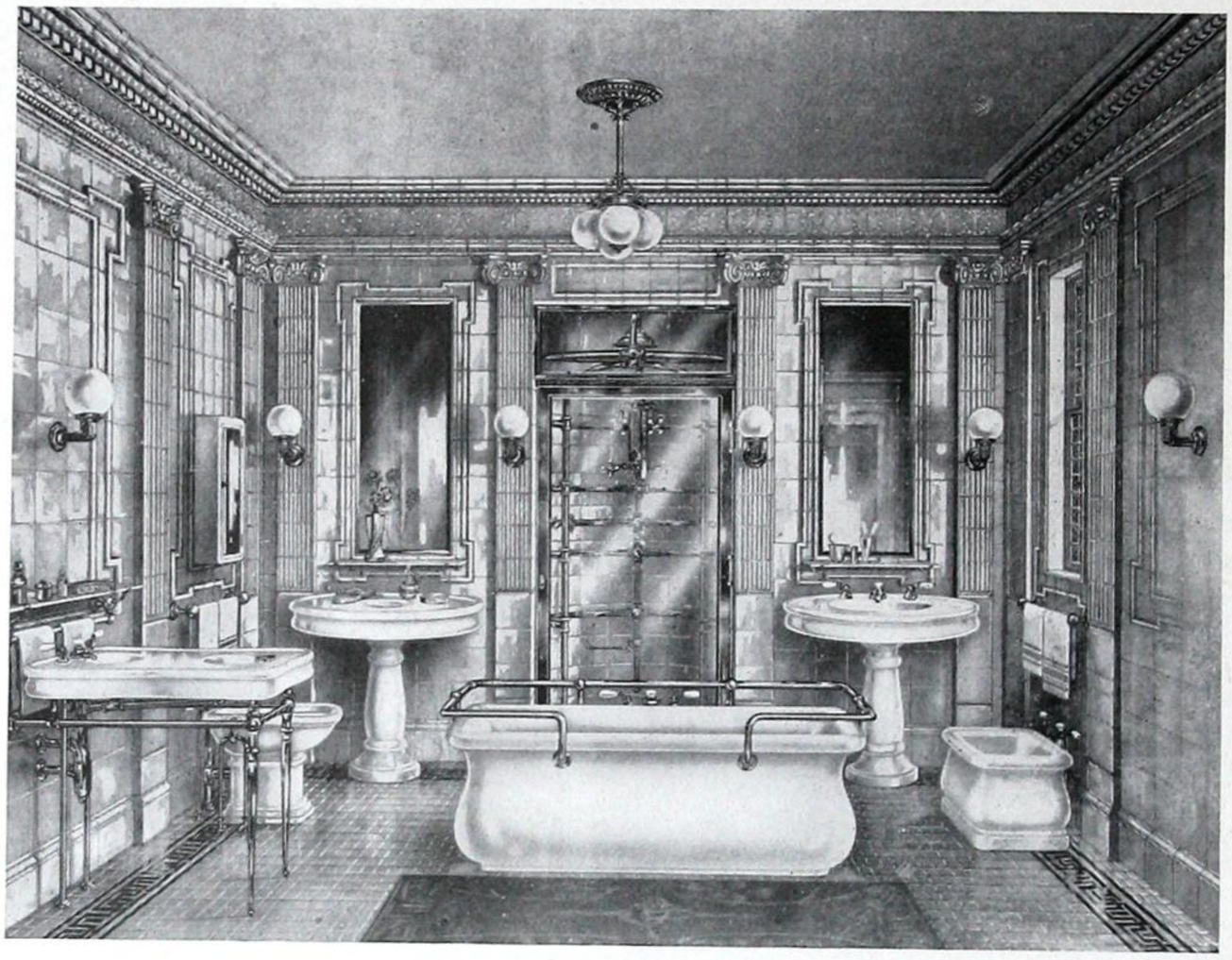
MONTREAL:
42-44 Beaver Hall Hill.

TORONTO:
119 King Street East.

WINNIPEG:
76-82 Lombard Street.

VANCOUVER:
410 Carter Cotten Bldg.

MANUFACTURERS OF
HIGH-GRADE PLUMBING FIXTURES.



AN "ALEXANDRA WARE" BATHROOM.

PRODUCTS.

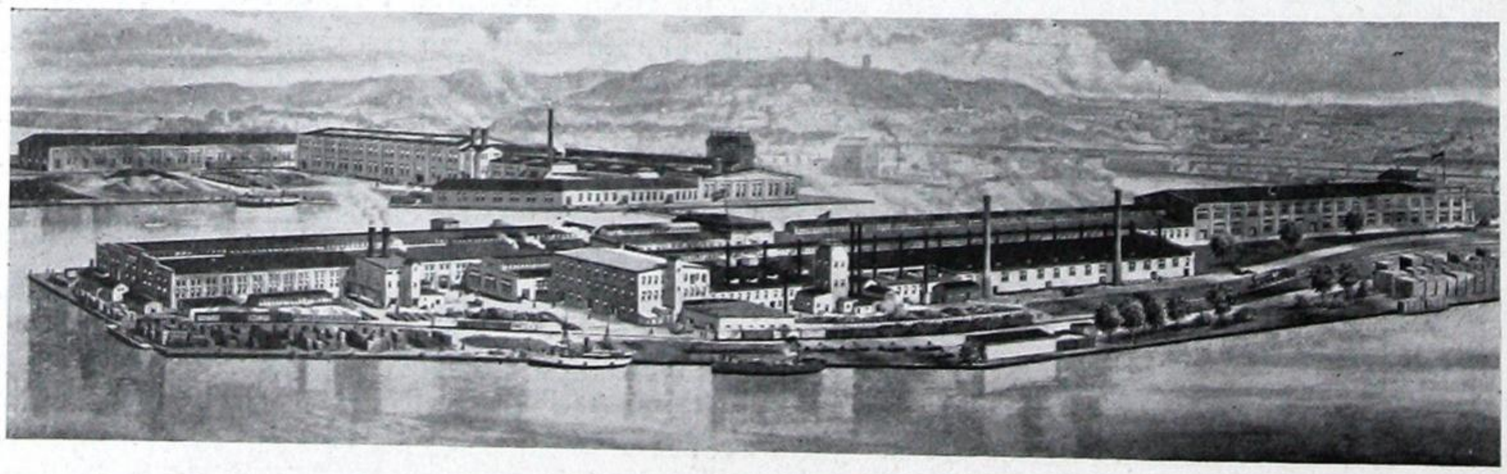
CAST-IRON PORCELAIN ENAMELLED.

BATH TUBS.
SITZ BATHS.
FOOT BATHS.
CHILD'S BATHS.
RECEPTORS.
BIDETS.
MANICURE AND TOILET TABLES.

DRINKING FOUNTAINS.
KITCHEN SINKS.
PANTRY SINKS.
SLOP SINKS.
WASH SINKS.
LAUNDRY TRAYS.

LAVATORIES.
SECTIONAL LAVATORIES.
BARBERS' LAVATORIES.
LAVATORY BATTERIES.
CLOSETS.
RANGE CLOSETS.
URINALS.
TANKS, ETC.

SPECIALTIES OF VARIOUS KINDS,
INCLUDING SPACE-SAVING OUTFITS, INCINERATORS, ETC.

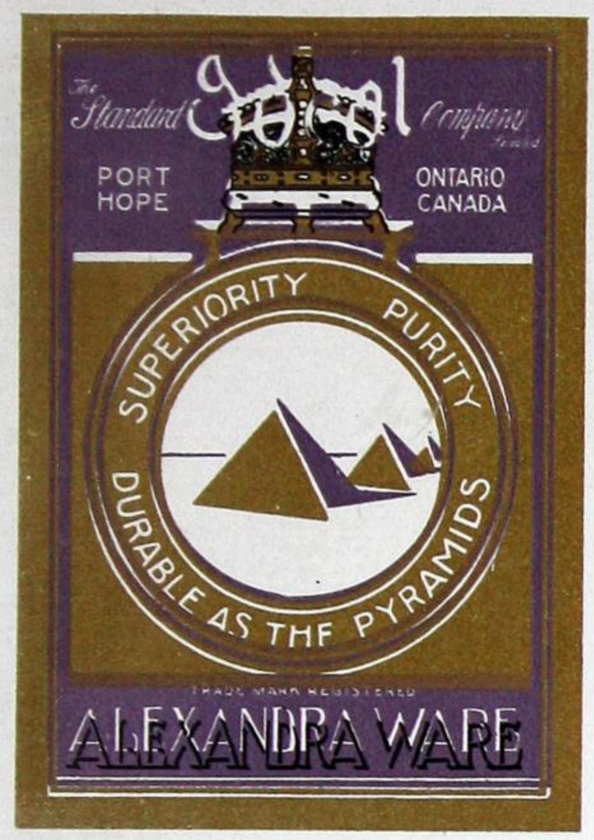


THE LARGEST EXCLUSIVE CAST IRON ENAMELLING WORKS UNDER THE BRITISH FLAG.

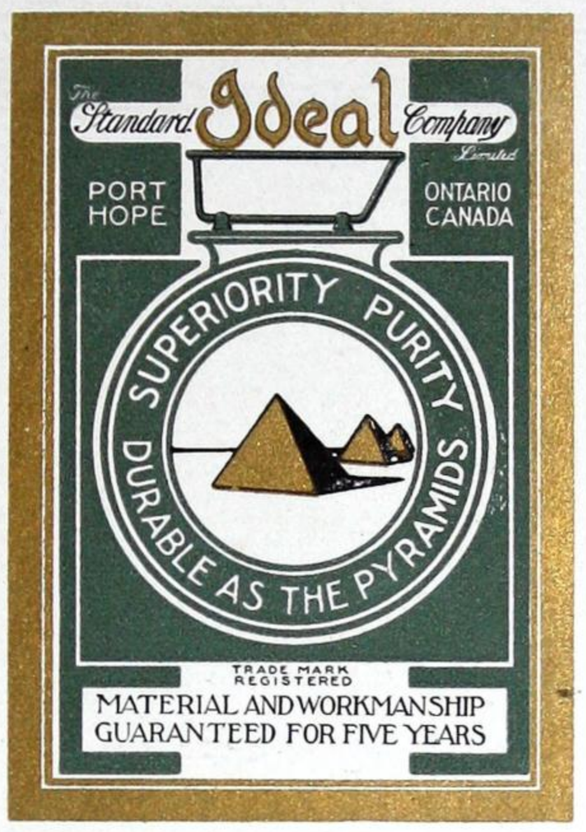
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GUARANTEE LABELS.

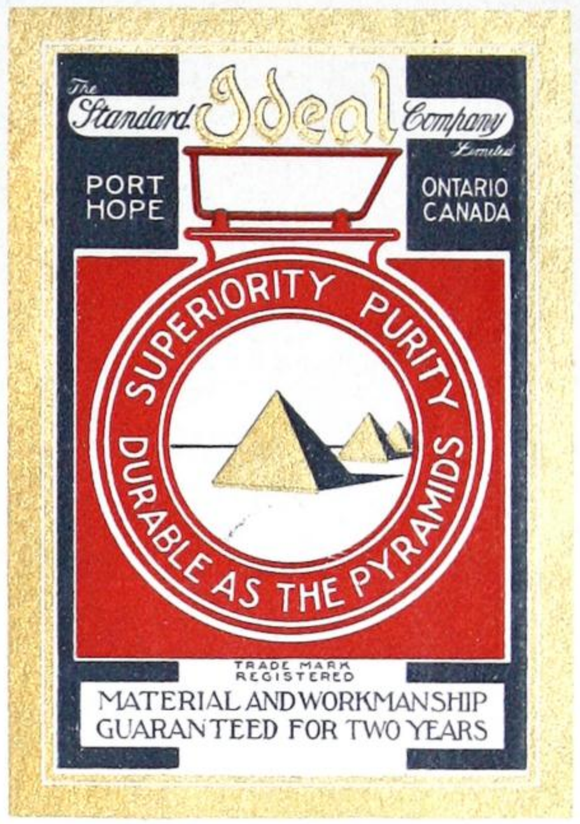
IDEAL
"PURPLE AND GOLD"
GUARANTEE LABEL.



IDEAL
"GREEN AND GOLD"
GUARANTEE LABEL.



IDEAL
"BLUE AND RED"
GUARANTEE LABEL.



"PURPLE AND GOLD" LABEL.

All "Alexandra Ware" bears this label. It is indicative of superior features in the construction of Sanitary Enamelled Iron Ware never before equalled by any manufacturer. It is distinctively a Superior Quality Line, not sold on price, but bearing all the attributes usually considered when selecting material for a finely appointed home.

"GREEN AND GOLD" LABEL.

All of our standard line bears this label. Its presence indicates that the very best materials and workmanship were employed in the manufacture, and guarantees such fixtures against all manufacturing defects for a period of five years.

"BLUE AND RED" LABEL.

Our medium-priced Bath Tubs bear this label. These Baths are covered with our First-Grade Enamel, and differ from the Green and Gold Label Baths only in the matter of design. They supply the demand for Baths in the moderate-priced home, where comfort is the chief consideration, rather than a combination of comfort and elegance of design.

ABOUT OUR GUARANTEE.

The length of our Guarantee should not be accepted as an indication of the life of such fixtures. Our experience has demonstrated the fact that all inherent or mechanical defects become visible almost immediately, and that any fixture remaining in good condition during the period of our guarantee will remain so almost indefinitely.

As an extra precaution, all of our fixtures are subjected to a severe test and thoroughly "seasoned" before shipment.

NOTE.

We respectfully suggest to the architect to insist that contractors or plumbers allow our guarantee labels to remain on each fixture until he can assure himself that no substitution has been practiced.

The large variety of Plumbing Fixtures in the Standard Ideal line enables the architect to select suitable fixtures to conform to the requirements of the moderate-priced home or costly mansion, office building, apartment or hotel.

CLUFF BROTHERS

85-87 Church Street,
TORONTO, ONT.

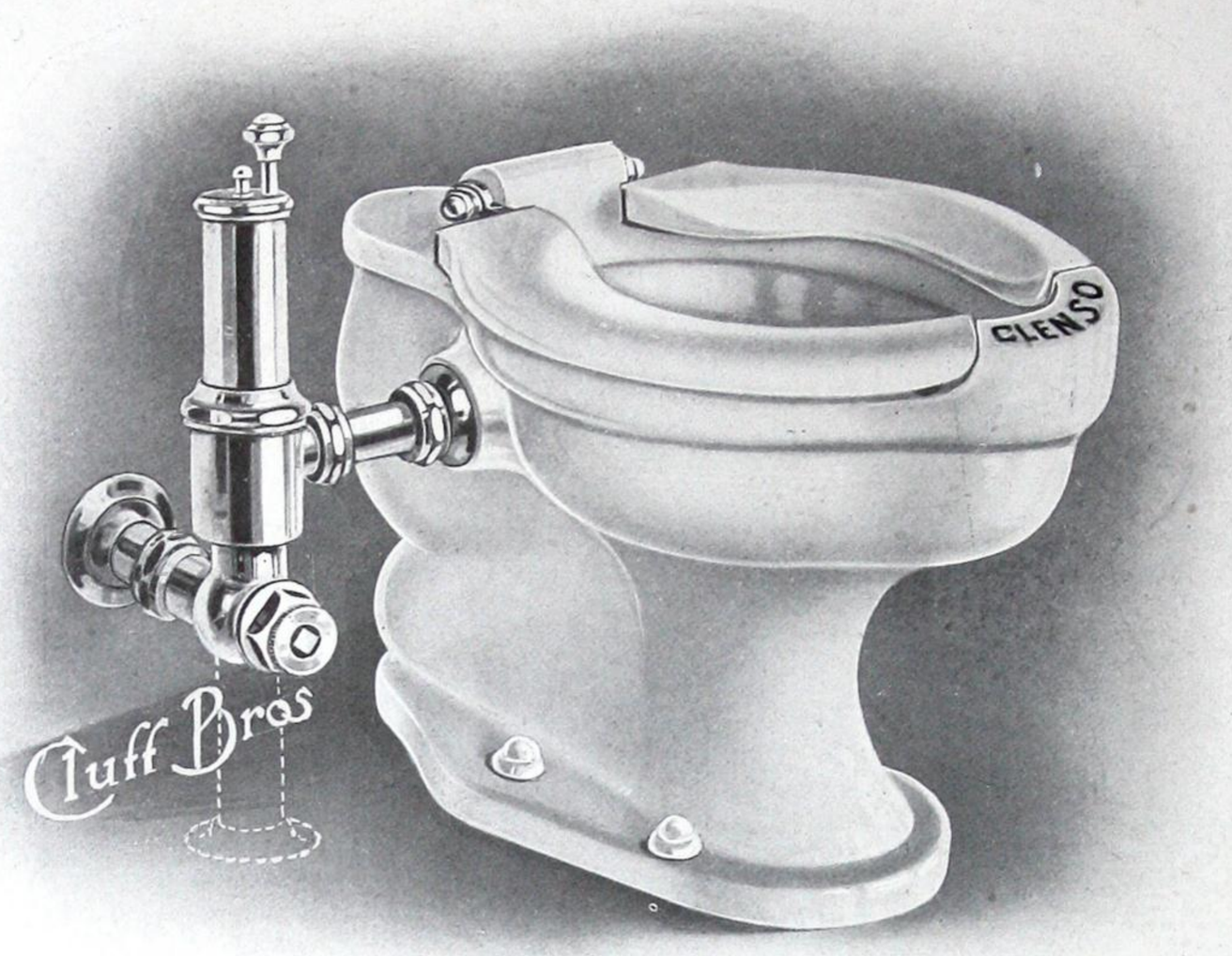


Plate 1026 C.

Plate 1026 C. Cluff's "Clenso" Vitroware, side inlet, syphon jet water closet with sanitary raised front and seat shelf; with white acid-proof Hygienic seat, with nickel-plated heavy cast brass concealed bar hinges; style "A" push button, nickel-plated; Cluff oil-regulated flushing valve (Brook's patent), heavy cast brass floor flange, with gasket and china bolt caps.
Price as described.....$75.00

THE "CLENSO" C 1026.

"CLENSO" CLOSETS.

The "Clenso" Closets are installed in the Canadian Pacific Railway's Office Building, Toronto, having been selected because of their meritorious features.

The "Clenso" Closet is especially adapted for use in all public buildings, hospitals, railway and public comfort stations.

DIRECTIONS FOR INSTALLATION OF VALVE FOR DIRECT CITY PRESSURE.

The Cluff "Oil-Regulated" Flushing Valve can be connected direct to city water supply without the use of a storage tank. For such installation the service pipe, from the water works street main to the building line, must be of ample size to deliver sufficient quantity of water to supply an one and one-fourth inch or an one and one-half inch pipe from the building line to the valves, according to distance and pressure.

FOR TANK PRESSURE.

Where the supply from the street main is not of sufficient size to operate upon the direct city pressure, a storage tank may be used. It must be placed at least ten feet above the highest closet, and be of such capacity that a full pressure will be maintained at all times upon the supply to the valve. An one and one-half inch or two-inch supply from storage tank must be used, according to the number of closets, and branching one and one-fourth inch to valve.

We invite correspondence in regard to installation of closets, in all classes of buildings, under all conditions. Inquiries will receive immediate attention.

MECHANISM.

The slow-closing mechanism consists of a piston inclosed in an air-tight cylinder filled with oil, with which the water does not come in contact, hence the valve is not affected by sand, mud, or any foreign substance. When operated the oil is forced through a small opening from one side of the piston to the other, and the valve can only close as the oil passes back. The duration of the flush is determined by the size of the opening through which the oil passes and is regulated by a small screw on the outside of the valve. The highest grade of mineral oil is used, which does not change its consistency under any condition, nor can it escape from the chamber, consequently it will not need replenishing.

THE ADVANTAGES OF THIS VALVE.

Easily operated.
Noiseless in operation; positively will not hammer.
Economical in use of water.
Gives ample refill to Syphon Jet Closets.
Discharges the same amount of water at each flush.
Entire working parts may be removed instantly without disconnecting from supply pipe or bowl.
Volume regulator and shut-off conveniently located at inlet of valve operated by loose key.
When supply of water is sufficient, will work under any pressure of five pounds or more.

GUARANTEE.

ALL CLUFF "OIL-REGULATED" FLUSHING VALVES are guaranteed to give satisfaction, when properly installed according to our directions.

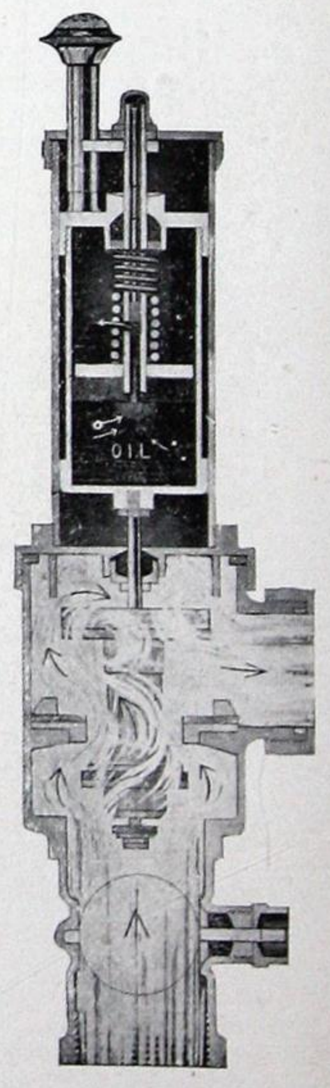
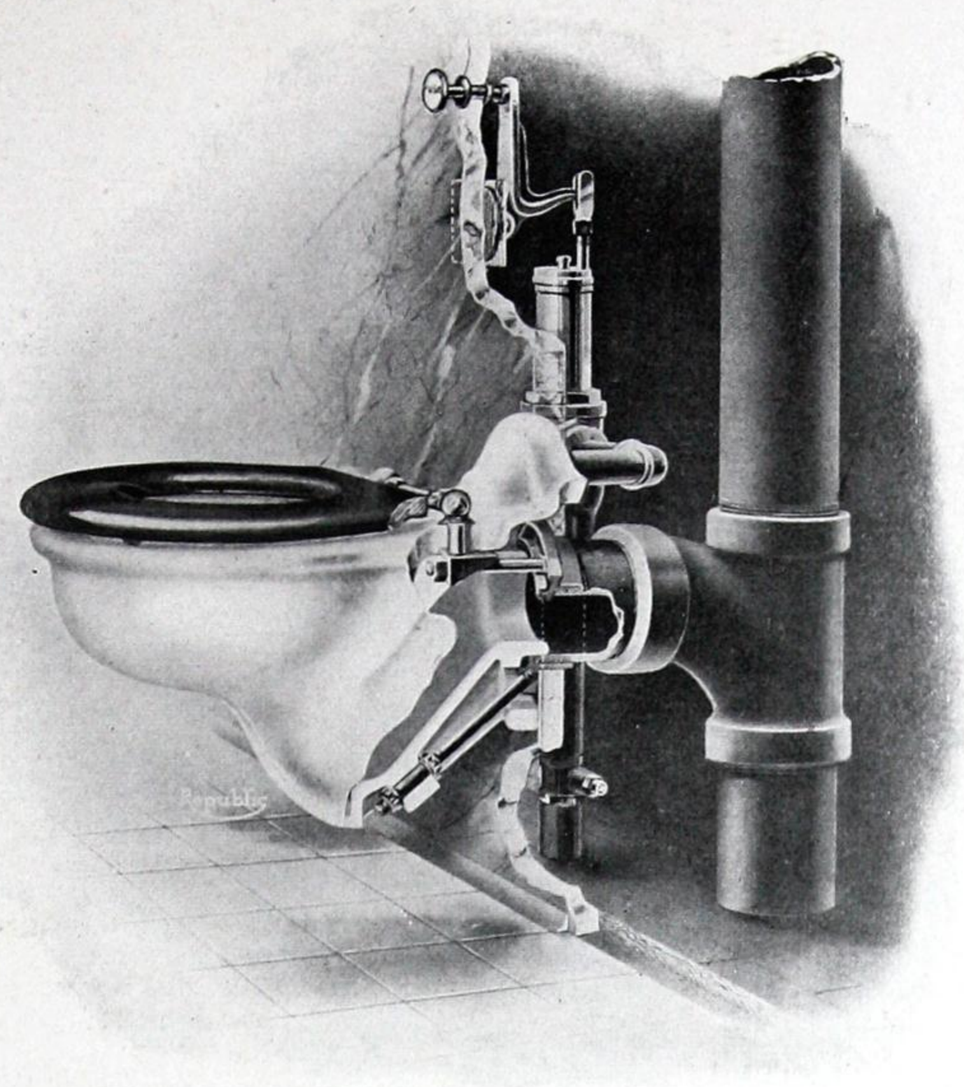


Plate 1099 C.

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THE "COMET" C 1040.

The Cluff "Comet" Extra Heavy Vitroware Syphon Wall Water Closet, polished oak saddle seat, with nickel-plated heavy cast brass hinges, style "S" push button, Cluff "Oil-regulated" flushing valve (Brook's patent) concealed behind partition, heavy special cast brass wall flange, with gasket, and nickel-plated bolts.

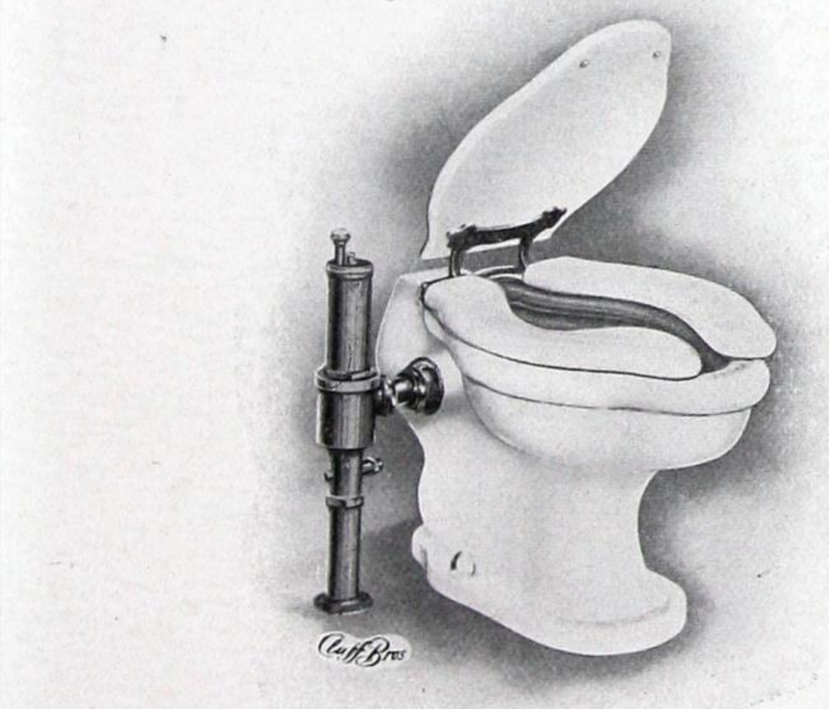
PRICE, as described.....$75.00

The above type of closet is especially adapted for public institutions, office buildings, schools, railway stations, etc.

The "Comet" Closet is heavily constructed of solid vitreous ware and has a large opening in trap which is 3 inches in diameter its entire length, and is therefore not easily stopped up. It has a powerful syphonic action and large water area, and is easily operated by simply pushing the button and releasing the same. A great saving of water is effected by the use of the Cluff "Oil-regulated" flushing valve, as only sufficient water is permitted to pass through the valve to give perfect flush, using but half the quantity of water required by the ordinary flush box.

Our "Vitroware" is absolutely non-absorbent and is positively guaranteed against crazing.

To specify, mention catalogue name and number.

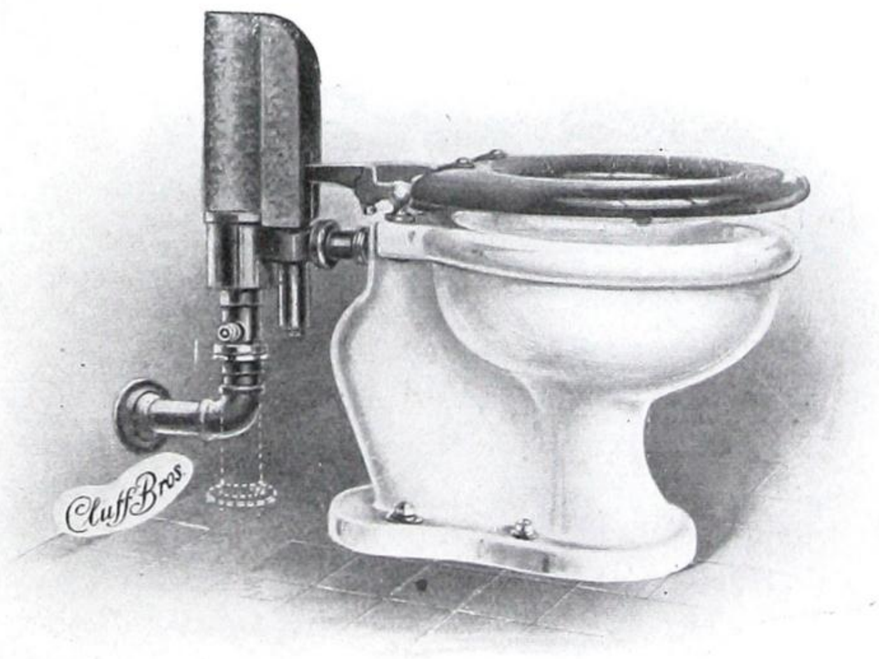


THE "ARCHER" C 1015.

The "Archer" Vitroware Side Inlet Syphon Jet Closet, with white acid-proof, open front and back "Hygienic" seat with cover, with nickel-plated heavy cast brass hinges, style "A" push button, nickel-plated Cluff "oil-regulated" flushing valve (Brook's Patent), heavy cast brass floor flange, with gasket, and china bolt caps.

The "Archer" possesses more sanitary features than any other closet made. It is 14½ inches high, which is the proper height for hygienic reasons; it is elliptical in shape, with extended front and recess back, and has been endorsed by sanitary engineers, architects and physicians for its obvious sanitary advantages.

Price as described.....$75.00



THE "MUNICIPAL" C 1055.

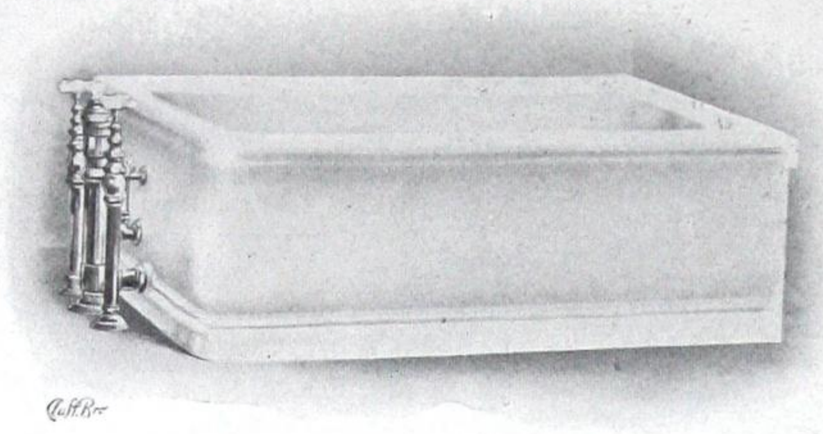
The Cluff "Municipal" Vitroware Syphon Water Closet, with concealed jets, polished oak seat, with heavy reinforced ring and bar hinge style "G" automatic seat-operating Cluff "oil-regulated" flushing valve (Brook's patent) with heavy galvanized hood, heavy cast brass floor flange, with gasket and nickel-plated bolts.

Our "Rapidac" bowls are especially adapted for all places requiring an automatic seat action closet. The valve is covered with a heavy galvanized iron shield which prevents the user from tampering with the working parts.

Can also be furnished with valve concealed behind wall.

Price as described.....$70.00

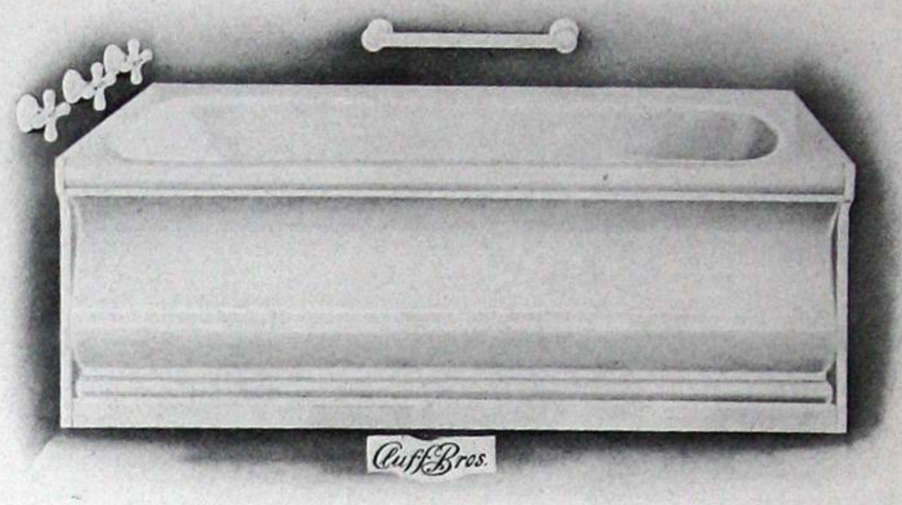
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THE "VICTORIA" C 3005.

The Cluff "Victoria" Paragon Porcelain Corner Bath, with curved front and end and moulded base, made to tile in at back and right hand corner, glazed white inside and outside; extra heavy nickel-plated brass compression combination supply and waste fixture with ¾-inch valves and supply pipes, with all-china handles.

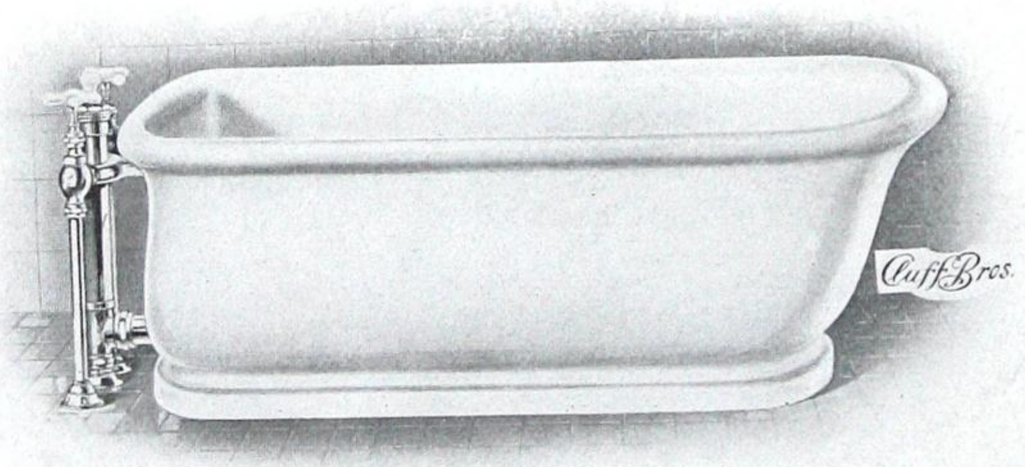
Size of Tub (length outside).	5 ft.	5½ ft.	6 ft.
Price as described, "A" quality	$152.50	$164.50	$194.00
Price as described, "B" quality	121.25	130.75	154.00



THE "STATLER" C 3015.

The Cluff "Statler" Paragon Porcelain Recess Bath, with curved front and moulded base, glazed white inside and outside, to tile in back and side walls; with ¾-inch "Secreto" combination supply and waste fixture, concealed behind partition, and with exposed all-china handles and china wall escutcheons.

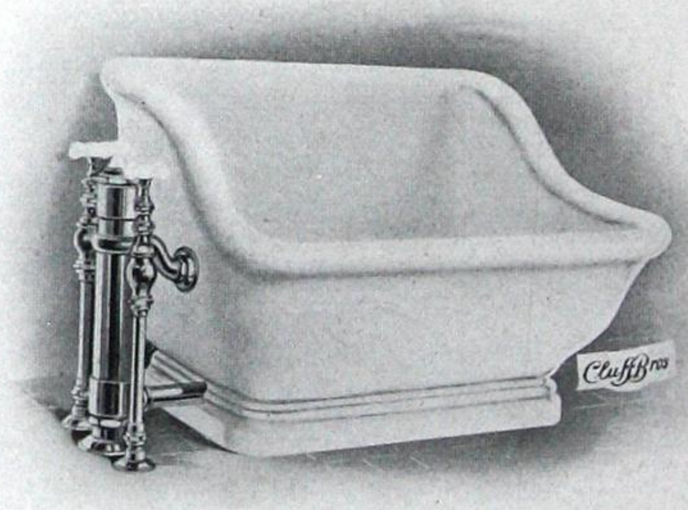
Size of Tub (length outside).	5 ft.	5½ ft.	6 ft.
Price as described, "A" quality	$157.50	$169.00	$198.50
Price as described, "B" quality	125.00	134.50	157.50



THE "WINNEMAC" C 3020.

The Cluff "Winnemac" Paragon Porcelain Roll Rim Bath, with curved front and sides, and moulded base, glazed white inside and outside; with extra heavy nickel-plated brass compression top nozzle supply and waste fixture, with ½-inch valves and supply pipes, with all-china handles.

Size of Tub (length outside).	4½ ft.	4 ft. 10 in.	5 ft. 4 in.	5 ft. 10 in.
Price as described, "A" quality	$143.50	$150.00	$160.00	$174.75
Price as described, "B" quality	114.25	119.50	127.00	140.00



THE "NAVARRE" 3025.

The Cluff "Navarre" Paragon Porcelain Roll Rim Seat Bath, with curved front and sides, and moulded base, glazed inside and outside; with extra heavy nickel-plated brass compression combination supply and waste fixture, with ½-inch valves and supply pipes, and all-china handles.

	"A" quality.	"B" quality.
Price as described	$101.50	$81.00

Dimensions: Outside length, 30 inches; Outside width, 27 inches.

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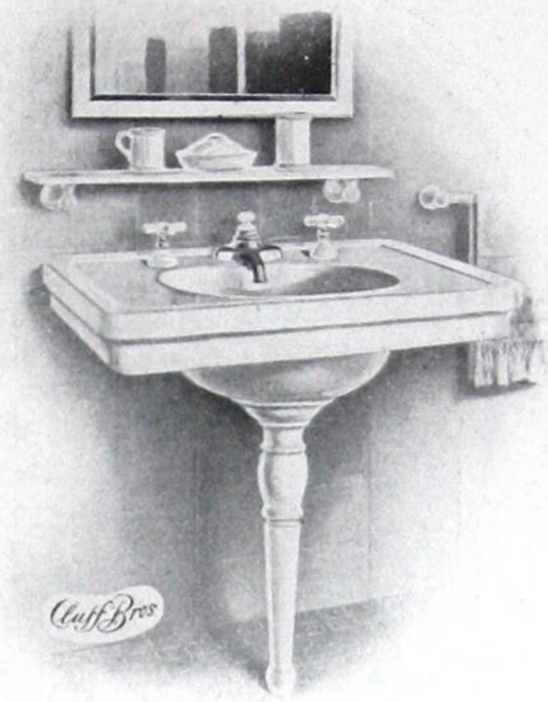


THE "ARDMORE" C 2005.

The Cluff "Ardmore" Extra Heavy Vitroware Lavatory, with hooded overflow, "Colonial Design" with Vitroware No. 10 pedestal; nickel-plated brass "Triad" combination supply and pop-up waste fixture, with all-china handles and china escutcheons; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves; 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 26 inch x 22 inch	$63.75
Dimensions, 28 inch x 22 inch	68.00
Dimensions, 30 inch x 24 inch	71.75



THE "ACHILLES" C 2030.

The Cluff "Achilles" Extra Heavy Vitroware Lavatory, with hooded overflow, "Colonial Design" with Vitroware standard; nickel-plated brass "Triad" combination supply and pop-up waste fixture, with all-china handles and china escutcheons; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves; 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 26 inch x 22 inch	$56.75
Dimensions, 28 inch x 22 inch	61.00
Dimensions, 30 inch x 24 inch	64.50

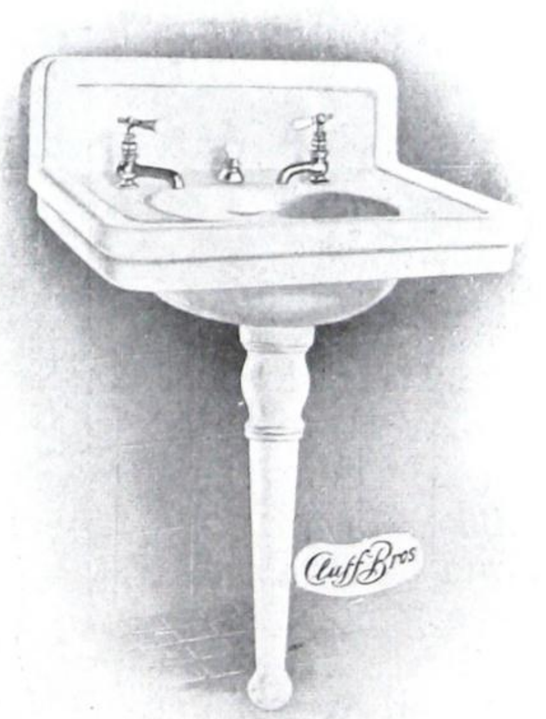


THE "ARLINGTON" C 2046.

The Cluff "Arlington" Extra Heavy Vitroware Corner Lavatory, "Serpentine Design," with 6-inch integral back, with hooded overflow and Vitroware standard; nickel-plated quick-opening compression basin faucets, with china handles, indexed; Cluff nickel-plated lift waste, with china knob; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves; 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 19½ inch x 19½ inch	$52.50
Dimensions, 24 inch x 24 inch	67.50



THE "ANNEX" C 2055.

The Cluff "Annex" Extra Heavy Vitroware Lavatory, with 6-inch integral back, with hooded overflow and Vitroware standard; nickel-plated quick-opening compression basin faucets, with all-china handles, indexed; Cluff nickel-plated lift waste, with china knob; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves; 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 20 inch x 18 inch	$39.25
Dimensions, 24 inch x 20 inch	47.50

THE EMPIRE MFG. CO., LIMITED

LONDON, CANADA.

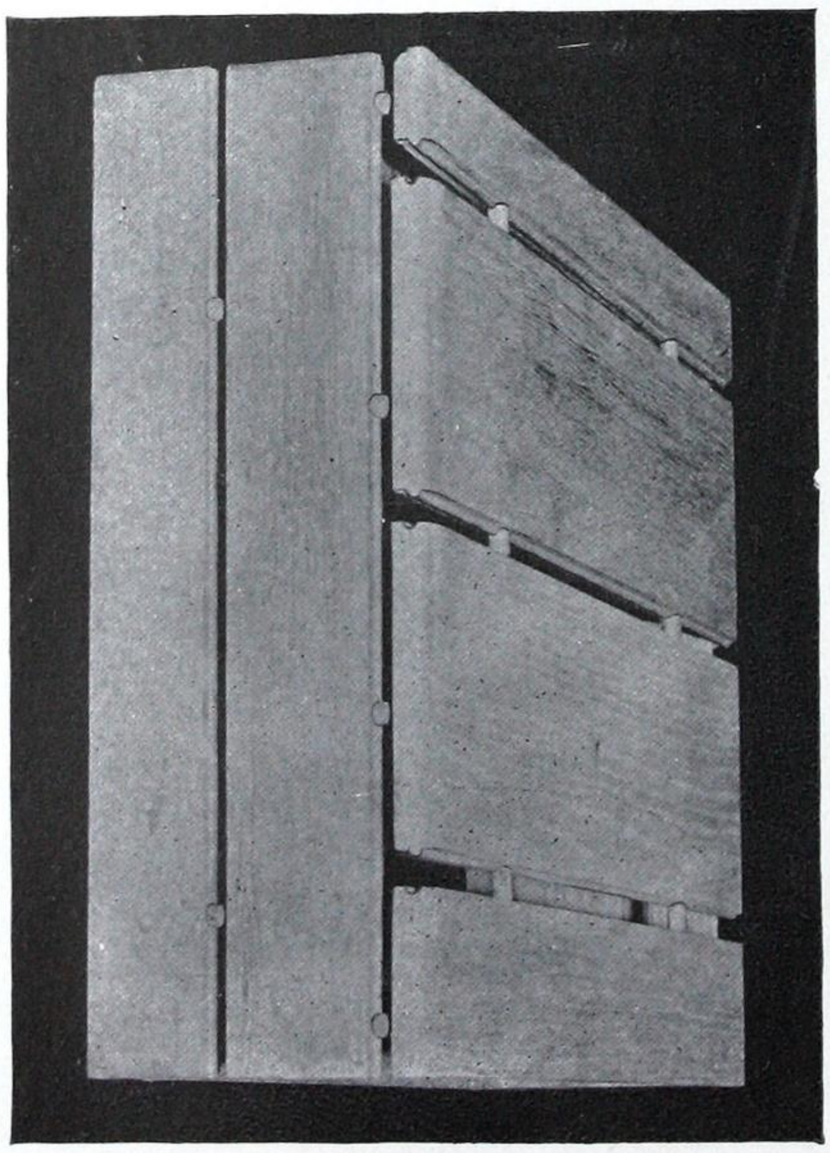


HURONIC—PLATE A 12 B.



OLYMPIC—PLATE A 15 C.

We illustrate above two of our most popular closet combinations. The Huronic, Plate A 12 B, is a quarter-cut oak outfit, with piano polish finish and extra large tank, insuring a good flush. The Olympic, Plate A 15 C, is a vitreous china tank, with a mahogany open back and front seat, with piano polish finish. The lower cut shows the construction of Empire



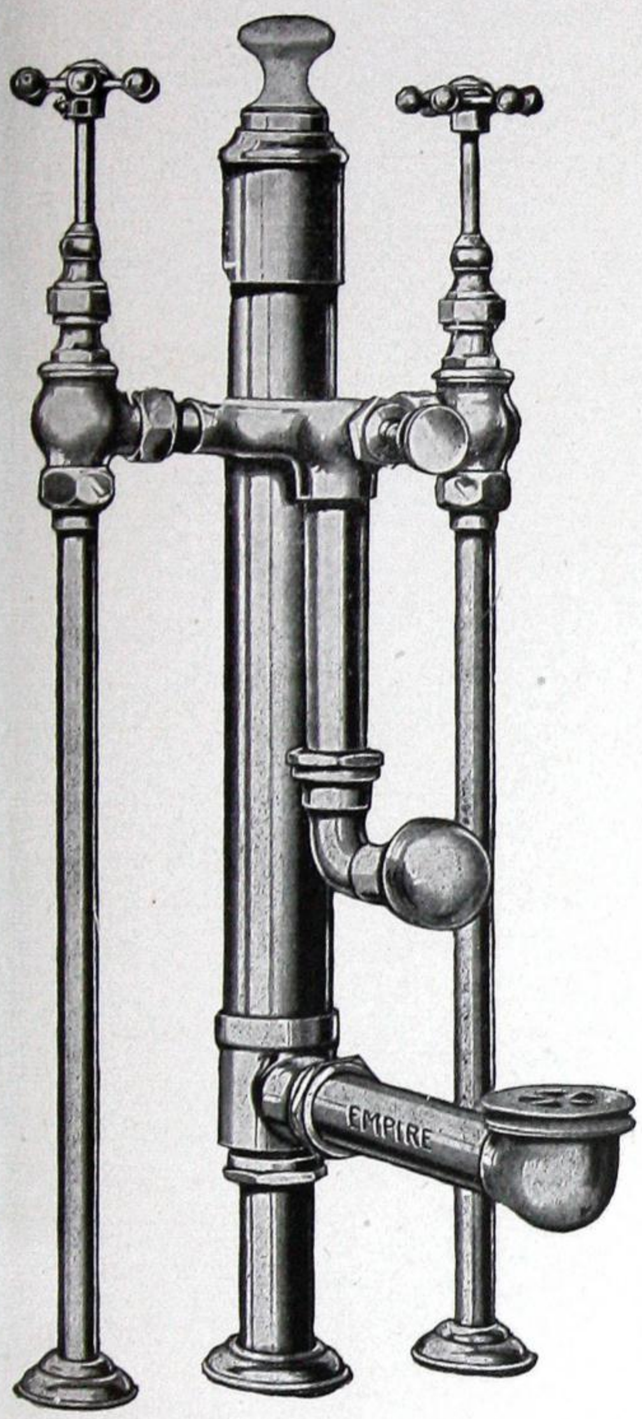
PATENTED IN CANADA AND U.S.

Tanks and Seats. The tongue and groove with wooden dowels constitute what is known as the Bull Dog joint, and is a feature not found in tanks of any other make. We carry a stock of tanks and seats in all standard finishes, and, if necessary, can match perfectly the woodwork of any room if a sample is supplied us.

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THE EMPIRE MFG. CO., LIMITED

LONDON, CANADA.



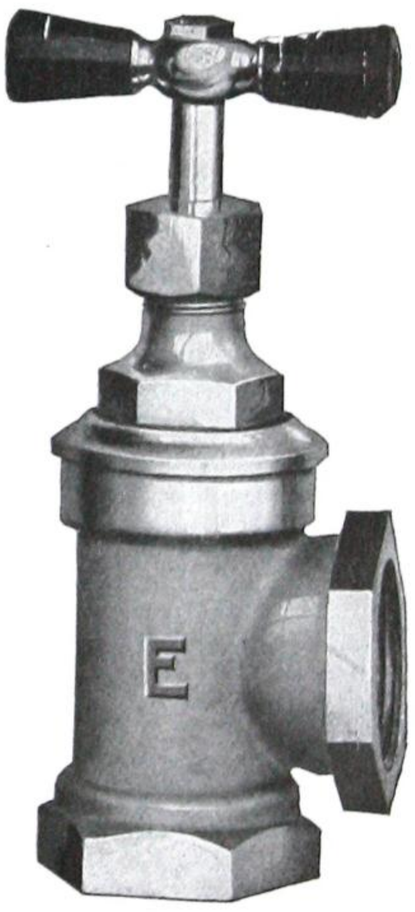
Too much attention cannot be paid to Bath and Lavatory Fittings.

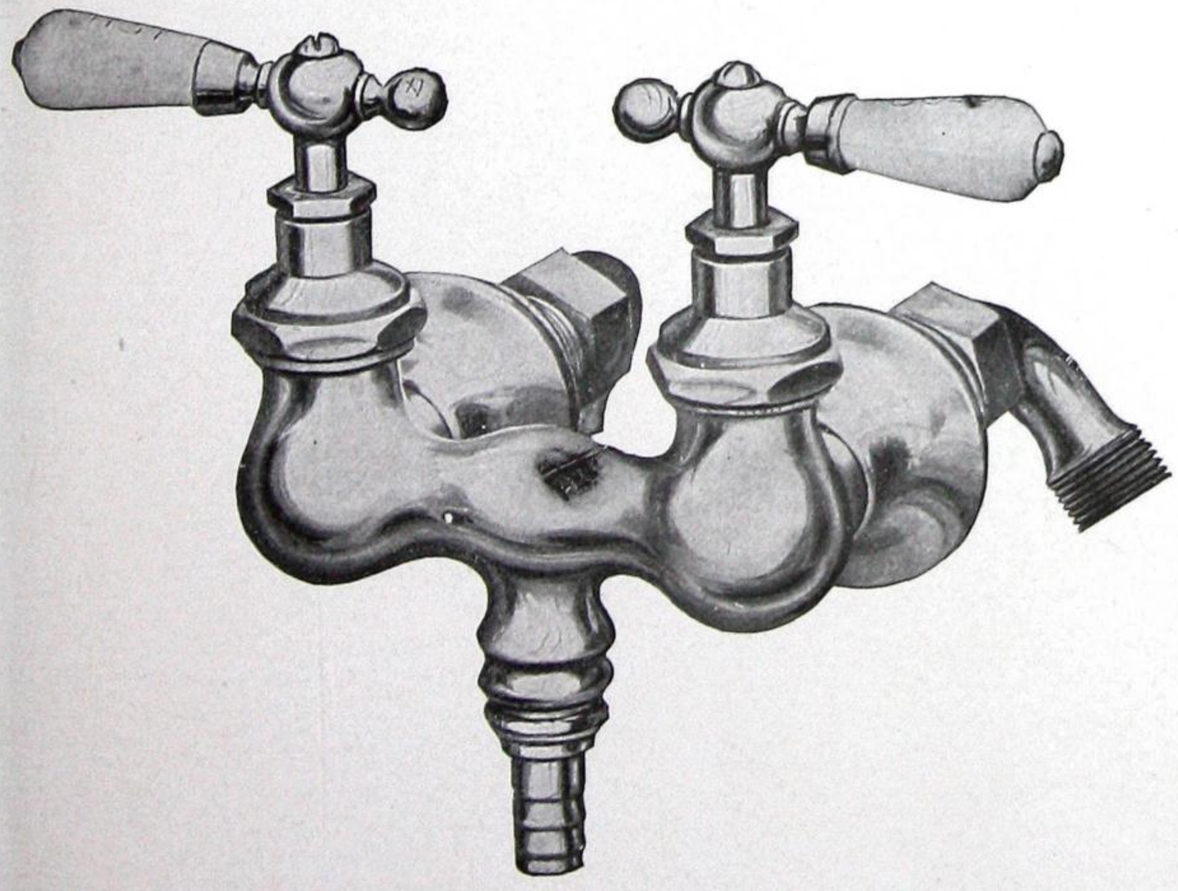
In specifying the make of Bath or Lavatory, the make of fittings should also be specified.

It is most annoying to see a costly and well-designed bath fitted with shoddy fittings, which have had to be forced into position.

We manufacture fittings for all standard makes of Baths and Lavatories. They are all made with adjustments where necessary, and their design and finish are second to none.

To insure perfect satisfaction, specify EMPIRE Valves. They are all manufactured from ingot made under chemical analysis and subjected to a hydraulic pressure test. The threads are uniform and made exactly to standards, while the greatest care is taken to procure a nickel deposit of the brightest quality and which will last a lifetime.





The following are a few reasons why EMPIRE quick-pression work is the best.

1st.—Quarter-turn of the handle allows full half-inch waterway.

2nd.—Every bibb and cock is provided with a locknut, allowing only quarter-turn.

3rd.—Stem seats are of special white cotton fibre of extra wearing quality.

4th.—Beauty of design and perfection of finish.

5th.—Thorough test and unconditional guarantee.

GEO. CARPENTER

SANITARY SPECIALTIES, Etc.

OFFICE AND SHOW-ROOM: 314 UNIVERSITY STREET,

MONTREAL.

THE "DUAL" COMPRESSION MIXING VALVE.

A simple and thoroughly efficient ANTI-SCALDING COMPRESSION MIXING VALVE, made in various forms and sizes for use in PUBLIC BATHS, HOSPITALS, ASYLUMS, TURKISH BATHS, HOTELS, PRIVATE DWELLINGS, etc. Also other high-grade Plumbing Specialties.

X. L. PORCELAIN BATHROOM FURNITURE.

(Chairs, Stools, Mirrors, Medicine Cabinets, Closet Seats, etc.) A THOROUGHLY HYGIENIC Enamelled Finish, which is absolutely DAMP AND ACID PROOF. WILL NOT STAIN, CRACK, PEEL OR CHIP.

ELECTRO-COPPERED MIRRORS.

For all purposes. 25% more brilliant than ordinary silvered plate and GUARANTEED IMPERVIOUS TO DAMP AND HEAT. Separate or in X. L. Porcelain Frames.

ENAMELLED FIRECLAY WARE.

A full range of Patterns in high-grade BATHS, URINALS, CLOSETS, etc. SPECIALTIES in School, Hotel, Hospital and Asylum appliances.

SANITARY EARTHENWARE.

A complete range of appliances suitable for all purposes.

FIREPLACES. THE "TILT" FIRE.

Ensures a BRIGHT RED FIRE in a few minutes. When lighting fire you have only to tilt up the fire basket for TEN MINUTES, or, after having fresh coal on, for TWO OR THREE minutes to get a brilliant fire. Then lower basket and it will burn BRIGHTLY but SLOWLY for MANY HOURS. No other Hearth Fire has such advantages. Patterns for use with Brick, Tile, Marble and other finishes. Being COMPLETE IN ITSELF, there is NO POSSIBILITY OF ERROR in fixing. THE CLEANEST OPEN FIRE EXTANT.

DOOR FURNITURE, Etc.

Specialties in Door Furniture and Architectural Metalwork for PUBLIC BUILDINGS, CHURCHES, HOTELS, HOSPITALS, ASYLUMS, ETC. EXCLUSIVE DESIGNS FOR HIGH-GRADE DOMESTIC WORK.

LOCKS, Etc.

INDICATING Hotel Locks, Asylum and Prison Locks, Emergency Exit Bolts, Ball-bearing Axle Pulleys, Casement Stays and Fasteners, etc.

HINGES.

Ball-bearing and Special Anti-friction Hinges for general use. Patterns for use on heavy doors.

See also advertisement on page 9.

NATIONAL EQUIPMENT CO., LIMITED

263 Sorauren Avenue, Toronto, Ont.

"PEERLESS" WATER SERVICE SYSTEMS.

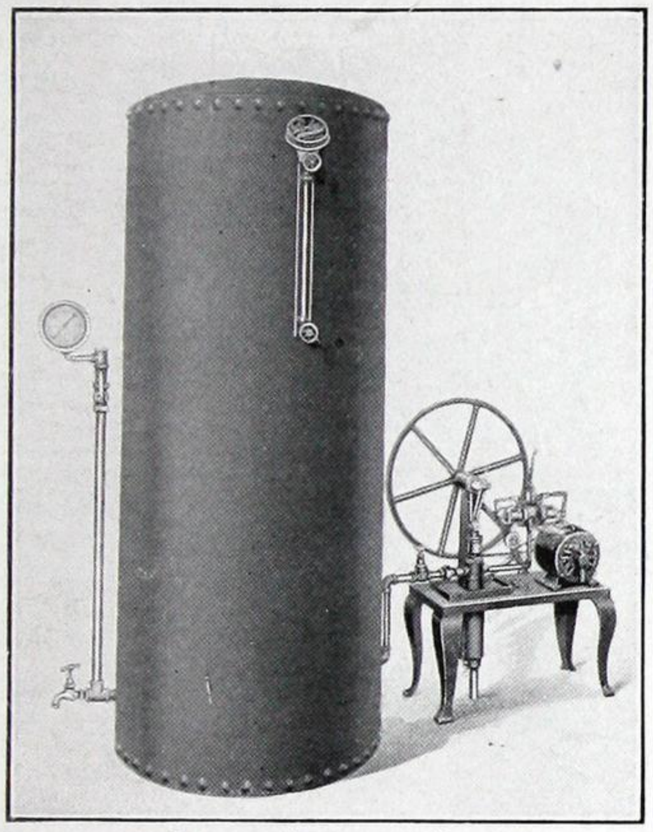
USE AND SCOPE. An ample water service for suburban houses or institutions is assured through the use of one of our many types of "Peerless" Water Systems, which will supply water at high pressures at any height or distance, to fixtures, lawns, stables, greenhouses, etc., and for fire protection.

SPACE REQUIRED. The ordinary installation requires little space and can readily be placed in the basement, where it will supply cool water and at the same time be protected from frost.

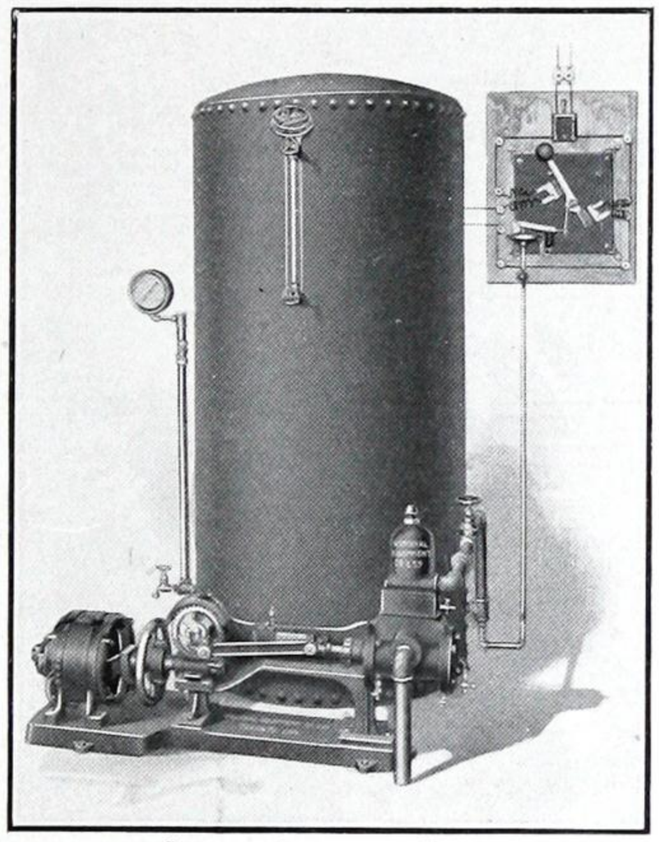
CAPACITIES. These systems are supplied to fulfil requirements from those of the smallest cottage to that of a town of 10,000 population. "Peerless" Tanks are made in capacities ranging from 140 gals. to 18,000 gals., and are guaranteed to be absolutely air-tight at a pressure of 125 lbs. Tanks of this character require special machinery for their manufacture. If a pneumatic tank leaks air—even in the smallest degree—its usefulness very soon is gone.

MOTIVE POWER. Pumps may be operated by hand, gasoline engine, electric motor, hydraulic ram, hot-air engine, windmill, etc.

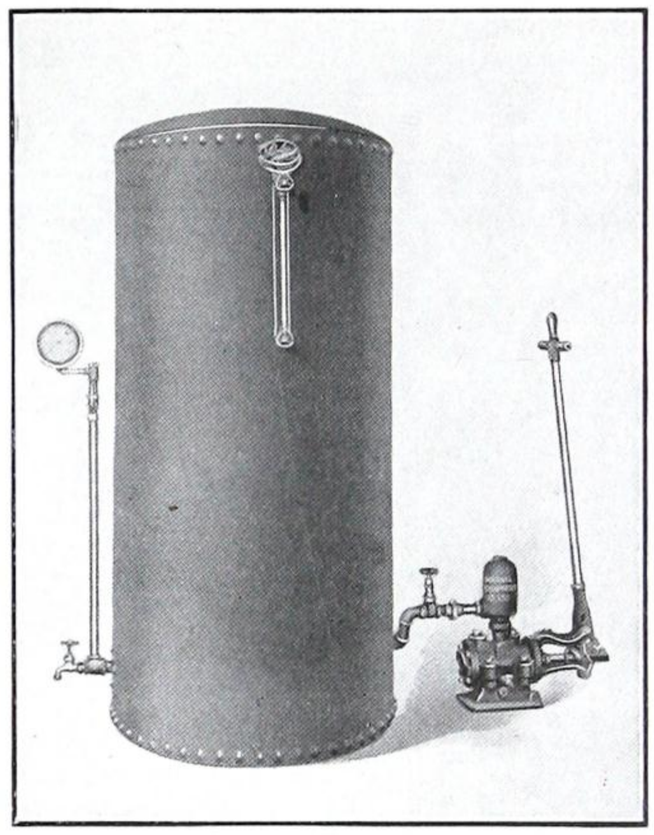
EXPERT SERVICES. Our engineering staff is at your service to determine the capacity and kind of system that will best meet your requirements.



300 Series—Automatic Electric.
125 Gallons per Hour.



400 Series—Automatic Electric.
400 Gallons per Hour.



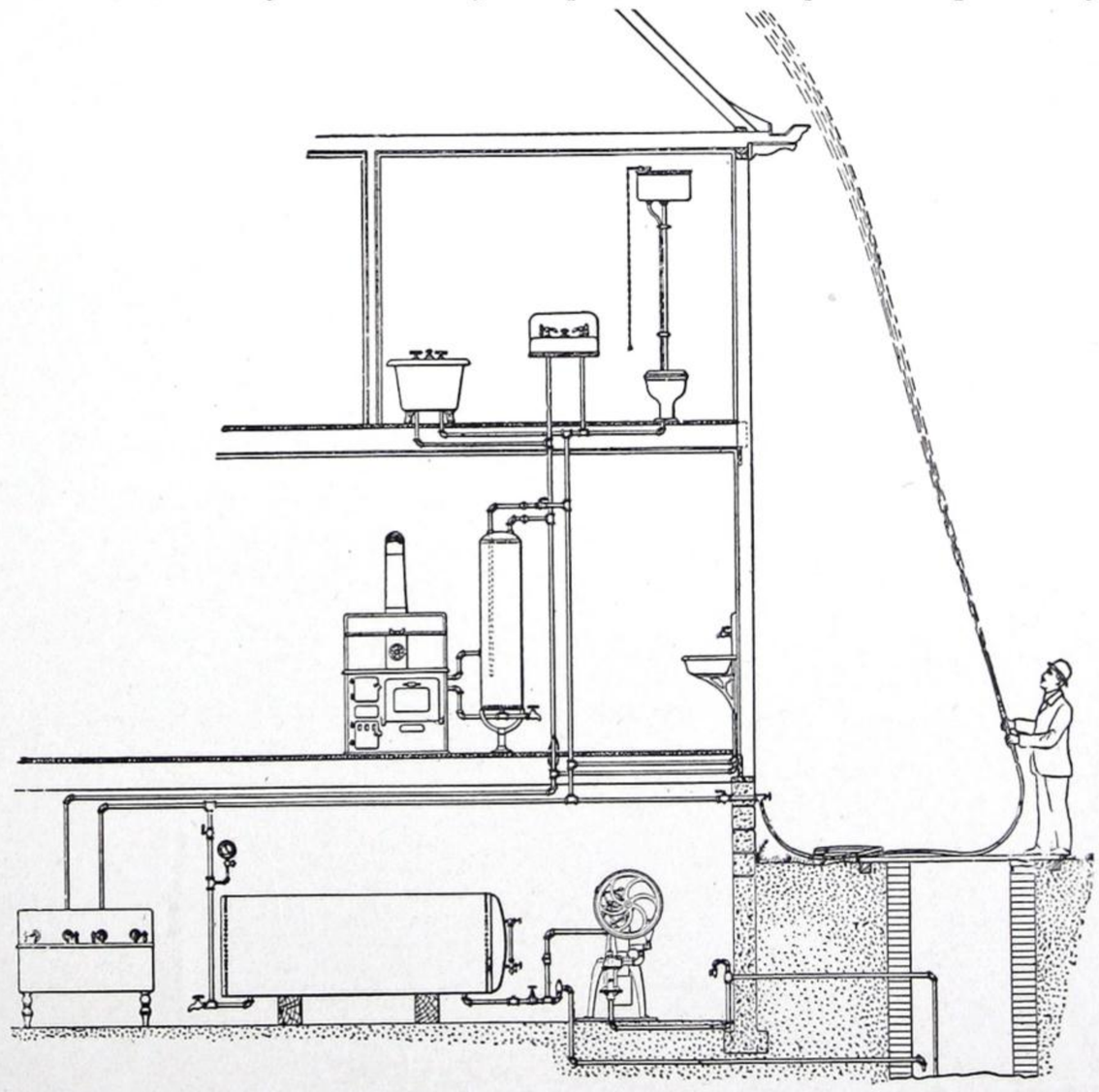
112 Series—Hand Power.

OPERATION. The operation of a "Peerless" Pneumatic Water System is very simple, and is dependent primarily upon the use of a perfectly air-tight tank, to the bottom of which are connected two pipes, one to convey the water from the pump to the tank and the other to supply the plumbing fixtures in the building.

As the water is forced into the tank and begins to displace the air, the latter is compressed into an ever-decreasing space, thus creating a force known as pressure.

If the tap in the basement were opened, all of the water would be easily expelled by the compressed air expanding to its normal volume, while a lesser amount of water would be discharged through taps at a higher elevation.

With an absolutely air-tight tank, the contained air can be lost only in one way, viz., its absorption by the water, and, as a rule, loss due to this cause is infinitesimal. Provision is made, however, on every "Peerless" Water System to introduce, through a very simple device that cannot leak water, any quantity of air that from time to time may be found necessary.



Sectional view of Residence fitted with Peerless Pneumatic System, which may be operated by Hot Air Engine as shown, or any other motive power.

ACETYLENE CONSTRUCTION COMPANY, LIMITED

602 POWER BUILDING, MONTREAL, QUE.

BRANCHES AT: SHAWINIGAN FALLS, QUE.; ST. CATHARINES, ONT.
BRANDON, MAN.; SASKATOON, SASK.; CALGARY, ALTA.
EDMONTON, ALTA; VANCOUVER, B.C.

PRODUCT.

ACETYLENE—The ideal illuminant for the country home.

GENERAL FACTS ABOUT ACETYLENE.

ACETYLENE GAS is obtained by the action of Water on CALCIUM CARBIDE. When water is brought into contact with Carbide in a generator built for the purpose, Acetylene is rapidly given off. The residue after the re-action is slaked lime, which can be used for mortar, whitewash, or any other purpose that ordinary slaked lime can be used.

Acetylene is a colourless, transparent, NON-POISONOUS Hydro-Carbon Gas, with the property of burning, with a pure white light which is the NEAREST KNOWN ILLUMINANT TO DAYLIGHT. For this reason it is often called "SUNLIGHT ON TAP."

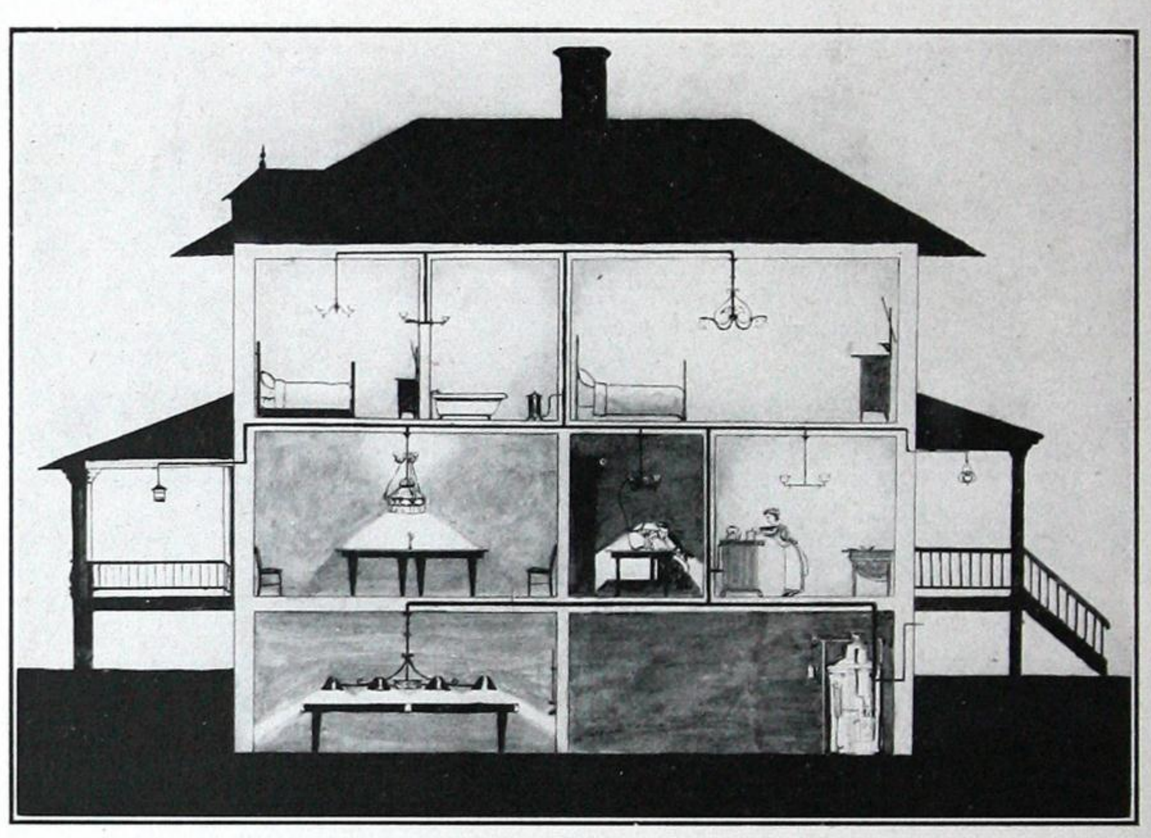
Eye strain is unknown with Acetylene illumination, as the colour of the light is exactly suited to the human eye.

HOW ACETYLENE IS INSTALLED.

The accompanying sketch will give a good general idea of an installation in a home.

Taking as an example a fifty light installation, or smaller, the size of pipe required is ¾-inch for the main pipe line from top to bottom of the house. The branch mains on each floor should be ½ inch and the branches to each fixture ⅜ inch. Smaller pipe could be used, but is not recommended.

With these figures your plumber can give you an estimate of the cost of installing the piping. The cost of fixtures, of course, depends upon the personal taste, but, roughly speaking, can be obtained for 50 cents each up,and are the same as those used for city gas, with the exception that the burner tips have to be special for Acetylene. These burners sell at about 25 cents each.



OUR GUARANTEE.

This Company does not guarantee all generators offered for sale to the General Public. We do sell a generator with which we give the following guarantee :

" Having confidence in our Generators we guarantee to replace the generator or refund the price paid for same if damaged by exploding within one year from the date it is installed, provided it is operated according to the printed rules and regulations supplied with each Generator."

This Generator has the approval of the different Boards of Fire Underwriters of Canada.

COST OF ACETYLENE.

Calcium Carbide in ton lots costs 3¼ cents per pound f.o.b. the works Merritton, Ont., or Shawinigan Falls, Que. One pound of Carbide will give off over four and one-half cubic feet of gas, therefore allowing a liberal allowance for transportation charges, the cost may be assumed as one cent per cubic foot. One-half cubic foot of Acetylene per hour will give a twenty-four candle power light, or, in other words, a twenty-four candle power light will cost one-half cent per hour.

COOK WITH ACETYLENE.

Acetylene, due to its great heating power, is ideal for cooking, and can be used economically where comfort is a consideration. Stoves and heaters of all styles are manufactured and can be obtained for any particular purpose from this Company.

CONTRACTORS' LAMPS.

Portable lamps can be supplied, giving from 5,000 candle power down to what can be fastened on the cap, for the miner and labourer who needs his hands free. The large lamps are invaluable for use during construction work at night, for wrecking trains, dredges and other operations too extensive to mention here.

Acetylene is invaluable to the farmer for night work. It is the ideal light for plowing, harrowing and threshing at night.

CO-OPERATION.

We have experts who can tell you how to apply ACETYLENE FOR YOUR PARTICULAR USE. WRITE US AND WE WILL PLACE THEM AT YOUR DISPOSAL.

STEEL AND RADIATION, LIMITED

HEAD OFFICE:
FRASER AVENUE, TORONTO, ONT.

BRANCHES:
MONTREAL: 304 UNIVERSITY ST.
QUEBEC: 101 ST. JOHN STREET.

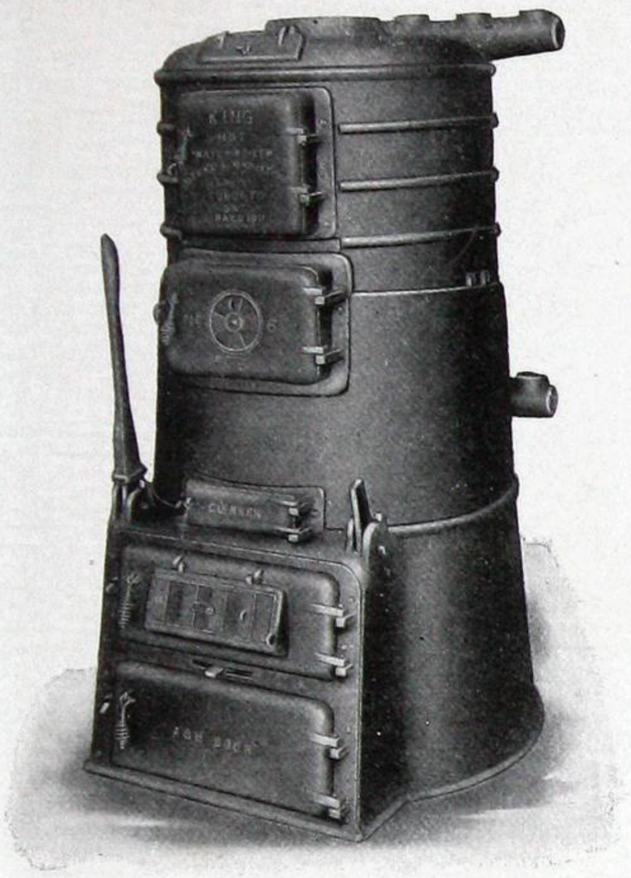
SHOW ROOMS:
80 ADELAIDE STREET EAST.

AGENCIES:
WINNIPEG, CALGARY, ST. JOHN, HALIFAX, VANCOUVER, HAMILTON, AND EDMONTON.

PLANTS:
ST. CATHARINES, ONT. - TORONTO, ONT.

PLANT. "KING" AND "ROYAL" BOILERS are manufactured at our new Boiler and Radiator Plant at St. Catharines, which is the most modern and finest equipped on the continent.

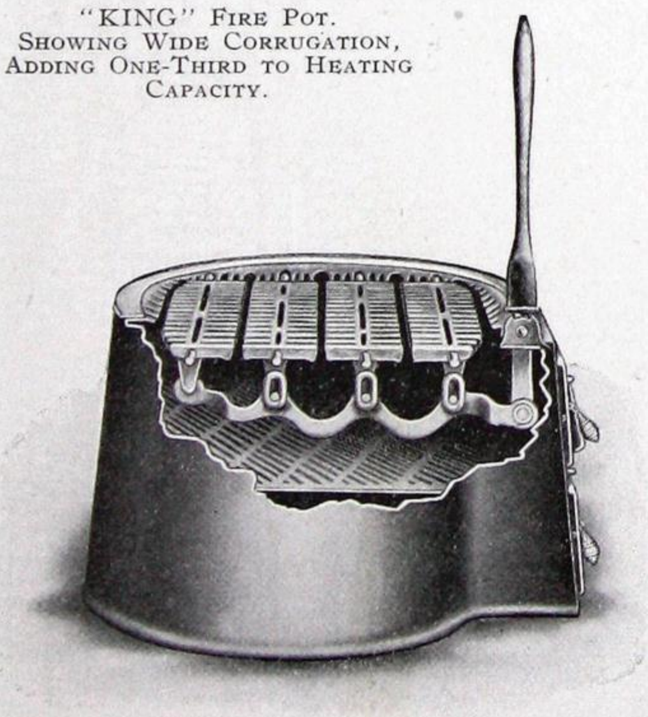
"KING" BOILERS. "ROYAL" BOILERS. "KING" and "ROYAL" Hot Water and Steam Boilers are the latest and most improved on the market. They have been rigidly tested under the most severe conditions, and are now accepted throughout the Dominion of Canada as representing efficiency of the highest type at lowest coal consumption, of any boilers on the market.



No. 6. HIGH BASE "KING" BOILER. SHOWING DOUBLE SHAKER



"KING" FIRE POT. SHOWING WIDE CORRUGATION, ADDING ONE-THIRD TO HEATING CAPACITY.



"KING" ONE-PIECE ASHPIT. SHOWING PATENTED IMPROVED TROUBLE-PROOF GRATES AND SHAKING MECHANISM, FREE FROM BOLTS OR PINS.

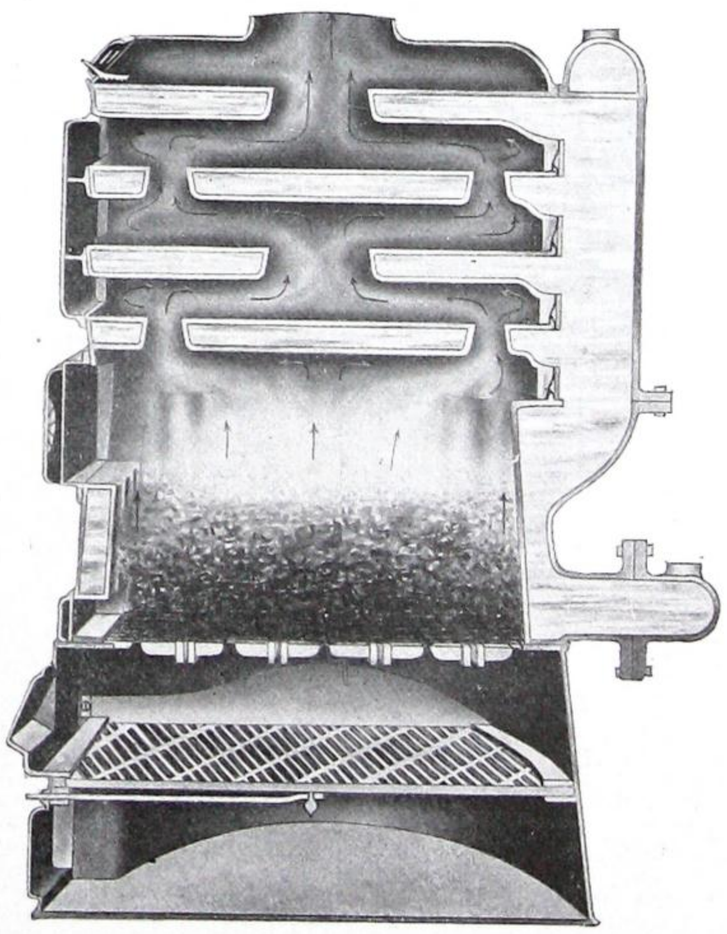
LISTS, DIMENSIONS AND CAPACITIES.

Size	Rating in Square Feet Direct Radiation	List Prices		Height to Top of Dome		Diameter in Inches of				Depth of Fire Pot	No. of Mains Flow and Return	Size of Coal
		High Base	Low Base	High Base	Low Base	Smoke Pipe	Base Ring	Fire Pot Top	Fire Pot Bottom			
1	250	$111.00	$105.00	52½	45½	8	26½	17½	19	16¾	4–2	Stove
2	350	147.00	140.00	56½	49½	8	26½	17½	19	16¾	4–2	Stove
2½	400	157.00	150.00	60½	53½	8	26½	17½	19	16¾	4–2	Stove
3	500	170.00	160.00	55½	48¾	8	30	19¾	21¼	16¾	4–2	Stove
3½	575	190.00	180.00	59½	52¾	8	30	19¾	21¼	16¾	4–2	Stove
4	675	215.00	200.00	57	50¼	8	31	22½	24	17¼	4–2	Stove
4½	750	235.00	220.00	61	54¼	8	31	22½	24	17¼	4–2	Stove
5	850	260.00	240.00	61	54¼	10	35	24½	26	18½	6–2	Egg or Stove
5½	940	280.00	260.00	65½	58¼	10	35	24½	26	18½	6–2	Egg or Stove
6	1,000	290.00	270.00	61¼	54¼	10	37½	27	28½	18¾	7–2	Egg
6a	1,100	320.00	300.00	65¾	58¾	10	37½	27	28½	18¾	7–2	Egg
6½	1,250	360.00	335.00	65	59	12	40	29½	31	19½	8–2	Egg
6½a	1,350	380.00	355.00	69¼	63¾	12	40	29½	31	19½	8–2	Egg
7	1,500	420.00	392.00	65½	59¼	12	42½	32	33½	19½	11–2	Egg
7½	1,750	453.00	425.00	70½	64¼	12	42½	32	33½	19½	11–2	Egg
8	2,000	505.00	475.00	67⅞	61⅞	12	46¾	36¾	38¼	19⅜	13–2	Egg
8½	2,300	530.00	500.00	73	67	12	46¾	36¾	38¼	19⅜	13–2	Egg
9	2,670	554.00	524.00	67⅞	61⅞	12	49¼	39¼	40¾	19⅜	13–2	Egg
9½	3,000	680.00	650.00	73	67	12	49¼	39¼	40¾	19⅜	13–2	Egg

NOTE.—The ratings for "King" Boilers are based on the capacity of 1-inch pipe, not including mains. No extra charge for Special Headers. All half sizes have five sections above fire pot.

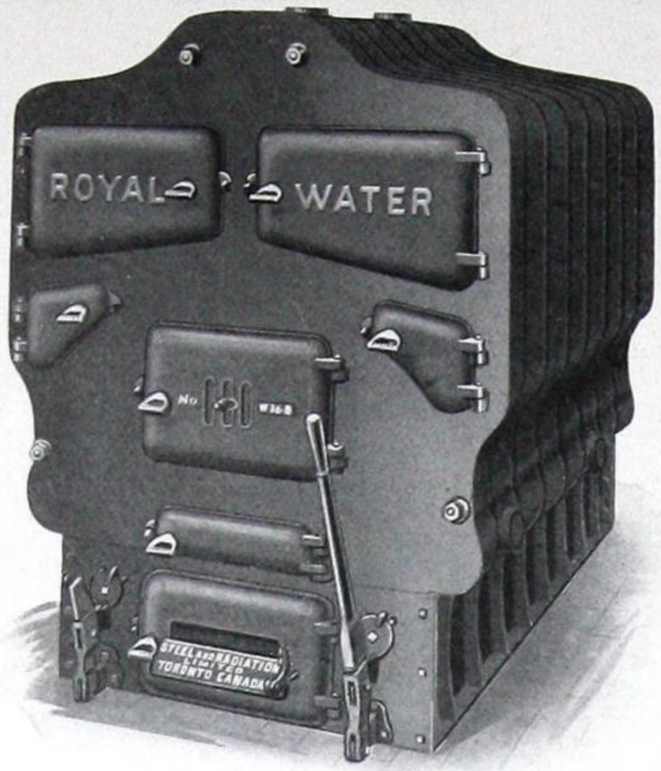
BRIEF POINTS OF MERIT THAT DISTINGUISH THE "KING" BOILER.

The Roomy Ashpit.
The Fine Shaking and Dumping Grates.
The Convenient and Simple Shaking Apparatus.
The Large and Accurately Fitted Doors.
The Widely Corrugated Fire Pot.
The Ample Combustion Chamber in Fire Pot and Flues.
The Well Arranged and Extended Heating Surfaces.
The Easily Cleaned Flues.
The Rapid Circulation of Water.
The Quality and Weight of Iron.
The Even Metal Line secured by using Iron Patterns.
The Ease of Erection of the Entire Boiler.
The Double Inspection and Rigid Test of each Boiler, before and after assembling.
The Guaranteed Rating, based on actual individual tests conducted by experts.

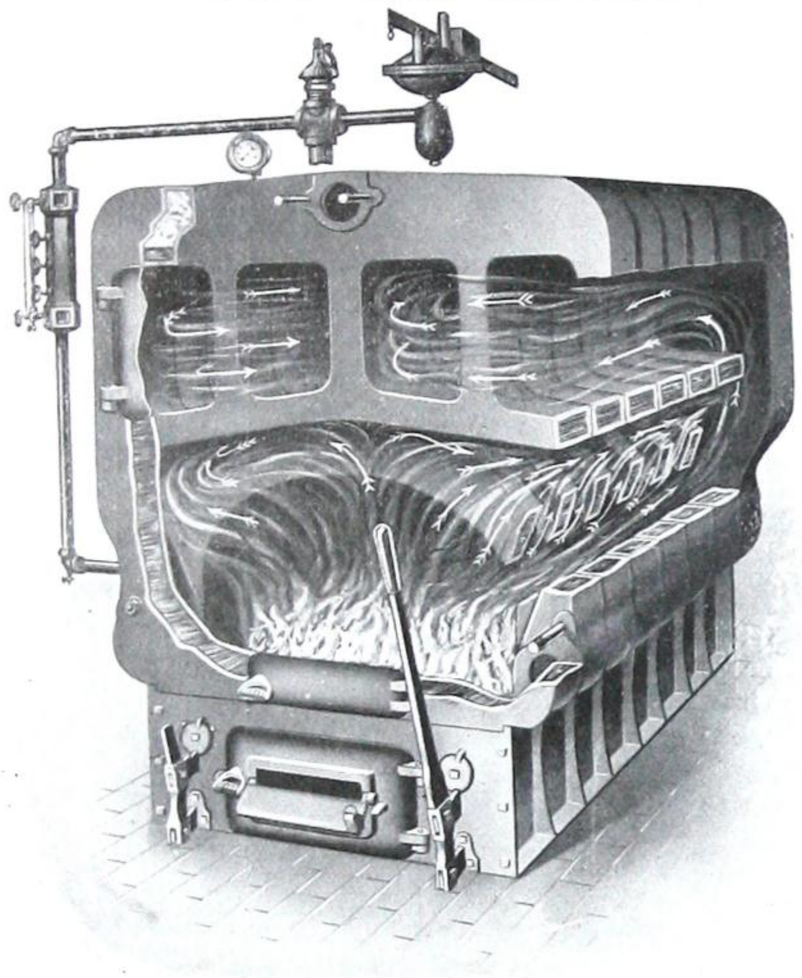


SECTIONAL VIEW OF "KING" BOILER. SHOWING IMPROVED DESIGN OF WATERWAYS COMBUSTION CHAMBER AND FIRE TRAVEL.

CONTINUED ON NEXT PAGE



W. 36-8. "ROYAL" Water Boiler.



Sectional View of S. 36-8. "ROYAL" Steam Boiler.



Sectional View Showing Fire Travel, Large Dome and Push-Nipple Construction. No. 4-25-S.

"ROYAL" SQUARE SECTIONAL STEAM AND WATER BOILERS.

HEATING SURFACE.

Note the arched Fire Chamber and extended overhanging heating surface.

FIRE TRAVEL.

Observe the triple fire travel on both sides of the Boiler, also the cross fire channels between each section.

This Boiler is so constructed that a perfect circulation and a steady water line is maintained.

Ample steam space in Dome.

"ROYAL" SQUARE SECTIONAL WATER BOILERS.

PRICES, DIMENSIONS AND CAPACITIES.

Size	Gross Rating Square Feet Radiation	Price List	Grate Area Square Feet	Average Fire Pot Area Square Feet	Regular Tappings, Inches	Size Foundation Inches	Height to Top of Outlet, Ins.	Total Width, Inches	Total Length, Inches	Smoke Pipe	Shipping Weight
W-19-5	1,000	$287.50	3.37	4.78	2-4	21½ x 29¾	52	32½	29¾	10	1,940
W-19-6	1,250	325.00	4.19	5.95	2-4	21½ x 36	52	32½	36	10	2,270
W-19-7	1,500	375.00	5.02	7.12	2-4	21½ x 42¼	52	32½	42¼	10	2,690
W-25-5	1,850	425.00	4.95	6.13	2-4	28 x 33	57¼	36½	33	12	2,590
W-25-6	2,250	487.50	6.16	7.64	2-4	28 x 40	57¼	36½	40	12	3,025
W-25-7	2,650	550.00	7.38	9.15	2-5	28 x 47	57¼	36½	47	12	3,445
W-25-8	3,050	612.50	8.60	10.65	2-5	28 x 54	57¼	36½	54	12	3,910
W-36-5	3,450	675.00	9.38	11.77	2-5	41½ x 39	70	56	43½	16	4,685
W-36-6	4,350	800.00	11.50	14.69	2-5	41½ x 47½	70	56	52	16	5,590
W-36-7	5,200	925.00	13.75	17.61	3-5	41½ x 56	70	56	60½	16	6,335
W-36-8	6,050	1,062.50	16.00	30.54	3-5	41½ x 64½	70	56	69	16	7,080
W-36-9	6,950	1,187.50	18.25	23.46	4-5	41½ x 73	70	56	77½	16	7,690
W-48-6	7,850	1,300.00	17.84	22.38	2-6	54 x 59½	80	67	64½	20	8,640
W-48-7	9,400	1,537.50	21.33	26.76	2-6	54 x 70	80	67	75	20	9,990
W-48-8	11,000	1,775.00	24.84	31.17	3-6	54 x 80½	80	67	85½	20	11,340
W-48-9	12,550	2,012.50	28.33	35.55	3-6	54 x 91	80	67	96	20	12,690
W-48-10	14,150	2,250.00	31.83	39.94	3-6	54 x101½	80	67	106½	20	14,190

"ROYAL" SQUARE SECTIONAL STEAM BOILERS.

PRICES, DIMENSIONS AND CAPACITIES.

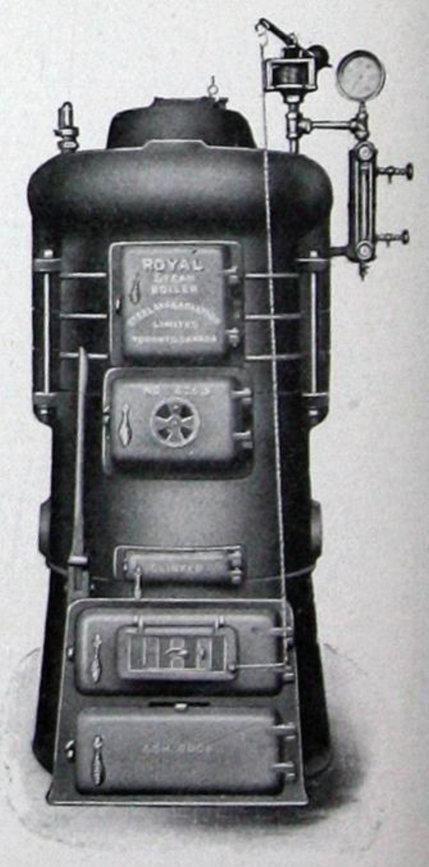
Size	Gross Rating Square Feet Radiation	List Price	Grate Area Square Feet	Average Fire Pot Area Square Feet	Regular Tappings, Inches	Size Foundation Inches	Height to Top of Outlet, In.	Total Width, Inches	Total Length, Inches	Height to Water Line, In	Smoke Pipe	Shipping Weight
S-19-5	600	$312.50	3.37	4.78	2-4	21½ x 29¾	52	32½	29¾	44½	10	1,940
S-19-6	750	350.00	4.19	5.95	2-4	21½ x 36	52	32½	36	44½	10	2,270
S-19-7	900	400.00	5.02	7.12	2-4	21½ x 42¼	52	32½	42¼	44½	10	2,690
S-25-5	1,100	450.00	4.95	6.13	2-4	28 x 33	57¼	36½	33	49	12	2,590
S-25-6	1,350	512.50	6.16	7.64	2-4	28 x 40	57¼	36½	40	49	12	3,025
S-25-7	1,600	575.00	7.38	9.15	2-4	28 x 47	57¼	36½	47	49	12	3,445
S-25-8	1,850	637.50	8.60	10.65	2-4	28 x 54	57¼	36½	54	49	12	3,910
S-36-5	2,100	700.00	9.38	11.77	2-5	41½ x 39	70	56	43½	60¼	16	4,685
S-36-6	2,650	837.50	11.50	14.69	2-5	41½ x 47½	70	56	52	60¼	16	5,590
S-36-7	3,150	962.50	13.75	17.61	3-5	41½ x 56	70	56	60½	60¼	16	6,335
S-36-8	3,700	1,100.00	16.00	30.54	3-5	41½ x 64½	70	56	69	60¼	16	7,080
S-36-9	4,200	1,225.00	18.25	23.46	3-5	41½ x 73	70	56	77½	60¼	16	7,690
S-48-6	4,750	1,362.50	17.84	22.38	2-6	54 x 59½	80	67	64½	68	20	8,640
S-48-7	5,700	1,600.00	21.33	26.76	3-6	54 x 70	80	67	75	68	20	9,990
S-48-8	6,650	1,837.50	24.84	31.17	3-6	54 x 80½	80	67	85½	68	20	11,340
S-48-9	7,600	2,075.00	28.33	38.55	3-6	54 x 91	80	67	96	68	20	12,690
S-48-10	8,550	2,132.50	31.83	39.94	3-6	54 x101½	80	67	106½	68	20	14,190

"ROYAL" ROUND STEAM BOILERS.

"Royal" Round Steam Boilers are of the vertical type, assembled with heavy push nipples, as shown on cuts. The dome is made specially large to provide ample steam space. In other respects its construction is similar to the "King" Water Boiler shown on page 253.

PRICES, DIMENSIONS AND CAPACITIES.

No.	Price, Complete		Gross Ratings, Square Feet	Height to Top of Outlet		Diameter at Base, Inches	Grate Area, Square Feet	Average Fire Pot, Square Feet	Height of Water Line		One Outlet Two Inlets Size, Inches	Smoke Pipe, Inches	No. of Sections Including Dome
	Low Base	High Base		Low Base Inches	High Base Inches				Low Base Inches	High Base Inches			
4-19-S	$215.00	$227.50	350	54	60¾	28	1.76	1.84	48	54¾	2	8	4
5-19-S	235.00	247.50	400	58	64¾	28	1.76	1.84	52	58¾	2½	8	5
4-22-S	295.00	313.75	525	55	61¾	30	2.40	2.53	49	55¾	3	9	4
5-22-S	312.50	331.25	575	59	65¾	30	2.40	2.53	53	59¾	3	9	5
4-25-S	325.00	350.00	625	55	61¾	32¼	3.14	3.20	49	55¾	3½	9	4
5-25-S	337.50	362.50	700	59	65¾	32¼	3.14	3.20	53	59¾	3½	9	5
4-28-S	400.00	431.25	900	61¼	68½	34¾	4.12	4.30	54¼	61½	4	10	4
5-28-S	425.00	456.25	1,000	65¾	73	34¾	4.12	4.30	58¾	66	4	10	5
4-31-S	500.00	535.00	1,275	62¼	69½	37	4.90	5.10	54¼	61½	4	10	4
5-31-S	525.00	560.00	1,400	66¾	74	37	4.90	5.10	58¾	66	4	10	5
4-34-S	550.00	587.50	1,500	69¼	75¼	40	5.94	6.00	61¼	67¼	5	11	4
5-34-S	587.50	625.00	1,650	74	80	40	5.94	6.00	66	74	5	11	5



No. 4-25-5. "ROYAL" Round Steam Boiler Fitted with "King" Ashpit, Grates and Shaking Mechanism.

CONTINUED ON NEXT PAGE

"ROYAL" ROUND H.W. PUSH NIPPLE BOILER.

"Royal" Round Hot Water Boilers are of the vertical type, assembled with heavy push nipples. The water channels, being placed one on each side of the boiler, assure a quick and efficient circulation.

In all other respects this boiler is similar to the "King" Boiler illustrated on page 253 in this ad.



No. 4-22-W. "ROYAL" Boiler with Low Base.

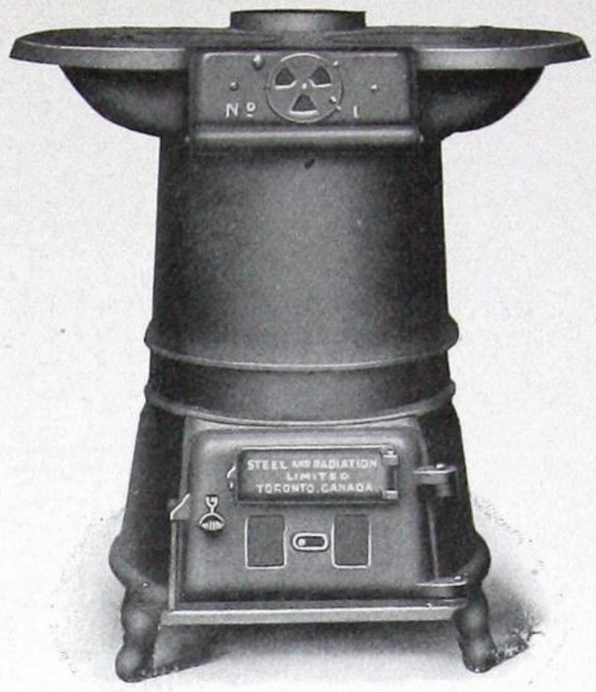
"ROYAL" WATER BOILER.

LIST, DIMENSIONS AND CAPACITIES.

Size No.	Rating in Square Feet Direct Rad.	List Prices		Height to Top Outlet, Inches		Diameter in Inches—of			Depth of Fire Pot, Inches	Outlets and Inlets, 2 each Size in Inches	Size of Coal
		High Base	Low Base	High Base	Low Base	Fire Pot	Smoke Pipe	Grate			
4-19-W	500	$170.00	$160.00	52½	45½	19	8	19	16¾	2-2½	Stove
5-19-W	575	190.00	180.00	56¼	49½	19	8	19	16¾	2-2½	Stove
4-22-W	675	215.00	200.00	52¾	46	22	9	22	16¾	2-3	Stove
5-22-W	750	235.00	220.00	56¾	50	22	9	22	16¾	2-3	Stove
4-25-W	850	260.00	240.00	54¼	47½	25	9	25	17¾	2-3½	Stove
5-25-W	940	280.00	260.00	58¼	51½	25	9	25	17¾	2-3½	Stove
4-28-W	1,000	290.00	270.00	58¾	51½	28	10	28	18¾	2-4	Stove
5-28-W	1,100	320.00	300.00	63	55¾	28	10	28	18¾	2-4	or Egg
4-31-W	1,250	360.00	335.00	60½	53¼	31	10	31	19¾	2-5	Egg
5-31-W	1,350	380.00	355.00	65¾	58¾	31	10	31	19¾	2-5	Egg
4-34-W	1,500	420.00	392.00	66¾	58¾	34	12	34	19½	2-5	Egg
5-34-W	1,750	453.00	425.00	72	64	34	12	34	19½	2-5	Egg

These Boilers are of the push nipple construction.

Note.—The ratings for "Royal" Boilers are based on the capacity of 1-inch pipe, not including mains.

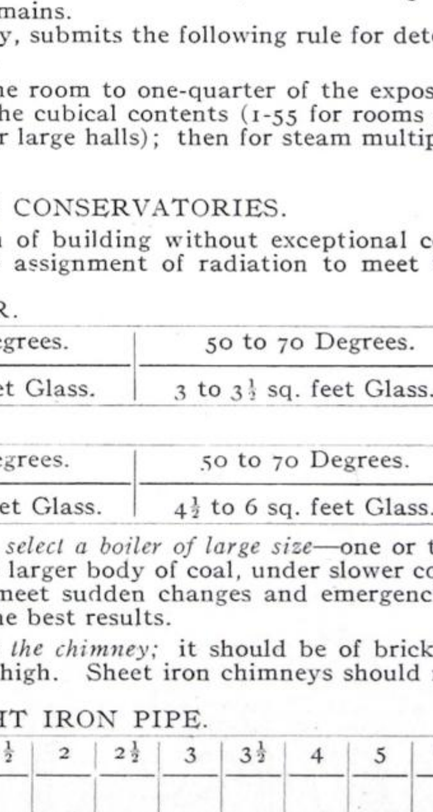


No. 1 "ROYAL" Laundry Heater.

"ROYAL" WATER and LAUNDRY HEATERS.

PRICES, DIMENSIONS AND CAPACITIES.

No.	List Price	Capacity Gallons	Approximate Gross Capacity Square Feet	Nominal Diameter Grate Inches	Grate Area Square Feet	Outlets and Inlets Inches
10	$27.30	90	110	10	54	1-1½
12	48.00	190	225	12	80	1-2½
112	58.00	210	250	12	80	1-2½
15	68.00	380	450	15	1.23	1-3
115	80.00	425	495	15	1.23	1-3
1 Laundry	30.00	100	120	10	54	1-1¼



No. 10 Water Heater.

CHIMNEY FLUES.

Herewith is a table of chimney flue sizes which is commonly used with good results. It does not take into consideration varying heights of stacks, but is said to be reliable in average conditions.

Direct Radiation.*		Size of Flue.	
Steam in Square Feet.	Water in Square Feet.	Round.	Square.
250	400	8	8 x 8
300	500	8	8 x 8
400	700	8	8 x 8
500	850	10	8 x 12
600	1,000	10	8 x 12
700	1,200	10	8 x 12
800	1,350	12	12 x 12
900	1,500	12	12 x 12
1,000	1,700	12	12 x 12
1,200	2,100	12	12 x 12
1,400	2,400	14	12 x 16
1,600	2,700	14	12 x 16
1,800	3,000	14	12 x 16
2,000	3,400	14	12 x 16
2,200	3,700	16	16 x 16
3,000	5,100	16	16 x 16
3,500	5,900	18	16 x 20
5,000	8,500	18	16 x 20

* Indirect radiation should be counted at 50 per cent. more than direct, and corresponding areas of flue should be provided therefor. The amount of radiation determines the requisite size of boiler, and therefore area of flue.

ESTIMATING RADIATION.

While the radiating surface which will be required in any room will largely depend upon the proportion of exposed wall and glass surface, there must, nevertheless, be some relation to the cubical contents of same; and, therefore, as the simplest and most readily comprehended rule of apportioning radiation, we offer the following, derived from the experience of the best heating engineers,—the proposition being a detached building, of average construction and exposure, and outside temperature zero:

BY HOT WATER.

One square foot of direct radiation will heat:

Dwellings.	Cubic feet of space.
Living Rooms, one side exposed	25 to 30
Living Rooms, two sides exposed	20 to 25
Living Rooms, three sides exposed	15 to 20
Sleeping Rooms	30 to 35
Halls and Bath Rooms	20 to 30
Public Buildings.	
Offices	30 to 40
School Rooms	20 to 30
Factories and Stores	40 to 60
Assembly Halls and Churches	60 to 80

BY STEAM.

Dwellings.	
Living Rooms, one side exposed	50 to 55
Living Rooms, two sides exposed	45 to 50
Living Rooms, three sides exposed	40 to 45
Sleeping Rooms	60 to 70
Halls and Bath Rooms	40 to 50

BY STEAM—*Continued.*

Public Buildings.	Cubic feet of space.
Offices	50 to 75
School Rooms	40 to 60
Factories and Stores	70 to 100
Assembly Halls and Churches	100 to 150

Allowances should be made for extraordinary conditions, such as character of building, location, exposure and quality of construction, loose windows and doors, and unusual glass exposure, and the necessary lengths of distributing mains.

Professor R. C. Carpenter, of Cornell University, submits the following rule for determining the size of radiator needed for a given room.

Rule.—Add the area of the glass surface in the room to one-quarter of the exposed wall surface, and to this add from 1-55 to 3-55 of the cubical contents (1-55 for rooms on upper floor, 2-55 for rooms on first floor and 3-55 for large halls); then for steam multiply by .25, and for water .40.

HEATING GREENHOUSES AND CONSERVATORIES.

The proposition being for a good construction of building without exceptional conditions the following will be safe practice in the assignment of radiation to meet the exigencies of *zero* weather.

HOT WATER.

To maintain Temperature of	40 to 50 Degrees.	50 to 70 Degrees.
One square foot of surface to	3½ to 4 sq. feet Glass.	3 to 3½ sq. feet Glass.

STEAM.

To maintain Temperature of	40 to 50 Degrees.	50 to 70 Degrees.
One square foot of surface to	5½ to 6½ sq. feet Glass.	4½ to 6 sq. feet Glass.

Having found the amount of radiation required, select a boiler of large size—one or two sizes larger—not one that will just do the work. A larger body of coal, under slower combustion, holding always a large reserve power to meet sudden changes and emergencies, will be in the order of economy and a security to the best results.

A most important part of a greenhouse plant is the chimney; it should be of brick or tile of ample size and height, not less than 25 feet high. Sheet iron chimneys should not be tolerated.

CAPACITIES OF WROUGHT IRON PIPE.

Inside Diameter, Inches.	1	1¼	1½	2	2½	3	3½	4	5	6
Length of pipe per square foot of external surface	2.9	2.3	2.0	1.6	1.32	1.09	0.95	0.84	0.68	0.57
Square feet surface per 1 lineal foot	0.34	0.43	0.50	0.62	0.75	0.92	1.05	1.18	1.46	1.74
Length of pipe necessary to contain 1 gallon of water	22.3	12.8	9.4	5.7	4.02	2.6	1.95	1.51	.96	.66

EXPANSION OF WROUGHT IRON PIPE.

Temperature of the Air when Pipe is Fitted.	Length of Pipe when Fitted.	Length of Pipe when heated to			
		215°	265°	297°	338°
		ft. in.	ft. in.	ft. in.	ft. in.
Zero.	100 feet.	100 1.72	100 2.12	100 2.31	100 2.70
32°	100 "	100 1.47	100 1.78	100 2.12	100 2.45
64°	100 "	100 1.21	100 1.61	100 1.87	100 2.19

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STEEL AND RADIATION, LIMITED

HEAD OFFICE:
FRASER AVENUE, TORONTO.

BRANCHES:
MONTREAL: 304 UNIVERSITY ST.
QUEBEC: 101 ST. JOHN STREET.

SHOW ROOM:
80 ADELAIDE STREET EAST,
TORONTO.

AGENCIES:
WINNIPEG, CALGARY, ST. JOHN,
HALIFAX, VANCOUVER, HAMILTON,
AND EDMONTON.

PLANTS:
ST. CATHARINES, ONT.
TORONTO, ONT.

FACTORIES. "KING" AND "IMPERIAL" RADIATORS are manufactured at St. Helens Avenue, Toronto, and St. Catharines plants, which are the most modern and finest equipped on the continent.

CONSTRUCTION. "KING" AND "IMPERIAL" are (screw nipple connection) Radiators made from the best pig iron, and are subjected to the most thorough test by hydraulic pressure before shipping. Special 2-inch Water-Way in bottom.

STYLES AND SIZES. "KING" two, three and four column widths in ornamental and plain pattern. "KING" five column Window Radiators (plain only). "KING" Ornamental and Plain Wall Radiators. "IMPERIAL" one, two and three column (plain and ornamental). Complete range of sizes are given below. Tappings as required.

A feature of "KING" and "IMPERIAL" Radiation is the uniformity of ornamentation, permitting the use of radiators of different widths in one room without conflicting patterns.

"IMPERIAL" ONE COLUMN.



"Imperial" Water or Steam, Plain and Ornamental.

WIDTH OF RADIATOR, $4\frac{3}{8}$".
LENGTH OF RADIATOR PER SECTION, $2\frac{1}{2}$".
PLAIN.

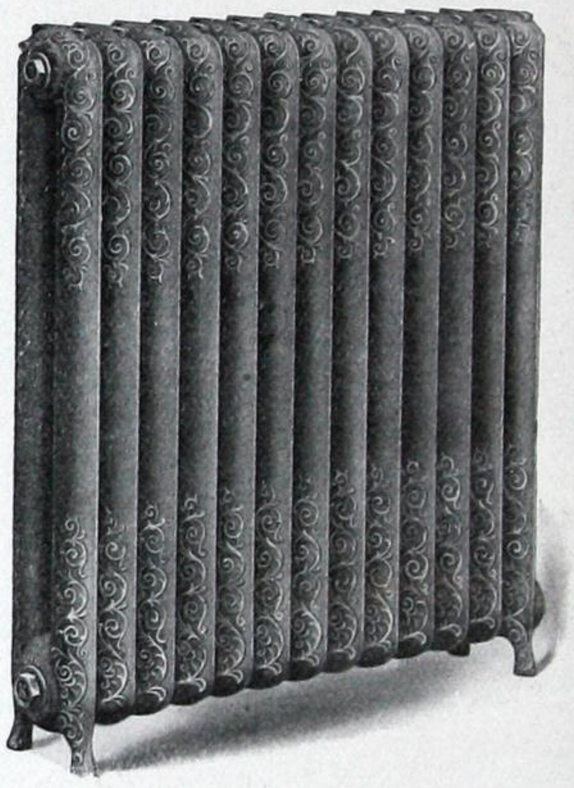
"IMPERIAL" TWO COLUMN.



WIDTH OF RADIATOR, $7\frac{1}{4}$".
LENGTH OF RADIATOR PER SECTION $2\frac{1}{2}$".
PLAIN.

"KING" Water or Steam, Plain and Ornamental.

"KING" TWO COLUMN.



WIDTH OF RADIATOR, $7\frac{1}{4}$".
LENGTH OF RADIATOR PER SECTION, $2\frac{1}{2}$".
ORNAMENTAL.

"IMPERIAL" ONE COLUMN.

CAPACITIES AND DIMENSIONS.

Number of Section	Length of Radiator	Heating Surface in Square Feet. 38 in. High 3 sq. ft. per Section	32 in. High $2\frac{1}{2}$ sq. ft. per Section	26 in. High 2 sq. ft. per Section	23 in. High $1\frac{2}{3}$ sq. ft. per Section	20 in. High $1\frac{1}{2}$ sq. ft. per Section
2	6	6	5	4	$3\frac{1}{3}$	3
3	$8\frac{1}{2}$	9	$7\frac{1}{2}$	6	5	$4\frac{1}{2}$
4	11	12	10	8	$6\frac{2}{3}$	6
5	$13\frac{1}{2}$	15	$12\frac{1}{2}$	10	$8\frac{1}{3}$	$7\frac{1}{2}$
6	16	18	15	12	10	9
7	$18\frac{1}{2}$	21	$17\frac{1}{2}$	14	$11\frac{2}{3}$	$10\frac{1}{2}$
8	21	24	20	16	$13\frac{1}{3}$	12
9	$23\frac{1}{2}$	27	$22\frac{1}{2}$	18	15	$13\frac{1}{2}$
10	26	30	25	20	$16\frac{2}{3}$	15
11	$28\frac{1}{2}$	33	$27\frac{1}{2}$	22	$18\frac{1}{3}$	$16\frac{1}{2}$
12	31	36	30	24	20	18
13	$33\frac{1}{2}$	39	$32\frac{1}{2}$	26	$21\frac{2}{3}$	$19\frac{1}{2}$
14	36	42	35	28	$23\frac{1}{3}$	21
15	$38\frac{1}{2}$	45	$37\frac{1}{2}$	30	25	$22\frac{1}{2}$
16	41	48	40	32	$26\frac{2}{3}$	24
17	$43\frac{1}{2}$	51	$42\frac{1}{2}$	34	$28\frac{1}{3}$	$25\frac{1}{2}$
18	46	54	45	36	30	27
19	$48\frac{1}{2}$	57	$47\frac{1}{2}$	38	$31\frac{2}{3}$	$28\frac{1}{2}$
20	51	60	50	40	$33\frac{1}{3}$	30
21	$53\frac{1}{2}$	63	$52\frac{1}{2}$	42	35	$31\frac{1}{2}$
22	56	66	55	44	$36\frac{2}{3}$	33
23	$58\frac{1}{2}$	69	$57\frac{1}{2}$	46	$38\frac{1}{3}$	34
24	61	72	60	48	40	36
25	$63\frac{1}{2}$	75	$62\frac{1}{2}$	50	$41\frac{2}{3}$	$37\frac{1}{2}$

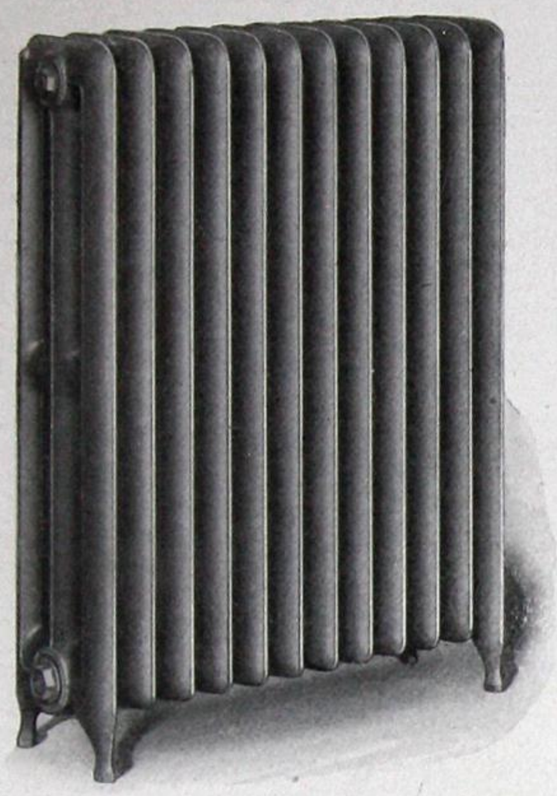
"IMPERIAL" AND "KING" TWO COLUMN.

CAPACITIES AND DIMENSIONS.

Number of Sections	Length of Radiator	Heating Surface in Square Feet 45 in. High 5 sq. ft. per Section	38 in. High 4 sq. ft. per Section	32 in. High $3\frac{1}{3}$ sq. ft. per Section	30 in. High 3 sq. ft. per Section	26 in. High $2\frac{2}{3}$ sq. ft. per Section	23 in. High $2\frac{1}{3}$ sq. ft. per Section	20 in. High 2 sq. ft. per Section
2	6	10	8	$6\frac{2}{3}$	6	$5\frac{1}{3}$	$4\frac{2}{3}$	4
3	$8\frac{1}{2}$	15	12	10	9	8	7	6
4	11	20	16	$13\frac{1}{3}$	12	$10\frac{2}{3}$	$9\frac{1}{3}$	8
5	$13\frac{1}{2}$	25	20	$16\frac{2}{3}$	15	$13\frac{1}{3}$	$11\frac{2}{3}$	10
6	16	30	24	20	18	16	14	12
7	$18\frac{1}{2}$	35	28	$23\frac{1}{3}$	21	$18\frac{2}{3}$	$16\frac{1}{3}$	14
8	21	40	32	$26\frac{2}{3}$	24	$21\frac{1}{3}$	$18\frac{2}{3}$	16
9	$23\frac{1}{2}$	45	36	30	27	24	21	18
10	26	50	40	$33\frac{1}{3}$	30	$26\frac{2}{3}$	$23\frac{1}{3}$	20
11	$28\frac{1}{2}$	55	44	$36\frac{2}{3}$	33	$29\frac{1}{3}$	$25\frac{2}{3}$	22
12	31	60	48	40	36	32	28	24
13	$33\frac{1}{2}$	65	52	$43\frac{1}{3}$	39	$34\frac{2}{3}$	$30\frac{1}{3}$	26
14	36	70	56	$46\frac{2}{3}$	42	$37\frac{1}{3}$	$32\frac{2}{3}$	28
15	$38\frac{1}{2}$	75	60	50	45	40	35	30
16	41	80	64	$53\frac{1}{3}$	48	$42\frac{2}{3}$	$37\frac{1}{3}$	32
17	$43\frac{1}{2}$	85	68	$56\frac{2}{3}$	51	$45\frac{1}{3}$	$39\frac{2}{3}$	34
18	46	90	72	60	54	48	42	36
19	$48\frac{1}{2}$	95	76	$63\frac{1}{3}$	57	$50\frac{2}{3}$	$44\frac{1}{3}$	38
20	51	100	80	$66\frac{2}{3}$	60	$53\frac{1}{3}$	$46\frac{2}{3}$	40
21	$53\frac{1}{2}$	105	84	70	63	56	49	42
22	56	110	88	$73\frac{1}{3}$	66	$58\frac{2}{3}$	$51\frac{1}{3}$	44
23	$58\frac{1}{2}$	115	92	$76\frac{2}{3}$	69	$61\frac{1}{3}$	$53\frac{2}{3}$	46
24	61	120	96	80	72	64	56	48
25	$63\frac{1}{2}$	125	100	$83\frac{1}{3}$	75	$66\frac{2}{3}$	$58\frac{1}{3}$	50

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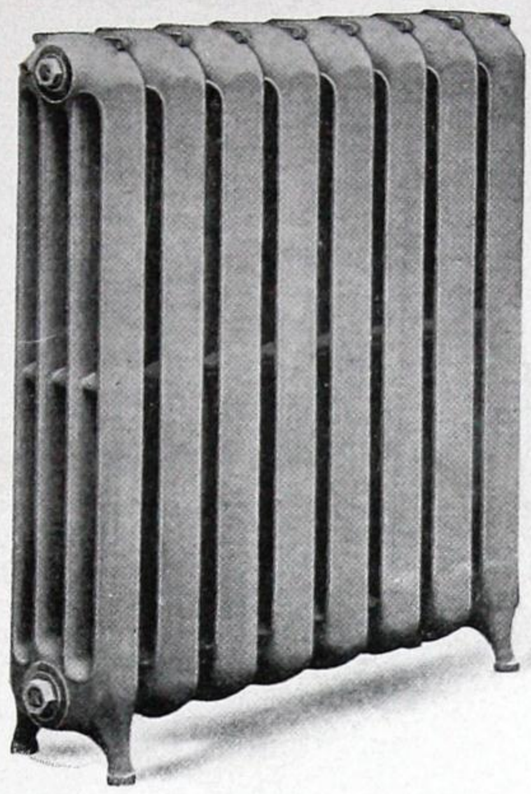
"IMPERIAL" THREE COLUMN.



"Imperial" Three Column Water or Steam, Plain and Ornamental.

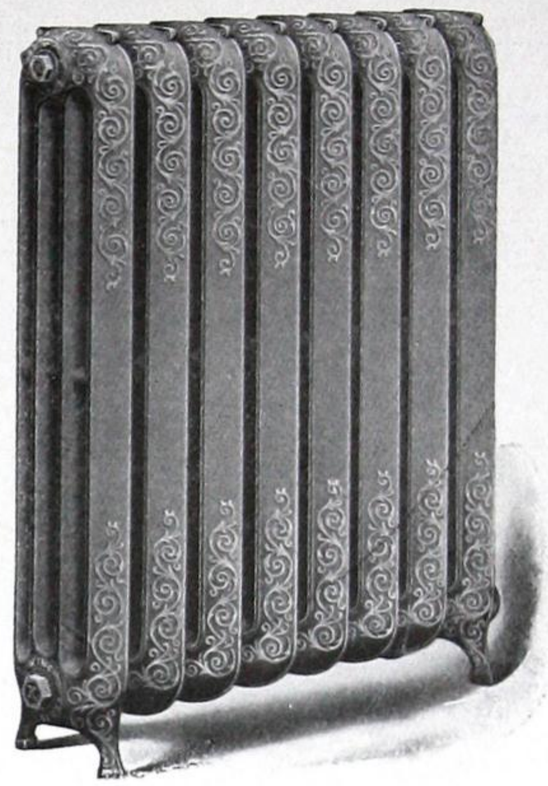
WIDTH OF RADIATOR, 9".
LENGTH OF RADIATOR PER SECTION, 2½".
PLAIN.

"KING" FOUR COLUMN.



WIDTH OF RADIATOR, 8¾".
LENGTH OF RADIATOR PER SECTION, 4"
PLAIN

"KING" FOUR COLUMN.



"King" Four Column Water or Steam, Plain and Ornamental.

WIDTH OF RADIATOR, 8¾".
LENGTH OF RADIATOR PER SECTION, 4".
ORNAMENTAL.

"IMPERIAL" THREE COLUMN.

CAPACITIES AND DIMENSIONS.

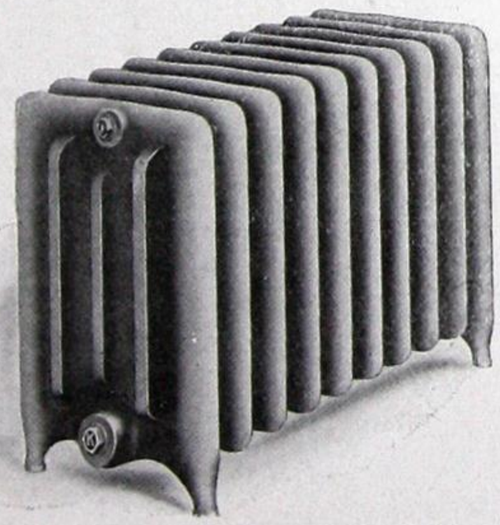
Number of Sections	Length of Radiator	Heating Surface in Square Feet: 44 in. High 6 sq. ft per Section	38 in. High 5 sq. ft. per Section	32 in. High 4½ sq. ft. per Section	26 in. High 3¾ sq. ft. per Section	22 in. High 3 sq. ft. per Section	18 in. High 2¼ sq. ft. per Section
2	6	12	10	9	7½	6	4½
3	8½	18	15	13½	11¼	9	6¾
4	11	24	20	18	15	12	9
5	13½	30	25	22½	18¾	15	11¼
6	16	36	30	27	22½	18	13½
7	18½	42	35	31½	26¼	21	15¾
8	21	48	40	36	30	24	18
9	23½	54	45	40½	33¾	27	20¼
10	26	60	50	45	37½	30	22½
11	28½	66	55	49½	41¼	33	24¾
12	31	72	60	54	45	36	27
13	33½	78	65	58½	48¾	39	29¼
14	36	84	70	63	52½	42	31½
15	38½	90	75	67½	56¼	45	33¾
16	41	96	80	72	60	48	36
17	43½	102	85	76½	63¾	51	38¼
18	46	108	90	81	67½	54	40½
19	48½	114	95	85½	71¼	57	42¾
20	51	120	100	90	75	60	45
21	53½	126	105	94½	78¾	63	47¼
22	56	132	110	99	82½	66	49½
23	58½	138	115	103½	86¼	69	51¾
24	61	144	120	108	90	72	54
25	63½	150	125	112½	93¾	75	56¼

"KING" FOUR COLUMN.

CAPACITIES AND DIMENSIONS.

Number of Sections	Length of Radiator	Heating Surface in Square Feet: 42 in. High 9⅔ sq. ft. per Section	38 in. High 8 sq. ft. per Section	32 n. High 6⅔ sq. ft. per Section	26 in. High 5⅓ sq. ft. per Section	20 in. High 4 sq. ft. per Section	16 in. High 2⅔ sq. ft. per Section
2	9	19⅓	16	13⅓	10⅔	8	5
3	13	29	24	20	16	12	7½
4	17	38⅔	32	26⅔	21⅓	16	10
5	21	48⅓	40	33⅓	26⅔	20	12½
6	25	58	48	40	32	24	15
7	29	67⅔	56	46⅔	37⅓	28	17½
8	33	77⅓	64	53⅓	42⅔	32	20
9	37	87	72	60	48	36	22½
10	41	96⅔	80	66⅔	53⅓	40	25
11	45	106⅓	88	73⅓	58⅔	44	27½
12	49	116	96	80	64	48	30
13	53	125⅔	104	86⅔	69⅓	52	32½
14	57	135⅓	112	93⅓	74⅔	56	35
15	61	145	120	100	80	60	37½
16	65	154⅔	128	106⅔	85⅓	64	40
17	69	164⅓	136	113⅓	90⅔	68	42½
18	73	174	144	120	96	72	45
19	77	183⅔	152	126⅔	101⅓	76	47½
20	81	193⅓	160	133⅓	106⅔	80	50
21	85	203	168	140	112	84	52½
22	89	212⅔	176	146⅔	117⅓	88	55
23	93	222⅓	184	153⅓	122⅔	92	57½
24	97	232	192	160	128	96	60
25	101	241⅔	200	166⅔	133⅓	100	62½

"KING" FIVE COLUMN WINDOW RADIATOR.

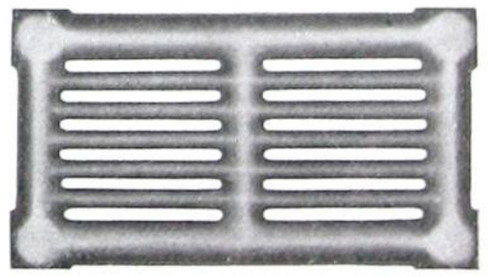


WIDTH OF RADIATOR, 13".
LENGTH OF RADIATOR PER SECTION, 3".
HOT WATER AND STEAM.
PLAIN ONLY.

CAPACITIES AND DIMENSIONS

Number of Sections	Length of Radiator	Heating Surface in Square Feet: 20 in. High 6 sq. ft. per Section	18 in. High 6 sq. ft. per Section	16 in. High 4⅔ sq. ft. per Section	14 in. High 4⅔ sq. ft. per Section
2	7	12	12	9⅓	9⅓
3	10	18	18	14	14
4	13	24	24	18⅔	18⅔
5	16	30	30	23⅓	23⅓
6	19	36	36	28	28
7	22	42	42	32⅔	32⅔
8	25	48	48	37⅓	37⅓
9	28	54	54	42	42
10	31	60	60	46⅔	46⅔
11	34	66	66	51⅓	51⅓
12	37	72	72	56	56
13	40	78	78	60⅔	60⅔
14	43	84	84	65⅓	65⅓
15	46	90	90	70	70
16	49	96	96	74⅔	74⅔
17	52	102	102	79⅓	79⅓
18	55	108	108	84	84
19	58	114	114	88⅔	88⅔
20	61	120	120	93⅓	93⅓
21	64	126	126	98	98
22	67	132	132	102⅔	102⅔
23	70	138	138	107⅓	107⅓
24	73	144	144	112	112
25	76	150	150	116⅔	116⅔

"KING" WALL RADIATOR.



HOT WATER AND STEAM.
PLAIN AND ORNAMENTAL.

DIMENSIONS AND CAPACITIES.

Square Feet per Section	Width Inches	Length Inches	Thickness of Hub Inches
9	13	24	3¼
7	13	24	3
6	13	21	3
5	13	17	3

Radiators may be made up of any number of sections and in any desired variety of vertical or horizontal arrangement.

WARDEN KING, LIMITED

EXECUTIVE OFFICES AND WORKS:
BENNETT AVE., MAISONNEUVE,
MONTREAL, QUE.

TORONTO BRANCH:
200 ADELAIDE ST. WEST.

SALES OFFICE AND CITY WAREHOUSE:
151 CRAIG STREET WEST,
MONTREAL, QUE.

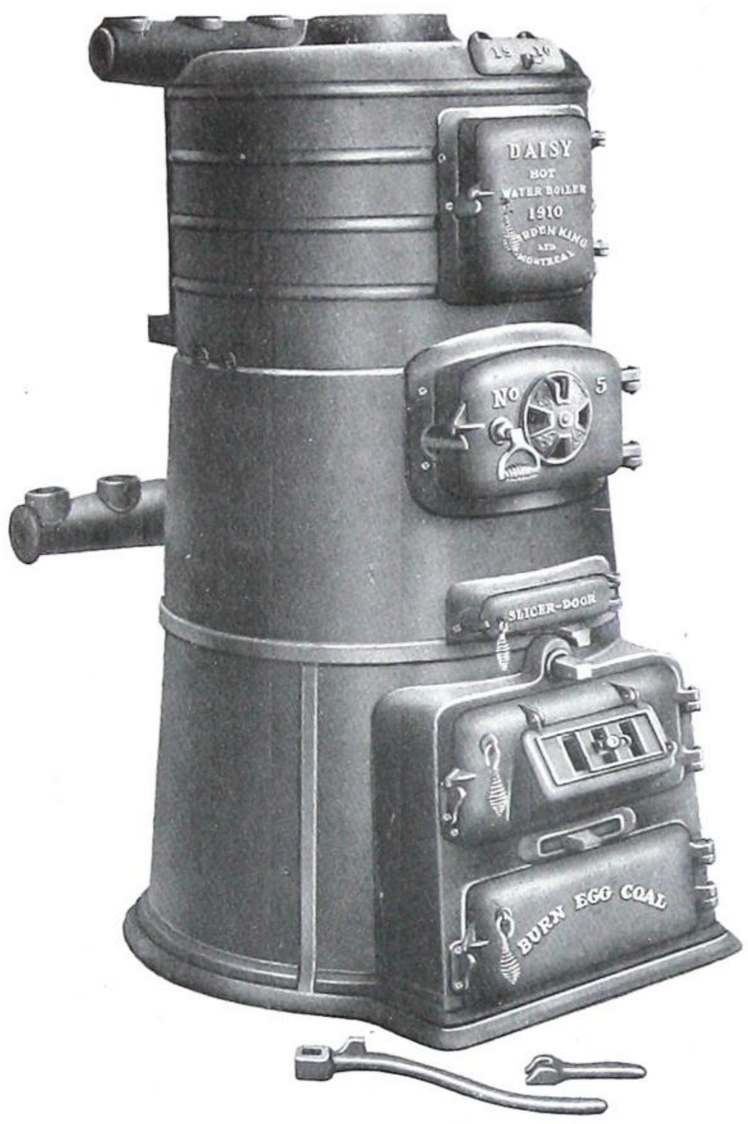
PRODUCTS.

The "DAISY" BOILER is twenty-five years old, and there are over 50,000 in use.

"DAISY" BOILER.

The "Daisy" Boiler of to-day is constructed practically on the same lines as those first put out in 1886. It is built in one of the best equipped plants on the continent, and the very best material is used in every part of it. Its durability is proved by the fact that many of those which were first placed in operation are still giving the best of service.

The "Daisy" is easy to clean and easy to operate. In the morning, after the fire has been banked all night, an eighth of a turn of the shaker handle serves to cut off dead ashes and clinkers, and the fire responds immediately; a full quarter turn of the handle dumps the contents of the grate into the base.



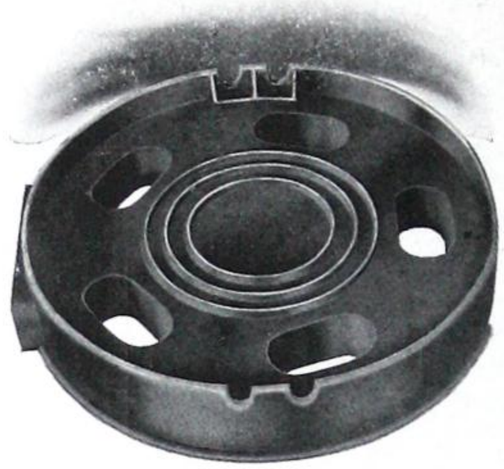


FIG. A.

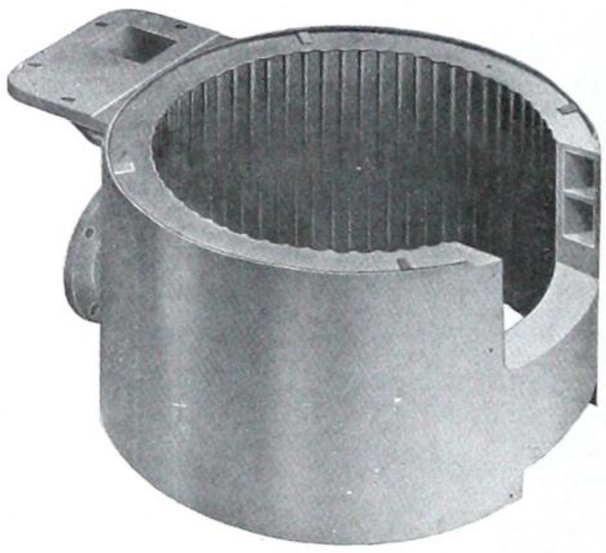
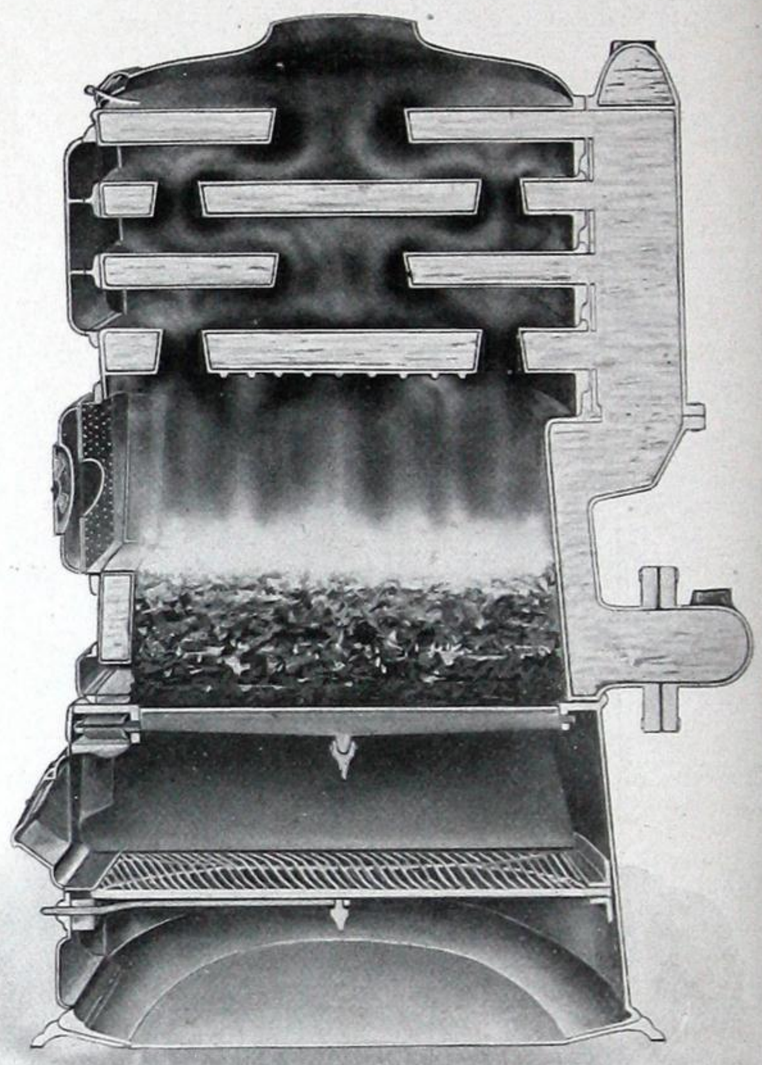


FIG B.



FIRE-POT.

The Fire-Pot Section (Fig. B) is so deep that all gases are consumed in the combustion chamber, consequently a high temperature of water is maintained on minimum fuel consumption. On the inside of the fire-pot are vertical ribs to permit the air to rise freely through the coal at the outside edges of the fire, keeping it burning evenly and preventing the accumulation of ashes near the water in the fire-pot section.

FIRST SECTION.

The First Section of the "Daisy" (Fig. A) is directly over the combustion chamber, and receives at right angles direct currents of gases of the most intense heat. In order to absorb all the heat possible we have increased the water capacity of this section, enlarged the waterways and placed raised rings on the under side, thereby increasing the heating surface and retarding the passage of gases until the water has absorbed the greatest possible amount of heat.

WATER-POST.

The Water-Post is the connecting passage between the different water sections of the boiler, and possesses exclusive features. Its interior is divided by a partition which separates the flow and return openings. The water rising from the fire-pot enters one side of this casting and passes into the large openings of each section simultaneously, thus insuring positive and continuous circulation. The "Daisy" water-post admits of one or more sections being shut off, the use of the others being continued, so that *in case of accident any of the sections may be detached and replaced without disturbing the piping.*

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COMBUSTION CHAMBER AND FLUES.

The Combustion Chamber and Flues are so proportioned and arranged that the combustion of the gases commencing in the fire-pot is completed before they escape to the chimney.

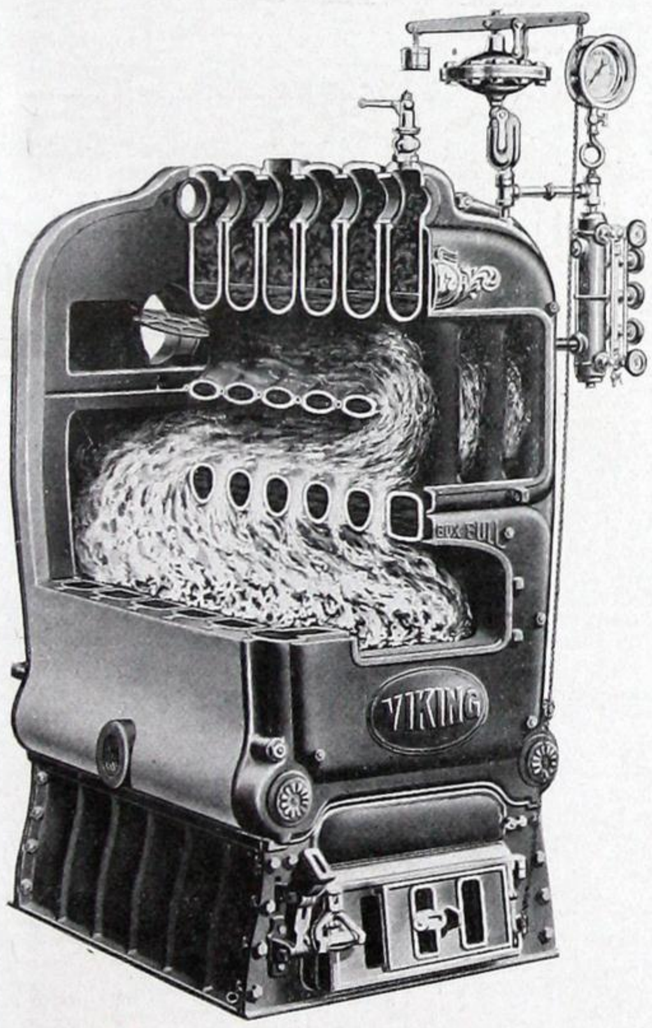
NOTE.

When desired, two or more "Daisy" Boilers may be connected in series, and under this arrangement they may be used singly or together.

NET CAPACITIES (NOT INCLUDING MAINS), DIMENSIONS AND PRICES.

Boiler Number	Net Capacity lineal feet of inch pipe	Net Capacity in square feet	List Price		Height to Top of Dome		Diameter of Smoke Pipe	Diameter of Base Ring	Diameter at Fire Pot Top	Diameter at Fire Pot Bottom	Depth of Fire Pot	No. of Mains flow and return	Size of Expansion Pipe	Size of Coal
			High Base	Low Base	High Base	Low Base								
0	500	167	$ 94 00	$ 88.00	51 ins.	44 ins.	7 ins.	2 ft. 3 ins.	15¾ ins.	17½ ins	15¾ ins.	4-2 in.	1 in.	Chestnut
1	700	233	111 00	105.00	54½ ins	48 ins.	7 ins.	2 ft. 3 ins.	15¾ ins.	17½ ins.	15¾ ins.	4-2 in.	1 in.	Chestnut
2	1000	333	147 00	140.00	56 ins.	49½ ins.	7 ins.	2 ft. 7 ins.	18½ ins.	20¼ ins.	16 ins.	4-2 in	1 in.	Stove
3	1500	500	170 00	160 00	58 ins.	51 ins.	8 ins.	2 ft. 10½ ins.	19¾ ins.	21½ ins.	16¼ ins.	4-2 in.	1 in.	Stove
4	2000	667	215 00	200 00	60 ins.	53½ ins.	8 ins.	3 ft. 0½ ins.	22⅞ ins	24⅝ ins.	16½ ins	4-2 in.	1 in.	Stove
5	2500	833	260 00	240 00	62 ins.	55½ ins.	10 ins.	3 ft. 3 ins.	24⅞ ins.	26⅝ ins.	16⅞ ins.	6-2 in	1 in.	Egg
6	3000	1000	290.00	270.00	64½ ins.	58 ins.	10 ins.	3 ft. 5½ ins.	27 ins.	28¾ ins.	17¼ ins.	7-2 in.	1¼ in.	Egg
6½	3750	1250	360 00	335 00	66½ ins.	60 ins.	10 ins.	3 ft. 6½ ins.	29¾ ins.	31½ ins.	17⅝ ins.	6-2–2-2½	1¼ in.	Egg
7	4500	1500	420 00	392.00	69 ins.	62 ins.	12 ins.	3 ft. 9 ins.	32¼ ins.	34 ins.	18 ins.	11-2 in.	1¼ in.	Egg
8	6000	2000	505 00	475 00	70½ ins.	63½ ins.	12 ins.	4 ft. 2½ ins.	37¼ ins.	39 ins.	18⅜ ins.	13-2 in	1¼ in.	Egg
9	8000	2667	554 00	524.00	73½ ins.	67 ins.	12 ins.	4 ft. 4½ ins.	39½ ins.	41¼ ins	18¾ ins.	13-2 in	1½ in.	Egg
10	12000	4000	1010 00	850.00	Special	Special	12 ins.	Special	Special	Special	Special	Special	2 in	Furnace

"VIKING" BOILERS FOR STEAM AND HOT WATER.



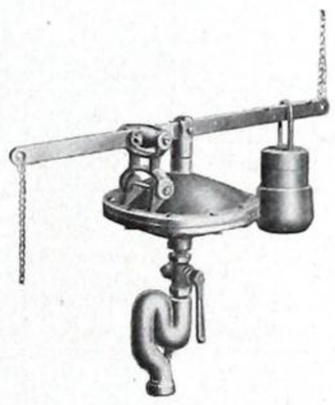


FIG. A

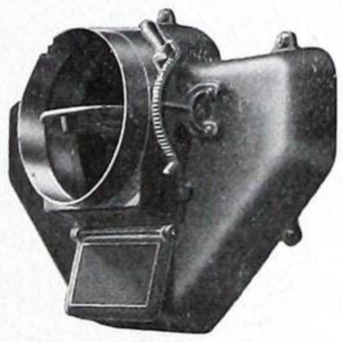
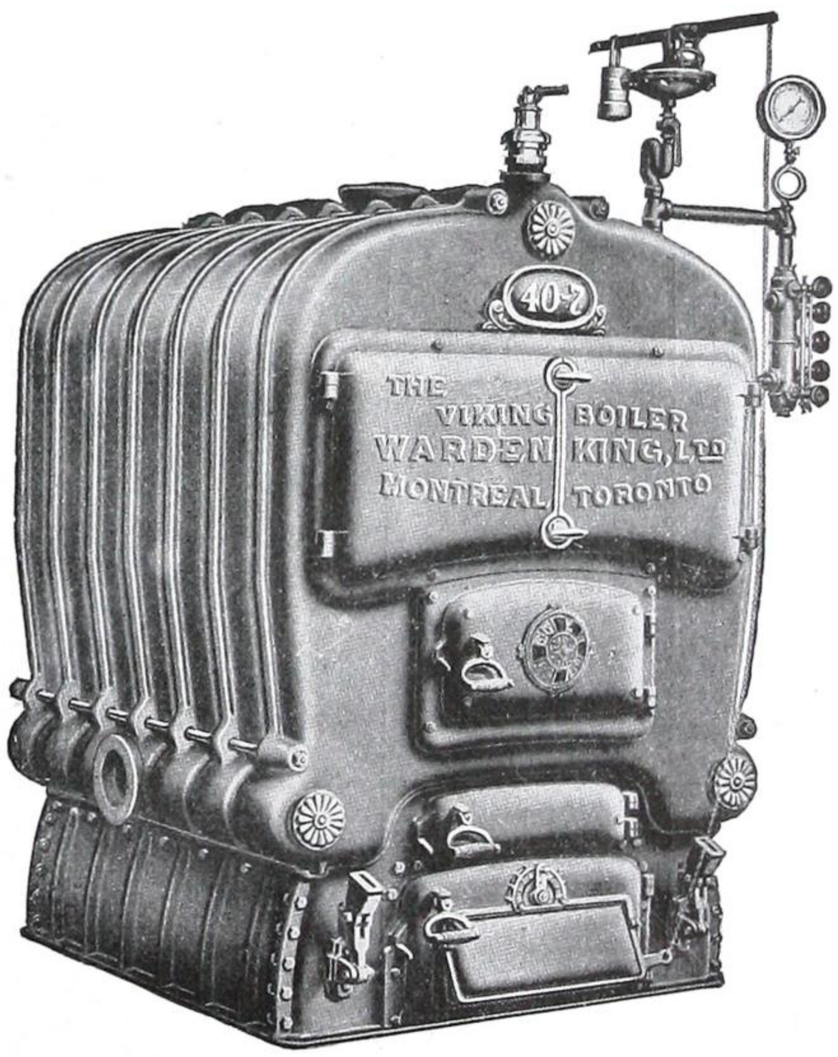


FIG. B.



"VIKING" BOILERS.

"Viking" Boilers, for steam and hot water, are noted for their prompt response to a quickened fire. Note the ample height of the combustion chamber above the fire, also the extent and arrangement of the interior surfaces to insure the maximum fuel heat being absorbed.

"Viking" Boilers are especially designed for deep, slowly-burning fires, fourteen to sixteen inches thick and more, consequently an effective fire is easily maintained all night or during the day with the least possible attention; coal burns slowly and completely, without clinkers and with greatest economy. All our fire-boxes are proportioned for moderate consumption.

CONTINUED ON NEXT PAGE

REGULATOR. An improved sensitive diaphragm Regulator (Fig. A) is furnished with all steam "Vikings." The diaphragm is unusually large and responds quickly to the slightest change of boiler pressure, opening draft and damper when the pressure falls and closing them when it rises. The pressure to be carried is regulated by the counterweight. With adequate draft and fuel and when connected with our improved balance check-damper (Fig. B), this regulator will automatically control and maintain steam pressure.

CONSTRUCTION. Sections are accurately reamed, connected by tapered push-nipples, then drawn together and held permanently in place by iron rods.

HYDROSTATIC TEST. 75 lbs. per square inch.

ADVANTAGES. Easy to operate.

Easy to clean.

Honestly made.

Hard Coal, Soft Coal, Coke or Wood may be used.

Made in four series comprising twenty-seven regular sizes.

The "Viking" water-line area is about 50 per cent. in excess of its grate area—result, "Dry Steam."

RATINGS. Dimensions, Capacities, Prices, etc. The following ratings are gross and include mains, risers and branches.

Series and Number	Measurements of Fire Box at Top in inches.	Fire Area and diameter of equivalent round grate		Principal Dimensions in Inches			Size of Smoke Outlet	Steam				Hot Water			
		Square Inches	Equivalent round grate	Height	Width	Length		Regular Tappings flow and return	Gross Capacity Square Feet	Height of Water Line	List Price	Regular Tappings flow and return	Gross Capacity Square Feet	Size of Expansion Pipe	List Price
15-4	17 x 18	306	19 3/4	57	28	31	7 ins.	1-4 in.	300	48 ins.	$215.00	1-4 in.	500	1 in.	$190.00
5	17 x 24	408	22 3/4	57	28	37	7 ins.	1-4 in.	425	48 ins.	255.00	1-4 in.	700	1 in.	230.00
6	17 x 30	510	25 1/2	57	28	43	7 ins.	1-4 in.	550	48 ins.	295.00	2-4 in.	900	1 in.	270.00
7	17 x 36	612	27 7/8	57	28	49	7 ins.	1-4 in.	675	48 ins.	337.50	2-4 in.	1100	1 in.	312.50
20-4	22 x 18	396	22 1/2	65	33	31	9 ins.	1-4 in.	500	55 ins.	275.00	2-4 in.	825	1 in.	250.00
5	22 x 24	528	26	65	33	37	9 ins.	1-4 in.	600	55 ins.	312.50	2-4 in.	1000	1 in.	287.50
6	22 x 30	660	29	65	33	43	9 ins.	1-4 in.	800	55 ins.	375.00	2-4 in.	1325	1 1/4 in.	350.00
7	22 x 36	792	31 3/4	65	33	49	9 ins.	2-4 in.	1000	55 ins.	425 00	2-4 in.	1650	1 1/4 in.	400.00
8	22 x 42	924	34 1/4	65	33	55	9 ins.	2-4 in.	1200	55 ins.	475.00	2-4 in.	2000	1 1/4 in.	450.00
9	22 x 48	1056	36 5/8	65	33	61	9 ins.	2-4 in.	1400	55 ins.	525 00	2-4 in.	2300	1 1/4 in.	500.00
10	22 x 54	1148	38 1/4	65	33	67	9 ins.	2-4 in.	1600	55 ins.	575 00	2-4 in.	2600	1 1/4 in.	550.00
11	22 x 60	1320	41	65	33	73	9 ins.	2-4 in.	1800	55 ins.	625.00	2-4 in.	2900	1 1/2 in.	600.00
30-5	32 x 24	768	31 1/4	70	43	37	14 ins.	2-4 in.	1000	57 ins.	425.00	2-4 in.	1650	1 1/4 in.	400.00
6	32 x 30	960	35	70	43	43	14 ins.	2-4 in.	1350	57 ins.	512.50	2-4 in.	2250	1 1/4 in.	487.50
7	32 x 36	1152	38 3/8	70	43	49	14 ins.	2-4 in.	1700	57 ins.	600.00	3-4 in.	2800	1 1/4 in.	575.00
8	32 x 42	1344	41 3/8	70	43	55	14 ins.	2-4 in.	2100	57 ins.	700 00	3-4 in.	3400	1 1/2 in.	675.00
9	32 x 48	1536	44 1/4	70	43	61	14 ins.	2-4 in.	2400	57 ins.	775.00	4-4 in.	4000	1 1/2 in.	750.00
10	32 x 54	1728	46 7/8	70	43	67	14 ins.	2-4 in.	2700	57 ins.	850.00	4-4 in.	4500	1 1/2 in.	812.50
11	32 x 60	1920	49 1/2	70	43	73	14 ins.	2-4 in.	3000	57 ins.	925.00	4-4 in.	5000	1 1/2 in.	887.50
12	32 x 66	2112	51 7/8	70	43	79	14 ins.	3-4 in.	3300	57 ins.	1000.00	4-4 in.	5500	1 1/2 in.	962.50
13	32 x 72	2304	54 1/8	70	43	85	14 ins.	3-4 in.	3600	57 ins.	1075 00	4-4 in.	6000	2 in.	1037.50
40-5	42 x 32	1344	41 3/8	80	53	40	18 ins.	1-6 in.	2000	64 1/2 ins.	700.00	1-6 in.	3500	1 1/2 in.	675.00
6	42 x 40	1680	46 1/4	80	53	48	18 ins.	1-6 in.	2550	64 1/2 ins.	825 00	2-6 in.	4400	1 1/2 in.	787.50
7	42 x 48	2016	50 5/8	80	53	56	18 ins.	1-6 in.	3075	64 1/2 ins.	950.00	2-6 in.	5400	1 1/2 in.	912.50
8	42 x 56	2352	54 3/4	80	53	64	18 ins.	2-6 in.	3675	64 1/2 ins.	1075.00	2-6 in.	6400	2 in.	1037.50
9	42 x 64	2688	58 1/2	80	53	72	18 ins.	2-6 in.	4275	64 1/2 ins.	1200.00	2-6 in.	7425	2 in.	1162.50
10	42 x 72	3024	62	80	53	80	18 ins.	2-6 in.	4950	64 1/2 ins.	1325.00	3-6 in.	8550	2 in.	1262.50
11	42 x 80	3360	65	80	53	88	18 ins.	2-6 in.	5625	64 1/2 ins.	1450.00	3-6 in.	9675	2 in.	1387.50
12	42 x 88	3696	68 1/4	80	53	96	18 ins.	2-6 in.	6300	64 1/2 ins.	1575.00	3-6 in.	10800	2 in.	1512.50
13	42 x 96	4032	72	80	53	104	18 ins.	2-6 in.	6975	64 1/2 ins.	1700.00	4-6 in.	11925	2 in.	1637.50

See also advertisement on page 199.

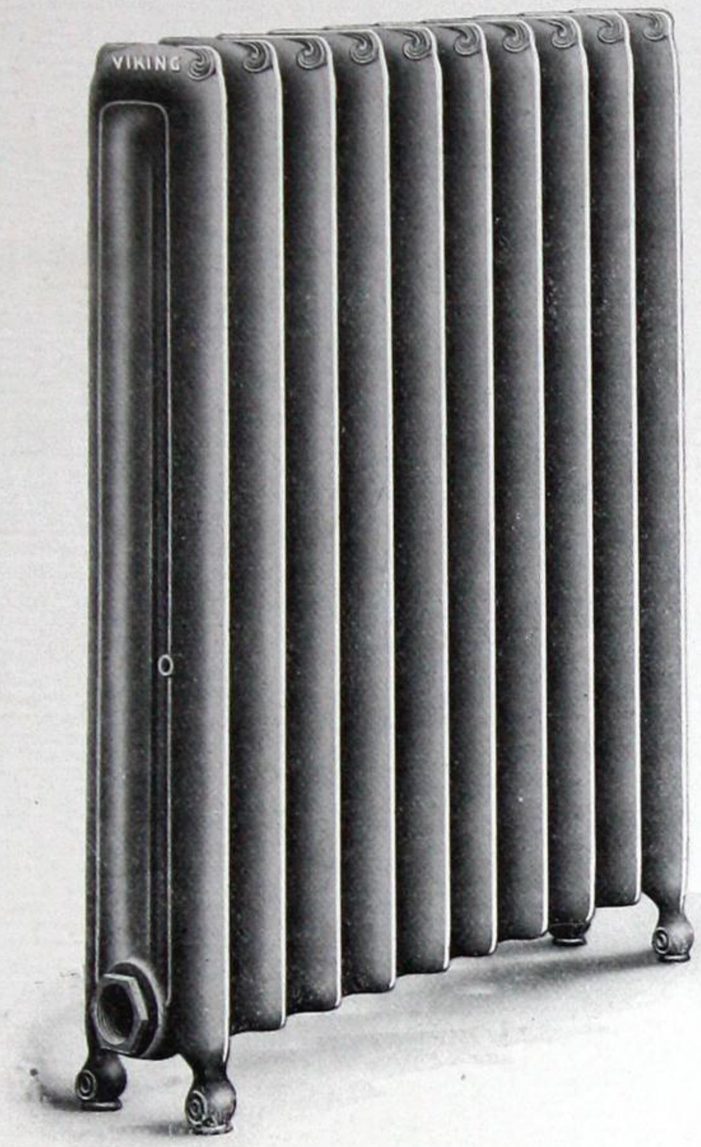
CONTINUED ON NEXT

WARDEN KING, LIMITED

EXECUTIVE OFFICES AND WORKS:
BENNETT AVE., MAISONNEUVE,
MONTREAL, QUE.

TORONTO BRANCH:
200 ADELAIDE ST. WEST.

SALES OFFICE AND CITY WAREHOUSE:
151 CRAIG STREET WEST,
MONTREAL, QUE.



"VIKING" RADIATORS.

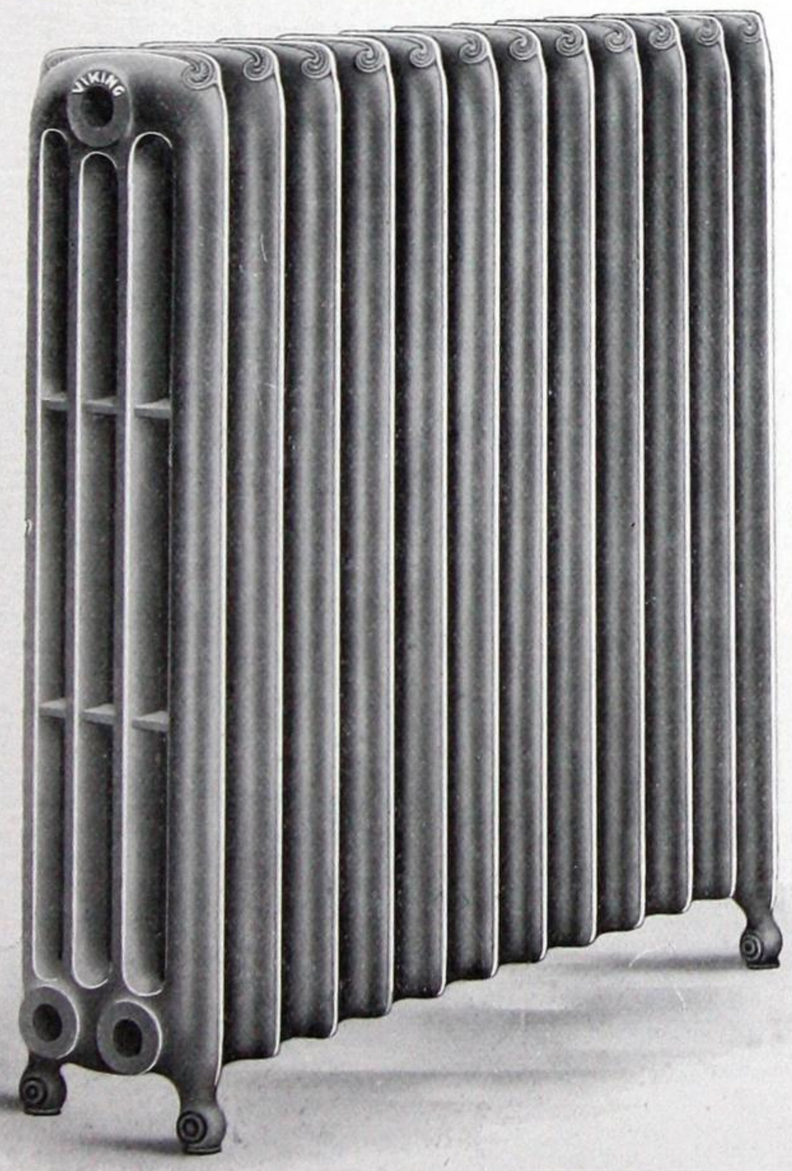
TWO COLUMN.

PRICES, CAPACITIES AND DIMENSIONS.

PLAIN, SQUARE TOP, WATER AND STEAM.

Number of Sections.	*Length 2½ in. per Section.	Heating Surface. 45 in. in Height.		38 in. in Height.		32 in. in Height.		30 in. in Height.		26 in. in Height.		23 in. in Height.		20 in. in Height.	
		5 Sq. Ft. per Section.	Equivalent 1 in. Pipe.	4 Sq. Ft. per Section.	Equivalent 1 in. Pipe.	3⅓ Sq. Ft. per Section.	Equivalent 1 in. Pipe.	3 Sq. Ft. per Section.	Equivalent 1 in. Pipe.	2⅔ Sq. Ft. per Section.	Equivalent 1 in. Pipe.	2⅓ Sq. Ft. per Section.	Equivalent 1 in. Pipe.	2 Sq. Ft. per Section.	Equivalent 1 in. Pipe.
2	5	10	30	8	24	6⅔	20	6	18	5⅓	16	4⅔	14	4	12
3	7½	15	45	12	36	10	30	9	27	8	24	7	21	6	18
4	10	20	60	16	48	13⅓	40	12	36	10⅔	32	9⅓	28	8	24
5	12½	25	75	20	60	16⅔	50	15	45	13⅓	40	11⅔	35	10	30
6	15	30	90	24	72	20	60	18	54	16	48	14	42	12	36
7	17½	35	105	28	84	23⅓	70	21	63	18⅔	56	16⅓	49	14	42
8	20	40	120	32	96	26⅔	80	24	72	21⅓	64	18⅔	56	16	48
9	22½	45	135	36	108	30	90	27	81	24	72	21	63	18	54
10	25	50	150	40	120	33⅓	100	30	90	26⅔	80	23⅓	70	20	60
11	27½	55	165	44	132	36⅔	110	33	99	29⅓	88	25⅔	77	22	66
12	30	60	180	48	144	40	120	36	108	32	96	28	84	24	72
13	32½	65	195	52	156	43⅓	130	39	117	34⅔	104	30⅓	91	26	78
14	35	70	210	56	168	46⅔	140	42	126	37⅓	112	32⅔	98	28	84
15	37½	75	225	60	180	50	150	45	135	40	120	35	105	30	90
16	40	80	240	64	192	53⅓	160	48	144	42⅔	128	37⅓	112	32	96
17	42½	85	255	68	204	56⅔	170	51	153	45⅓	136	39⅔	119	34	102
18	45	90	270	72	216	60	180	54	162	48	144	42	126	36	108
19	47½	95	285	76	228	63⅓	190	57	171	50⅔	152	44⅓	133	38	114
20	50	100	300	80	240	66⅔	200	60	180	53⅓	160	46⅔	140	40	120
21	52½	105	315	84	252	70	210	63	189	56	168	49	147	42	126
22	55	110	330	88	264	73⅓	220	66	198	58⅔	176	51⅓	154	44	132
23	57½	115	345	92	276	76⅔	230	69	207	61⅓	184	53⅔	161	46	138
24	60	120	360	96	288	80	240	72	216	64	192	56	168	48	144
25	62½	125	375	100	300	83⅓	250	75	225	66⅔	200	58⅓	175	50	150
Price per Sq. Ft.....		48	...	48	...	52	...	54	...	56	...	58	...	62	...

* In estimating length of radiator allow ½ inch for each plug or bushing.



"VIKING" RADIATORS.

FOUR COLUMN.

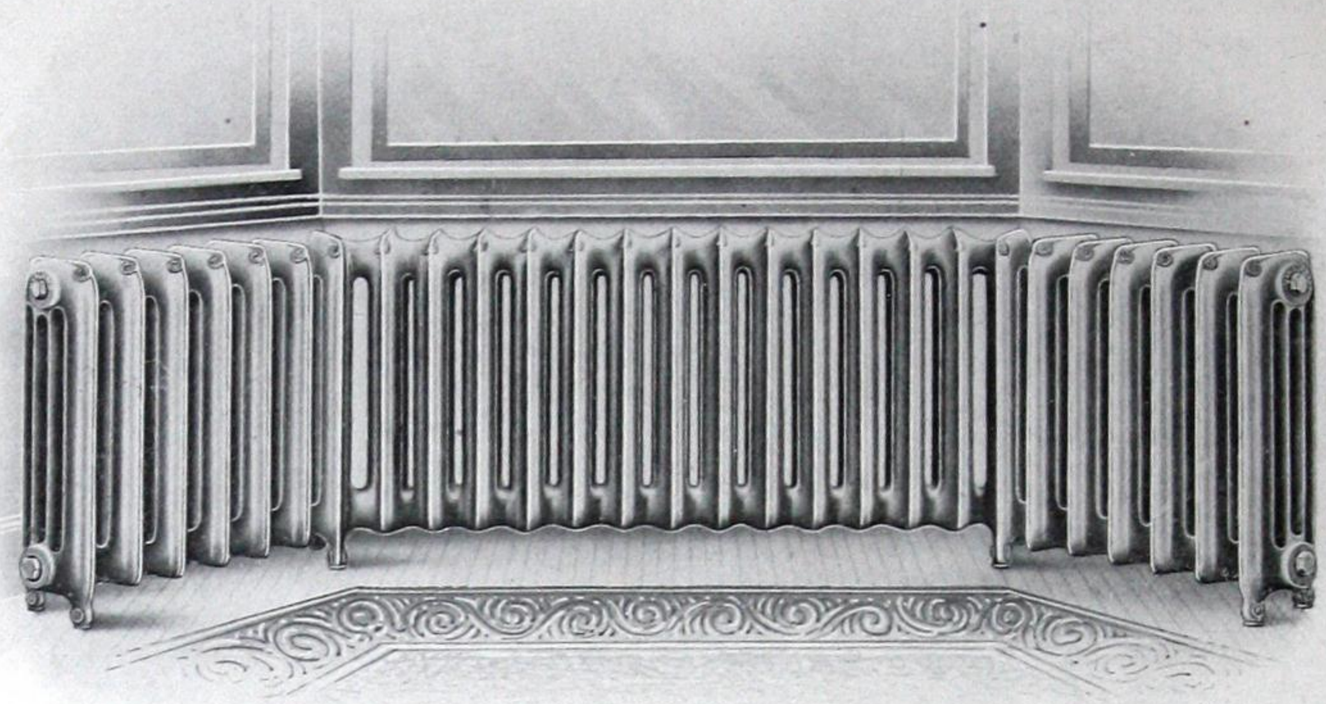
PRICES, CAPACITIES AND DIMENSIONS.

PLAIN, SQUARE TOP, WATER AND STEAM.

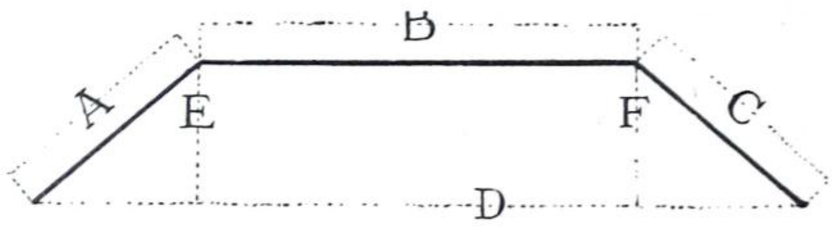
Number of Sections.	*Length 4⅛ in. per Section.	Heating Surface. 42 in. in Height.		38 in. in Height.		32 in. in Height.		26 in. in Height.		20 in. in Height.		16 in. in Height.	
		9⅔ Sq. Ft. per Section.	Equivalent 1 in. Pipe.	8 Sq. Ft. per Section.	Equivalent 1 in. Pipe.	6⅔ Sq. Ft. per Section.	Equivalent 1 in. Pipe.	5⅓ Sq. Ft. per Section.	Equivalent 1 in. Pipe.	4 Sq. Ft. per Section.	Equivalent 1 in. Pipe.	2½ Sq. Ft. per Section.	Equivalent 1 in. Pipe.
2	8¼	19⅓	58	16	48	13⅓	40	10⅔	32	8	24	5	15
3	12⅜	29	87	24	72	20	60	16	48	12	36	7½	22½
4	16½	38⅔	116	32	96	26⅔	80	21⅓	64	16	48	10	30
5	20⅝	48⅓	145	40	120	33⅓	100	26⅔	80	20	60	12½	37½
6	24¾	58	174	48	144	40	120	32	96	24	72	15	45
7	28⅞	67⅔	203	56	168	46⅔	140	37⅓	112	28	84	17½	52½
8	33	77⅓	232	64	192	53⅓	160	42⅔	128	32	96	20	60
9	37⅛	87	261	72	216	60	180	48	144	36	108	22½	67½
10	41¼	96⅔	290	80	240	66⅔	200	53⅓	160	40	120	25	75
11	45⅜	106⅓	319	88	264	73⅓	220	58⅔	176	44	132	27½	82½
12	49½	116	348	96	288	80	240	64	192	48	144	30	90
13	53⅝	125⅔	377	104	312	86⅔	260	69⅓	208	52	156	32½	97½
14	57¾	135⅓	406	112	336	93⅓	280	74⅔	224	56	168	35	105
15	61⅞	145	435	120	360	100	300	80	240	60	180	37½	112½
16	66	154⅔	464	128	384	106⅔	320	85⅓	256	64	192	40	120
17	70⅛	164⅓	493	136	408	113⅓	340	90⅔	272	68	204	42½	127½
18	74¼	174	522	144	432	120	360	96	288	72	216	45	135
19	78⅜	183⅔	551	152	456	126⅔	380	101⅓	304	76	228	47½	142½
20	82½	193⅓	580	160	480	133⅓	400	106⅔	320	80	240	50	150
21	86⅝	203	609	168	504	140	420	112	336	84	252	52½	157½
22	90¾	212⅔	638	176	528	146⅔	440	117⅓	352	88	264	55	165
23	94⅞	222⅓	667	184	552	153⅓	460	122⅔	368	92	276	57½	172½
24	99	232	696	192	576	160	480	128	384	96	288	60	180
25	103⅛	241⅔	725	200	600	166⅔	500	133⅓	400	100	300	62½	187½
Price per Sq. Ft.....		48	...	48	...	52	...	56	...	62	...	68	...

CONTINUED ON NEXT PAGE

"VIKING" WINDOW RADIATORS.



ANGLES FOR WATER OR STEAM.



In ordering angle radiators, an exact template should be furnished. When this is not convenient, it will be necessary to have the above diagram.

Care must be taken to give the exact measurements as indicated by letters A, B, C, D, E and F. If twin tappings are required, show their location on the diagram.

CORNER.

WATER AND STEAM.

Orders for corner radiators must state the number of sections required on each side of corner section. All corner radiators for water are tapped single connection.

HIGH LEGS.

All direct radiators of the different heights are fitted on special orders with leg sections of any height ranging from the standard to 18 inches from floor to centre of bottom tappings.

WALL BRACKETS.

Wall brackets are furnished on special orders, for hanging two, three and four column radiators. Orders should plainly state where these brackets are intended to be used, so that the radiator may be supplied without legs.

All direct radiators illustrated in this catalogue may be made up in angle, corner, high leg, wall bracket, stairway or window styles.

PRICES OF SPECIALS.

These prices have to be added to the regular price of the different radiators:

Circular or Curved, per section	$1.05
Angle or Corner, per section	5.30
High Legs, up to 9 ins. inclusive, per leg section	.60
High Legs, 10 to 15 ins. inclusive, per leg section	1.20
High Legs, 16 and over inclusive, per leg section	2.00
Wall Hangers for top of radiator, each	.70
Wall Hangers for bottom of radiator, each	.90

"VIKING" WINDOW RADIATORS.

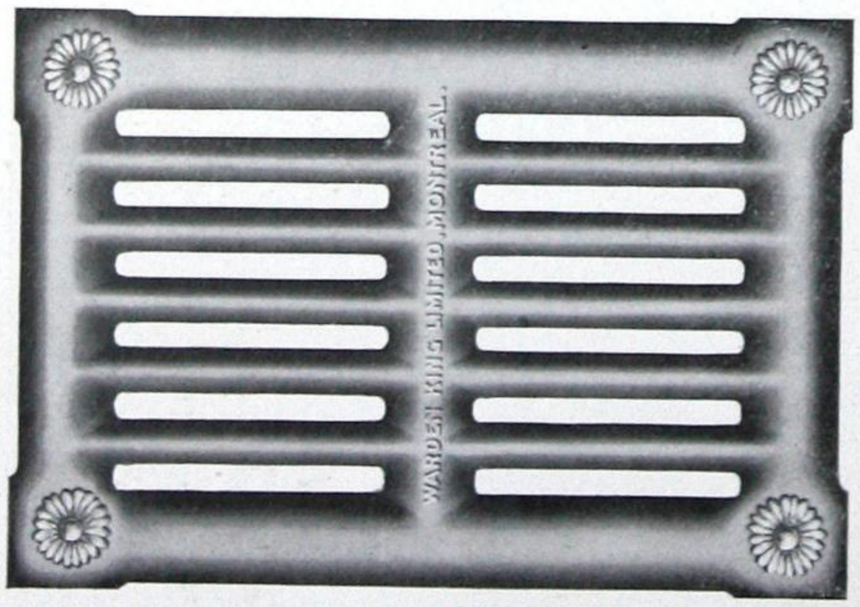
LISTS, CAPACITIES AND DIMENSIONS.

Number of Sections.	Length of Radiator in Inches.	Heating Surface in Square Feet.			
		20 in. high 6 Sq. Ft. per Section.	18 in. high 6 Sq. Ft. per Section.	16 in. high 4⅔ Sq. Ft. per Section.	14 in. high 4⅔ Sq. Ft. per Section.
2	7	12	12	9⅓	9⅓
3	10	18	18	14	14
4	13	24	24	18⅔	18⅔
5	16	30	30	23⅓	23⅓
6	19	36	36	28	28
7	22	42	42	32⅔	32⅔
8	25	48	48	37⅓	37⅓
9	28	54	54	42	42
10	31	60	60	46⅔	46⅔
11	34	66	66	51⅓	51⅓
12	37	72	72	56	56
13	40	78	78	60⅔	60⅔
14	43	84	84	65⅓	65⅓
15	46	90	90	70	70
16	49	96	96	74⅔	74⅔
17	52	102	102	79⅓	79⅓
18	55	108	108	84	84
19	58	114	114	88⅔	88⅔
20	61	120	120	93⅓	93⅓
21	64	126	126	98	98
22	67	132	132	102⅔	102⅔
23	70	138	138	107⅓	107⅓
24	73	144	144	112	112
25	76	150	150	116⅔	116⅔
Price per Sq. Foot		62c.	64c.	68c.	72c.

To find equivalent in 1 inch pipe, multiply square foot surface by 3.

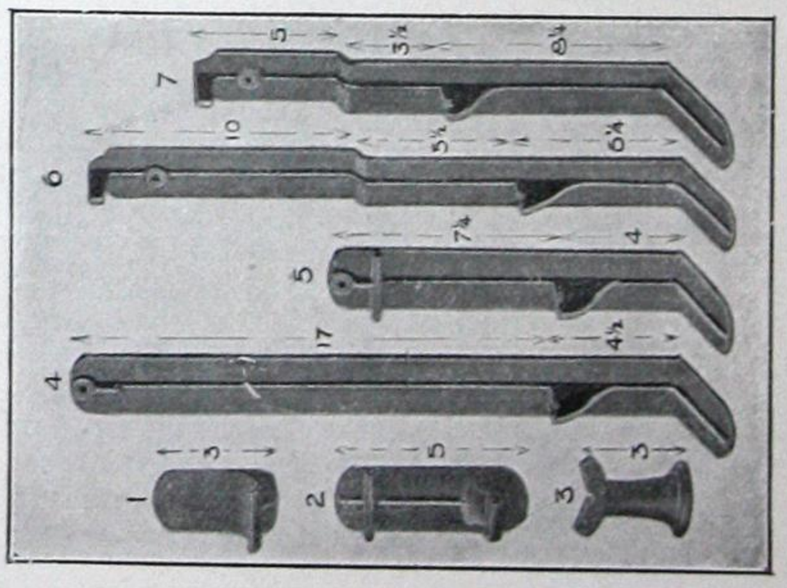
Length of radiator is estimated on the basis of 3 in. for each section, plus ½ inch on each end for plugs and bushings.

"VIKING" WALL RADIATOR.



9-ft. section, 15 inches wide by 22 inches long. List, 48c. per foot.

BRACKETS FOR WALL RADIATORS.



Other styles of Brackets to order. Also made with Ceiling Hangers to order.

THE DOMINION RADIATOR COMPANY, LIMITED

SAFFORD BOILERS & RADIATORS DRC

GENERAL OFFICES AND WORKS:
VAN HORNE AND DUFFERIN STREETS,
TORONTO, ONT.

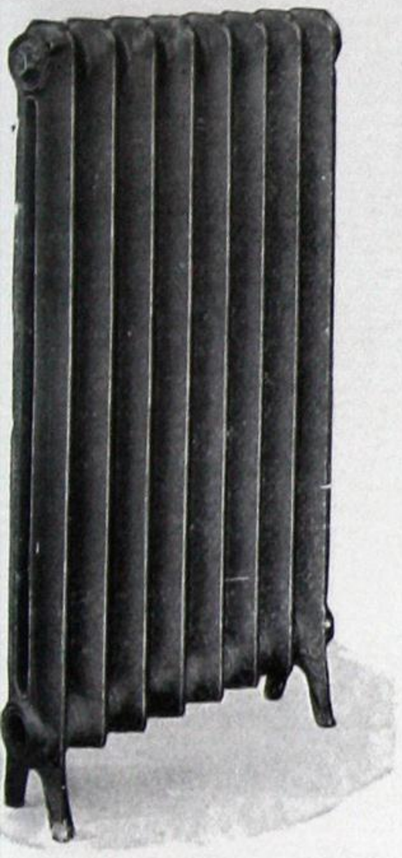
BRANCHES AT
MONTREAL, QUE.
WINNIPEG, MAN.
VANCOUVER, B.C.
ST. JOHN, N.B.

Safford Radiators adapt themselves to every possible requirement of heating and ventilating apparatus.

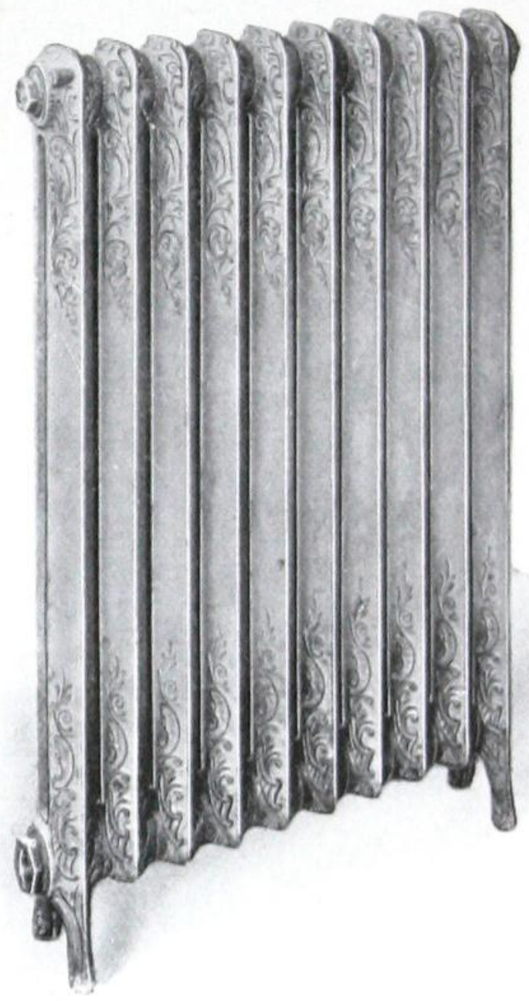
ZENDA SINGLE COLUMN RADIATOR.

Plain and Ornamental. Square Top. Water and Steam.
Capacities and Dimensions.

Number of Sections	* Length 2½" Per Section	HEATING SURFACE 38" in Height		32" in Height		26" in Height		23" in Height		20" in Height	
		3 Sq. Ft. per Section	Equivalent 1-in. Pipe	2⅔ Sq. Ft. per Section	Equivalent 1-in. Pipe	2 Sq. Ft. per Section	Equivalent 1-in. Pipe	1⅔ Sq. Ft. per Section	Equivalent 1 in. Pipe	1½ Sq. Ft. per Section	Equivalent 1-in. Pipe
2	5	6	18	5	15	4	12	3⅓	10	3	9
3	7½	9	27	7½	22½	6	18	5	15	4½	13½
4	10	12	36	10	30	8	24	6⅔	20	6	18
5	12½	15	45	12½	37½	10	30	8⅓	25	7½	22½
6	15	18	54	15	45	12	36	10	30	9	27
7	17½	21	63	17½	52½	14	42	11⅔	35	10½	31½
8	20	24	72	20	60	16	48	13⅓	40	12	36
9	22½	27	81	22½	67½	18	54	15	45	13½	40½
10	25	30	90	25	75	20	60	16⅔	50	15	45
11	27½	33	99	27½	82½	22	66	18⅓	55	16½	49½
12	30	36	108	30	90	24	72	20	60	18	54
13	32½	39	117	32½	97½	26	78	21⅔	65	19½	58½
14	35	42	126	35	105	28	84	23⅓	70	21	63
15	37½	45	135	37½	112½	30	90	25	75	22½	67½
16	40	48	144	40	120	32	96	26⅔	80	24	72
17	42½	51	153	42½	127½	34	102	28⅓	85	25½	76½
18	45	54	162	45	135	36	108	30	90	27	81
19	47½	57	171	47½	142½	38	114	31⅔	95	28½	85½
20	50	60	180	50	150	40	120	33⅓	100	30	90
21	52½	63	189	52½	157½	42	126	35	105	31½	94½
22	55	66	198	55	165	44	132	36⅔	110	33	99
23	57½	69	207	57½	172½	46	138	38⅓	115	34½	103½
24	60	72	216	60	180	48	144	40	120	36	108
25	62½	75	225	62½	187½	50	150	41⅔	125	37½	112½



ZENDA—PLAIN.



ZENDA—ORNAMENTAL.

FAVORITE AND DAISY TWO-COLUMN RADIATORS.

Ornamental. Round and Square Top. Water and Steam.
Capacities and Dimensions.

Number of Sections	* Length 3½" per Section	HEATING SURFACE 38" in Height		32" in. Height		26" in Height		20" in Height		16" in Height	
		4 Sq. Ft. per Section	Equivalent 1-in. Pipe	3⅕ Sq. Ft. per Section	Equivalent 1-in. Pipe	2⅖ Sq. Ft. per Section	Equivalent 1-in. Pipe	2 Sq. Ft. per Section	Equivalent 1-in. Pipe	1½ Sq. Ft. per Section	Equivalent 1-in. Pipe
2	7	8	24	6⅖	20	5⅓	16	4	12	3	9
3	10½	12	36	10	30	8	24	6	18	4½	13½
4	14	16	48	13⅓	40	10⅔	32	8	24	6	18
5	17½	20	60	16⅔	50	13⅓	40	10	30	7½	22½
6	21	24	72	20	60	16	48	12	36	9	27
7	24½	28	84	23⅓	70	18⅔	56	14	42	10½	31½
8	28	32	96	26⅔	80	21⅓	64	16	48	12	36
9	31½	36	108	30	90	24	72	18	54	13½	40½
10	35	40	120	33⅓	100	26⅔	80	20	60	15	45
11	38½	44	132	36⅔	110	29⅓	88	22	66	16½	49½
12	42	48	144	40	120	32	96	24	72	18	54
13	45½	52	156	43⅓	130	34⅔	104	26	78	19½	58½
14	49	56	168	46⅔	140	37⅓	112	28	84	21	63
15	52½	60	180	50	150	40	120	30	90	22½	67½
16	56	64	192	53⅓	160	42⅔	128	32	96	24	72
17	59½	68	204	56⅔	170	45⅓	136	34	102	25½	76½
18	63	72	216	60	180	48	144	36	108	27	81
19	66½	76	228	63⅓	190	50⅔	152	38	114	28½	85½
20	70	80	240	66⅔	200	53⅓	160	40	120	30	90
21	73½	84	252	70	210	56	168	42	126	31½	94½
22	77	88	264	73⅓	220	58⅔	176	44	132	33	99
23	80½	92	276	76⅔	230	61⅓	184	46	138	34½	103½
24	84	96	288	80	240	64	192	48	144	36	108
25	87½	100	300	83⅓	250	66⅔	200	50	150	37½	112½



FAVORITE—ORNAMENTAL.



DAISY—ORNAMENTAL.

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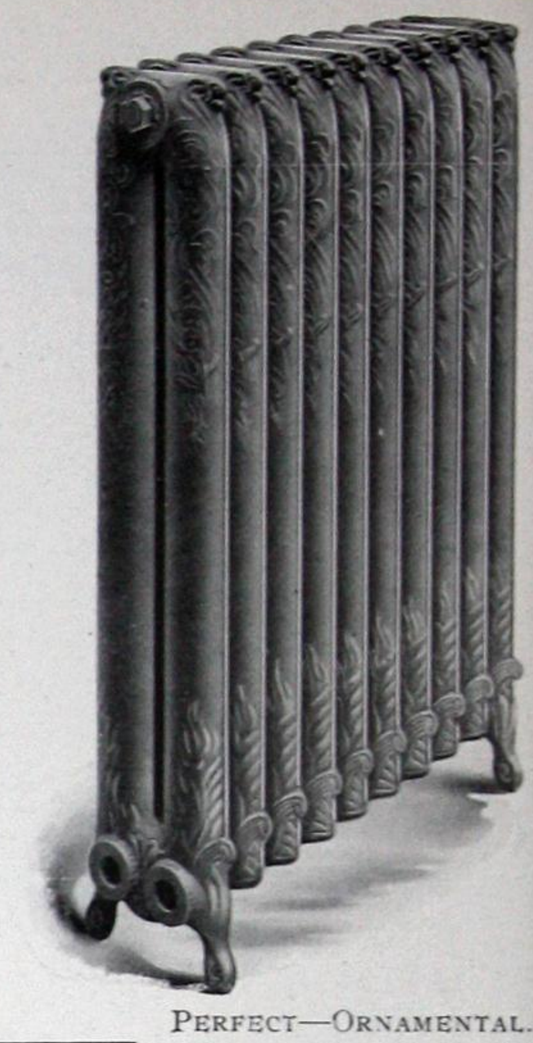
REGINA—ORNAMENTAL.

SAFFORD

TWO-COLUMN RADIATORS.

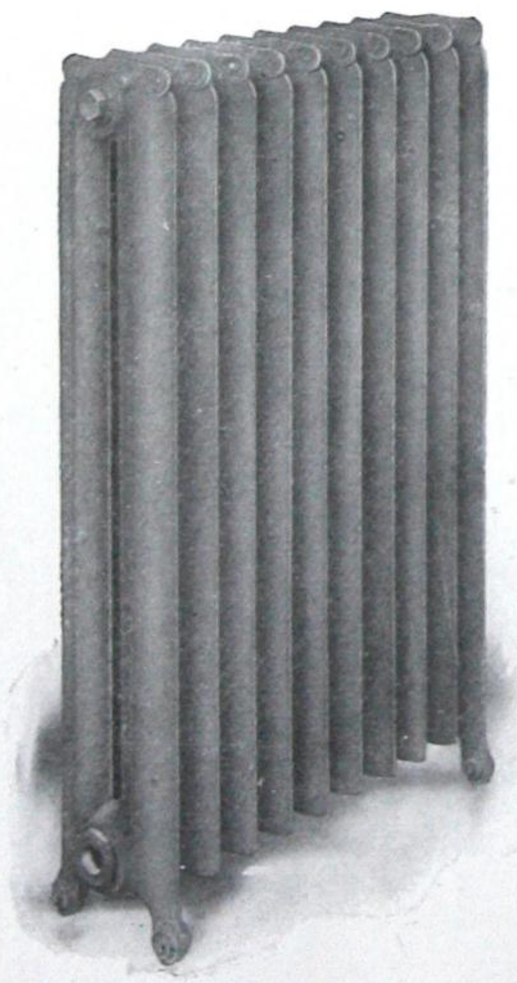
Ornamental. Water and Steam.

Capacities and Dimensions.

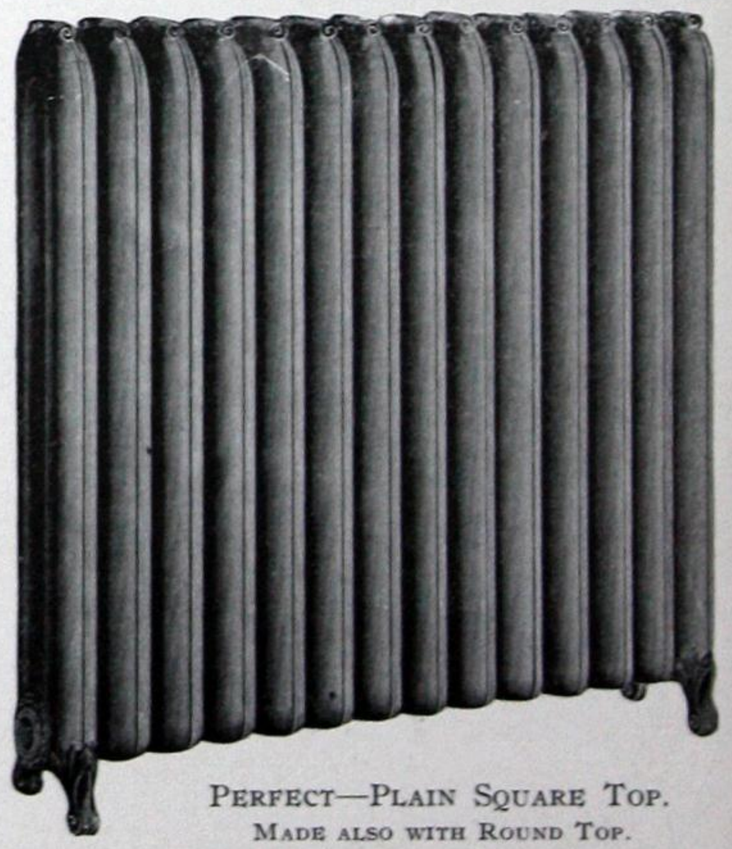


PERFECT—ORNAMENTAL.

Number of Sections	* Length 2½ in. per Section	HEATING SURFACE													
		45" in. Height		38" in Height		32" in. Height		30" in Height		26" in Height		23" in Height		20" in Height	
		5 Sq. Ft. per Section	Equivalent 1-in. Pipe	4 Sq. Ft. per Section	Equivalent 1-in. Pipe	3⅕ Sq. Ft. per Section	Equivalent 1-in. Pipe	3 Sq. Ft. per Section	Equivalent 1-in. Pipe	2⅖ Sq. Ft. per Section	Equivalent 1-in. Pipe	2⅕ Sq. Ft. per Section	Equivalent 1-in. Pipe	2 Sq. Ft. per Section	Equivalent 1-in. Pipe
2	5	10	30	8	24	6⅖	20	6	18	5⅕	16	4⅖	14	4	12
3	7½	15	45	12	36	10	30	9	27	8	24	7	21	6	18
4	10	20	60	16	48	13⅕	40	12	36	10⅖	32	9⅕	28	8	24
5	12½	25	75	20	60	16⅖	50	15	45	13⅕	40	11⅖	35	10	30
6	15	30	90	24	72	20	60	18	54	16	48	14	42	12	36
7	17½	35	105	28	84	23⅕	70	21	63	18⅖	56	16⅕	49	14	42
8	20	40	120	32	96	26⅖	80	24	72	21⅕	64	18⅖	56	16	48
9	22½	45	135	36	108	30	90	27	81	24	72	21	63	18	54
10	25	50	150	40	120	33⅕	100	30	90	26⅖	80	23⅕	70	20	60
11	27½	55	165	44	132	36⅖	110	33	99	29⅕	88	25⅖	77	22	66
12	30	60	180	48	144	40	120	36	108	32	96	28	84	24	72
13	32½	65	195	52	156	43⅕	130	39	117	34⅖	104	30⅕	91	26	78
14	35	70	210	56	168	46⅖	140	42	126	37⅕	112	32⅖	98	28	84
15	37½	75	225	60	180	50	150	45	135	40	120	35	105	30	90
16	40	80	240	64	192	53⅕	160	48	144	42⅖	128	37⅕	112	32	96
17	42½	85	255	68	204	56⅖	170	51	153	45⅕	136	39⅖	119	34	102
18	45	90	270	72	216	60	180	54	162	48	144	42	126	36	108
19	47½	95	285	76	228	63⅕	190	57	171	50⅖	152	44⅕	133	38	114
20	50	100	300	80	240	66⅖	200	60	180	53⅕	160	46⅖	140	40	120
21	52½	105	315	84	252	70	210	63	189	56	168	49	147	42	126
22	55	110	330	88	264	73⅕	220	66	198	58⅖	176	51⅕	154	44	132
23	57½	115	345	92	276	76⅖	230	69	207	61⅕	184	53⅖	161	46	138
24	60	120	360	96	288	80	240	72	216	64	192	56	168	48	144
25	62½	125	375	100	300	83⅕	250	75	225	66⅖	200	58⅕	175	50	150



REGINA—PLAIN.



PERFECT—PLAIN SQUARE TOP.
MADE ALSO WITH ROUND TOP.

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SAFFORD TRIDENT THREE-COLUMN RADIATOR.

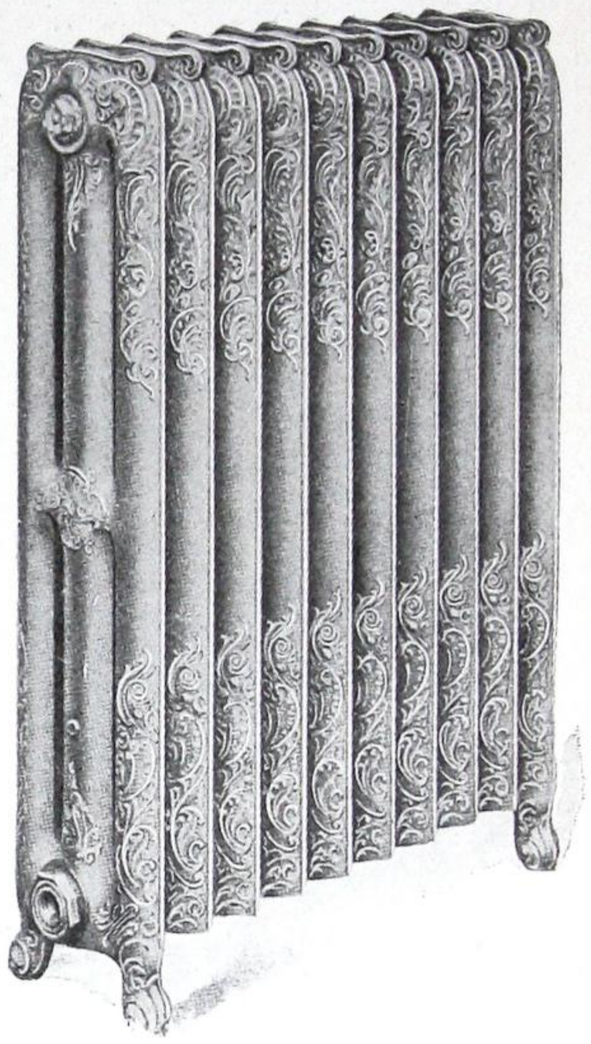
Plain and Ornamental. Square Top. Water and Steam.

Capacities and Dimensions.

Number of Sections	* Length 2½" per Section	HEATING SURFACE											
		44" in Height		38" in Height		32" in Height		26" in Height		22" in Height		18" in Height	
		6 Sq. Ft. per Section	Equivalent 1-in. Pipe	5 Sq. Ft. per Section	Equivalent 1-in. Pipe	4½ Sq. Ft. per Section	Equivalent 1-in. Pipe	3¾ Sq. Ft. per Section	Equivalent 1-in. Pipe	3 Sq. Ft. per Section	Equivalent 1-in. Pipe	2¼ Sq. Ft. per Section	Equivalent 1-in. Pipe
2	5	12	36	10	30	9	27	7½	22½	6	18	4½	13½
3	7½	18	54	15	45	13½	40½	11¼	33¾	9	27	6¾	20¼
4	10	24	72	20	60	18	54	15	45	12	36	9	27
5	12½	30	90	25	75	22½	67½	18¾	56¼	15	45	11¼	33¾
6	15	36	108	30	90	27	81	22½	67½	18	54	13½	40½
7	17½	42	126	35	105	31½	94½	26¼	78¾	21	63	15¾	47¼
8	20	48	144	40	120	36	108	30	90	24	72	18	54
9	22½	54	162	45	135	40½	121½	33¾	101¼	27	81	20¼	60¾
10	25	60	180	50	150	45	135	37½	112½	30	90	22½	67½
11	27½	66	198	55	165	49½	148½	41¼	123¾	33	99	24¾	74¼
12	30	72	216	60	180	54	162	45	135	36	108	27	81
13	32½	78	234	65	195	58½	175½	48¾	146¼	39	117	29¼	87¾
14	35	84	252	70	210	63	189	52½	157½	42	126	31½	94½
15	37½	90	270	75	225	67⅓	202½	56¼	168¾	45	135	33¾	101¼
16	40	96	288	80	240	72	216	60	180	48	144	36	108
17	42½	102	306	85	255	76½	229½	63¾	191¼	51	153	38¼	114¾
18	45	108	324	90	270	81	243	67½	202½	54	162	40½	121½
19	47½	114	342	95	285	85½	256½	71¼	213¾	57	171	42¾	128¼
20	50	120	360	100	300	90	270	75	225	60	180	45	135
21	52½	126	378	105	315	94½	283½	78¾	236¼	63	189	47¼	141¾
22	55	132	396	110	330	99	297	82½	247½	66	198	49½	148½
23	57½	138	414	115	345	103½	310½	86¼	258¾	69	207	51¾	155¼
24	60	144	432	120	360	108	324	90	270	72	216	54	162
25	62½	150	450	125	375	112½	337½	93¾	281¼	75	225	56¼	168¾



TRIDENT—PLAIN.



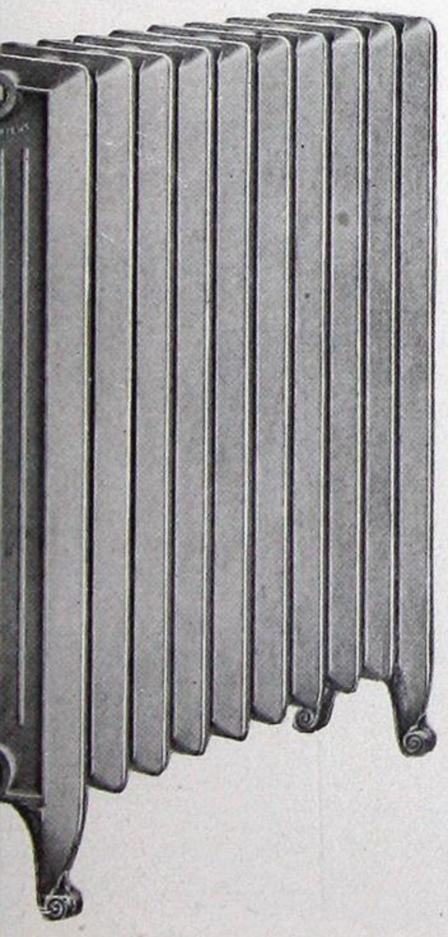
TRIDENT—ORNAMENTAL.

SAFFORD IDEAL FOUR-COLUMN FLUE VENTILATING RADIATOR.

Plain and Ornamental. Square Top. Water and Steam.

Capacities and Dimensions.

Number of Sections	* Length 3-in. per Section	HEATING SURFACE									
		42" in Height		36" in Height		32" in Height		26" in Height		20" in Height	
		8¼ Sq. Ft. per Section	Equivalent 1-in. Pipe	7 Sq. Ft. per Section	Equivalent 1-in. Pipe	5¼ Sq. Ft. per Section	Equivalent 1-in. Pipe	4½ Sq. Ft. per Section	Equivalent 1-in. Pipe	3½ Sq. Ft. per Section	Equivalent 1-in. Pipe
2	6	16½	49½	14	42	11½	34½	9	27	6½	19½
3	9	24¾	74¼	21	63	17¼	51¾	13½	40½	9¾	29¼
4	12	33	99	28	84	23	69	18	54	13	39
5	15	41¼	123¾	35	105	28¾	86¼	22½	67½	16¼	48¾
6	18	49½	148½	42	126	34½	103½	27	81	19½	58½
7	21	57¾	173¼	49	147	40¼	120¾	31½	94½	22¾	68¼
8	24	66	198	56	168	46	138	36	108	26	78
9	27	74¼	222¾	63	189	51¾	155¼	40½	121½	29¼	87¾
10	30	82½	247½	70	210	57½	172½	45	135	32½	97½
11	33	90¾	272¼	77	231	63¼	189¾	49½	148½	35¾	107¼
12	36	99	297	84	252	69	207	54	162	39	117
13	39	107¼	321¾	91	273	74¾	224¼	58½	175½	42¼	126¾
14	42	115½	346½	98	294	80½	241½	63	189	45½	136½
15	45	123¾	371¼	105	315	86¼	258¾	67½	202½	48¾	146¼
16	48	132	396	112	336	92	276	72	216	52	156
17	51	140¼	420¾	119	357	97¾	293¼	76½	229½	55¼	165¾
18	54	148½	445½	126	378	103½	310½	81	243	58½	175½
19	57	156¾	470¼	133	399	109¼	327¾	85½	256½	61¾	185¼
20	60	165	495	140	420	115	345	90	270	65	195
21	63	173¼	519¾	147	441	120¾	362¼	94½	283½	68¼	204¾
22	66	181½	544½	154	462	126½	379½	99	297	71½	214½
23	69	189¾	569¼	161	483	132¼	396¾	103½	310½	74¾	224¼
24	72	198	594	168	504	138	414	108	324	78	234
25	75	206¼	618¾	175	525	143¾	431¼	112½	337½	81¼	243¾



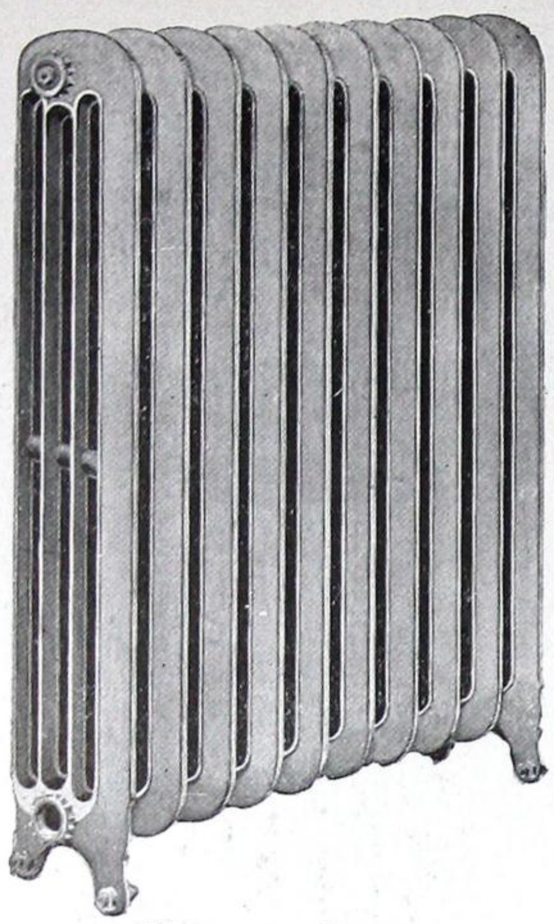
IDEAL—PLAIN.



IDEAL—ORNAMENTAL.

The Ideal Radiator can be supplied with Ventilating Box Bases if desired.

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FAVORITE—PLAIN.

SAFFORD
FAVORITE AND DAISY
FOUR-COLUMN RADIATORS.

Plain and Ornamental. Round and Square Top.

Water and Steam.

Capacities and Dimensions.

Number of Sections	* Length 4⅛" Per Section	HEATING SURFACE 42" in Height		38" in Height		32" in Height		26" in Height		20" in Height		16" in Height	
		9⅔ Sq. Ft. per Section	Equiv-alent 1-in. Pipe	8 Sq. Ft. per Section	Equiv-alent 1-in. Pipe	6⅔ Sq. Ft. per Section	Equiv-alent 1-in. Pipe	5⅓ Sq. Ft. per Section	Equiv-alent 1-in. Pipe	4 Sq. Ft. per Section	Equiv-alent 1-in. Pipe	2½ Sq. Ft. per Section	Equiv-alent 1-in. Pipe
2	8¼	19⅓	58	16	48	13⅓	40	10⅔	32	8	24	5	15
3	12⅜	29	87	24	72	20	60	16	48	12	36	7½	22½
4	16½	38⅔	116	32	96	26⅔	80	21⅓	64	16	48	10	30
5	20⅝	48⅓	145	40	120	33⅓	100	26⅔	80	20	60	12½	37½
6	24¾	58	174	48	144	40	120	32	96	24	72	15	45
7	28⅞	67⅔	203	56	168	46⅔	140	37⅓	112	28	84	17½	52½
8	33	77⅓	232	64	192	53⅓	160	42⅔	128	32	96	20	60
9	37⅛	87	261	72	216	60	180	48	144	36	108	22½	67½
10	41¼	96⅔	290	80	240	66⅔	200	53⅓	160	40	120	25	75
11	45⅜	106⅓	319	88	264	73⅓	220	58⅔	176	44	132	27½	82½
12	49½	116	348	96	288	80	240	64	192	48	144	30	90
13	53⅝	125⅔	377	104	312	86⅔	260	69⅓	208	52	156	32½	97½
14	57¾	135⅓	406	112	336	93⅓	280	74⅔	224	56	168	35	105
15	61⅞	145	435	120	360	100	300	80	240	60	180	37½	112½
16	66	154⅔	464	128	384	106⅔	320	85⅓	256	64	192	40	120
17	70⅛	164⅓	493	136	408	113⅓	340	90⅔	272	68	204	42½	127½
18	74¼	174	522	144	432	120	360	96	288	72	216	45	135
19	78⅜	183⅔	551	152	456	126⅔	380	101⅓	304	76	228	47½	142½
20	82½	193⅓	580	160	480	133⅓	400	106⅔	320	80	240	50	150
21	86⅝	203	609	168	504	140	420	112	336	84	252	52½	157½
22	90¾	212⅔	638	176	528	146⅔	440	117⅓	352	88	264	55	165
23	94⅞	222⅓	667	184	552	153⅓	460	122⅔	368	92	276	57½	172½
24	99	232	696	192	576	160	480	128	384	96	288	60	180
25	103⅛	241⅔	725	200	600	166⅔	500	133⅓	400	100	300	62½	187½



FAVORITE—ORNAMENTAL



DAISY—PLAIN.

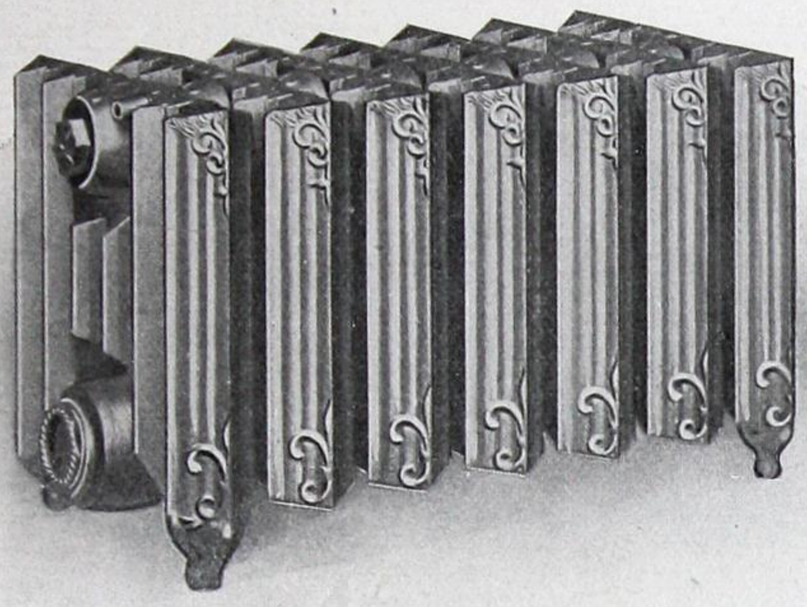


DAISY—ORNAMENTAL.

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ACME FIVE-COLUMN FLUE WINDOW RADIATOR.

rnamental. Square Top. Water and Steam.



ACME—ORNAMENTAL.

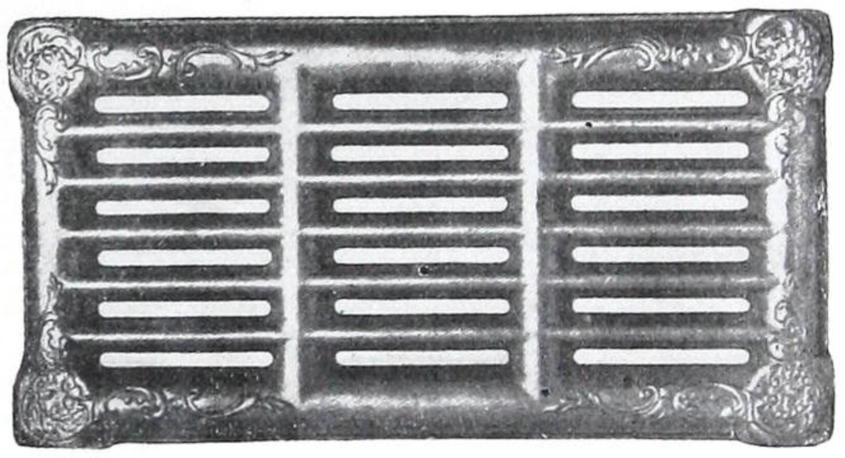
Capacities and Dimensions.

Number of Sections	* Length 3 per Section	HEATING SURFACE 20″ in Height		18″ in Height		16″ in Height		14″ in Height		13″ in Height	
		6 Sq. Ft. per Section	Equivalent 1-in. Pipe	5½ Sq. Ft. per Section	Equivalent 1-in. Pipe	4⅔ Sq. Ft. per Section	Equivalent 1-in. Pipe	4 Sq. Ft. per Section	Equivalent 1-in. Pipe	3⅔ Sq. Ft. per Section	Equivalent 1-in. Pipe
2	6	12	36	10⅔	32	9⅓	28	8	24	7⅓	22
3	9	18	54	16	48	14	42	12	36	11	33
4	12	24	72	21⅓	64	18⅔	56	16	48	14⅔	44
5	15	30	90	26⅔	80	23⅓	70	20	60	18⅓	55
6	18	36	108	32	96	28	84	24	72	22	66
7	21	42	126	37⅓	112	32⅔	98	28	84	25⅔	77
8	24	48	144	42⅔	128	37⅓	112	32	96	29⅓	88
9	27	54	162	48	144	42	126	36	108	33	99
10	30	60	180	53⅓	160	46⅔	140	40	120	36⅔	110
11	33	66	198	58⅔	176	51⅓	154	44	132	40⅓	121
12	36	72	216	64	192	56	168	48	144	44	132
13	39	78	234	69⅓	208	60⅔	182	52	156	47⅔	143
14	42	84	252	74⅔	224	65⅓	196	56	168	51⅓	154
15	45	90	270	80	240	70	210	60	180	55	165
16	48	96	288	85⅓	256	74⅔	224	64	192	58⅔	176
17	51	102	306	90⅔	272	79⅓	238	68	204	62⅓	187
18	54	108	324	96	288	84	252	72	216	66	198
19	57	114	342	101⅓	304	88⅔	266	76	228	69⅔	209
20	60	120	360	106⅔	320	93⅓	280	80	240	73⅓	220
21	63	126	378	112	336	98	294	84	252	77	231
22	66	132	396	117⅓	352	102⅔	308	88	264	80⅔	242
23	69	138	414	122⅔	368	107⅓	322	92	276	84⅓	253
24	72	144	432	128	384	112	336	96	288	88	264
25	75	150	450	133⅓	400	116⅔	350	100	300	91⅔	275



MAPLE LEAF—FIVE-FOOT SECTION—ORNAMENTAL.

WALL RADIATORS (FOWLER & WOLFE, PATENTED).

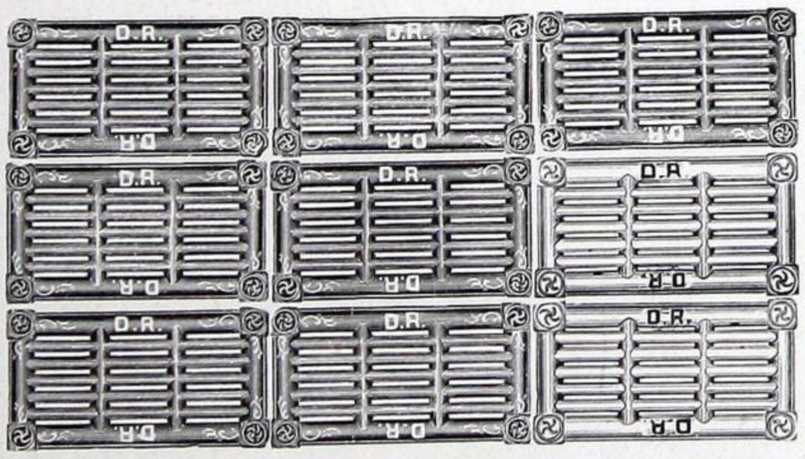


PRINCESS—NINE-FOOT SECTION—ORNAMENTAL.

Capacities and Dimensions.

Pattern	Square Feet Heating Surface	Equivalent of 1-in. Pipe	Length Inches	Width Inches	Thickness Inches	Distance between centres of tappings inches	
						End of Section	Side of Section
Maple Leaf, Nos. 20 and 21	5	15	17	13	3	10	14⅛
Victoria, No. 22.....	6	18	21	13	3	10	17¾
Victoria, " 23	7	21	24	13	3	10	21
Princess, " 24..	9	27	24	13	3 3/16	10	21
Ontario, " 25..	9	27	24	13	3 3/16	10	21

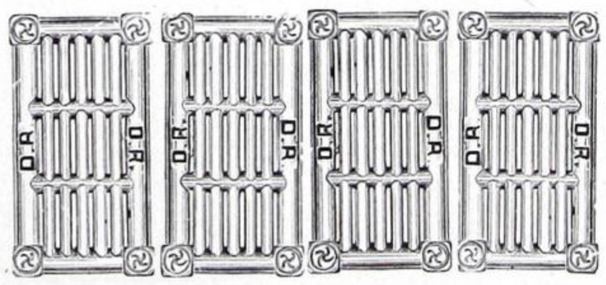
GENERAL FORMS OF ASSEMBLING.



STYLE "B"—SPECIAL.



STYLE "A"—HORIZONTAL.

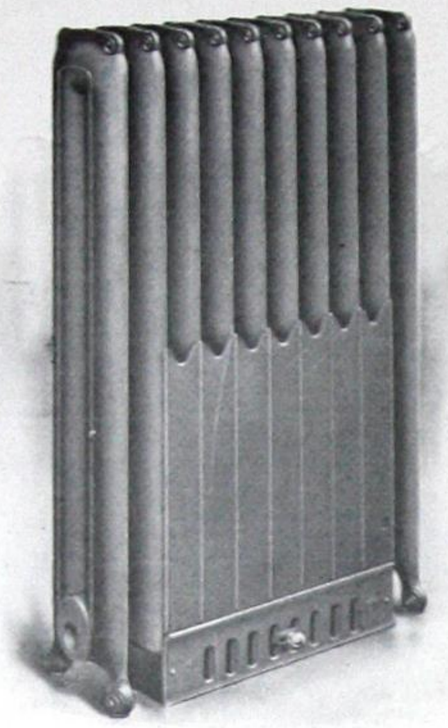


STYLE "C"—VERTICAL.

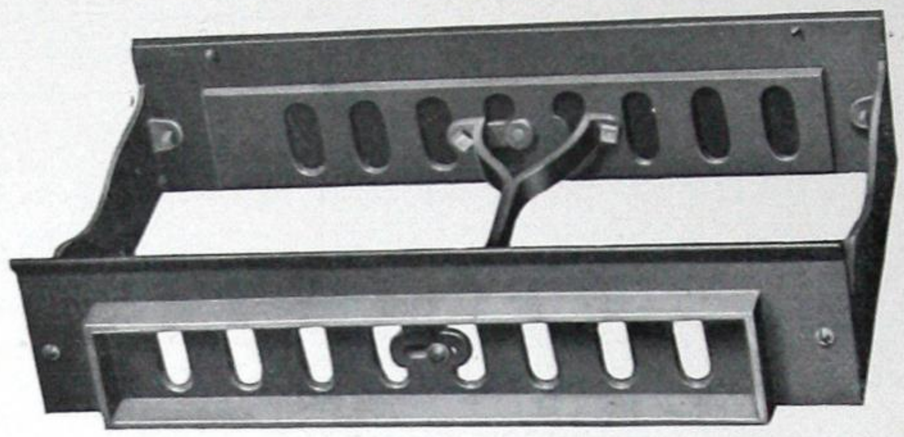
An extra charge will be made for tiering, as shown in style "B." Any required number of sections can be assembled into Radiators in above illustrated forms. When ordering, be particular to state which style is required. Orders should be accompanied by sketches showing size and style of connections desired.

CONTINUED ON NEXT PAGE

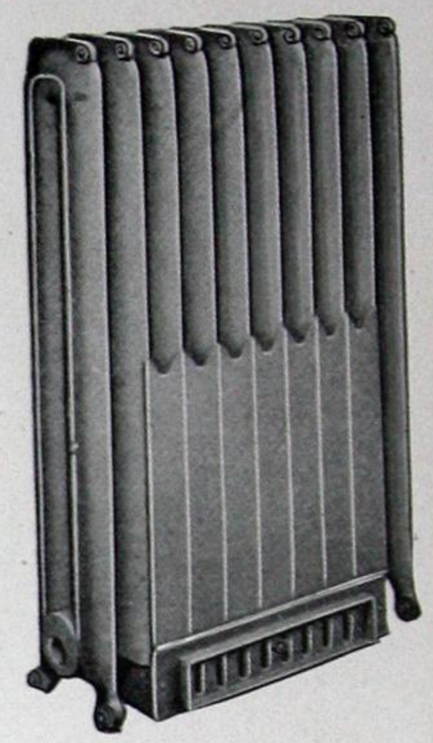
SAFFORD
DIRECT-INDIRECT OR VENTILATING RADIATOR
WITH
NEW ADJUSTABLE BOX BASE.



REGINA, TWO-COLUMN, FRONT VIEW.



BACK VIEW.



REGINA, TWO-COLUMN, REAR VIEW.

FLOOR INLET.

Where the air is brought through the floor to radiator (see plate A), the dimensions of opening in floor to be covered by damper in base should be as follows:—

BASE.	INCHES.
5 Section	5 x 7
6 "	4½ x 10
7 "	4½ x 11
8 "	4½ x 11¼
9 "	4½ x 14
10 "	4½ x 17
11 "	4½ x 20
12 "	4½ x 23
13 "	4½ x 26
14 "	4½ x 29
15 "	4½ x 32
16 "	4½ x 35
17 "	4½ x 38
18 "	4½ x 41
19 "	4½ x 44
20 "	4½ x 47

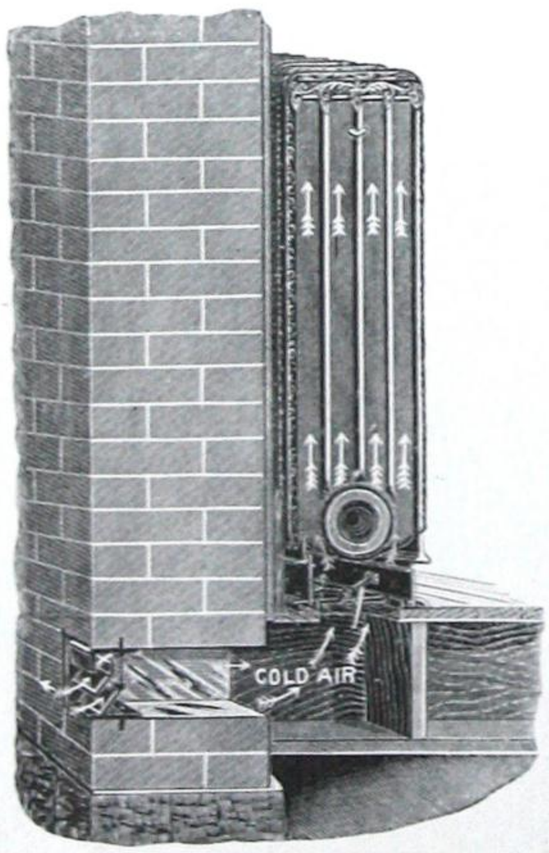
BACK INLET.

Where the air is brought direct through the wall into the base (see plate B), the outside measurements of collar for attaching fresh air duct are as follows:—

BASE.	INCHES.
3 Section	3 x 2⅜
4 "	3 x 4
5 "	3 x 7
6 "	3 x 8½
7 "	3½ x 11
8 "	3½ x 11¼
9 "	3½ x 14
10 "	3½ x 17
11 "	3½ x 20
12 "	3½ x 23
13 "	3½ x 26
14 "	3½ x 29
15 "	3½ x 32
16 "	3½ x 35
17 "	3½ x 38
18 "	3½ x 41
19 "	3½ x 44
20 "	3½ x 47

2 and 3 COLUMN BASES			4 COLUMN BASES		
No. of Base Sections	Size of Collar for Back Air Inlet Inches	Size of Floor Inlet Damper Inches	No. of Base Sections	Size of Collar for Back Air Inlet Inches	Size of Floor Inlet Damper Inches
5	2¾ x 5	5½ x 6½	5	2¾ x 9	5½ x 6½
6	2¾ x 9	5½ x 6½	6	2¾ x 14	5½ x 11
7	2¾ x 9	5½ x 11	7	2¾ x 14	5½ x 11
8	2¾ x 9	5½ x 11	8	2¾ x 14	5½ x 18
9	2¾ x 9	5½ x 11	9	2¾ x 14	5½ x 18
10	2¾ x 14	5½ x 11	10	2¾ x 19	5½ x 28½
11	2¾ x 14	5½ x 18	11	2¾ x 19	5½ x 28½
12	2¾ x 14	5½ x 18	12	2¾ x 19	5½ x 36½
13	2¾ x 14	5½ x 18	13	2¾ x 19	5½ x 36½
14	2¾ x 14	5½ x 18	14	2¾ x 19	5½ x 44¾
15	2¾ x 19	5½ x 28½	15	2¾ x 23	5½ x 44¾

SAFFORD IDEAL FLUE VENTILATING RADIATOR—WATER AND STEAM.



A—BOTTOM AIR INLET.

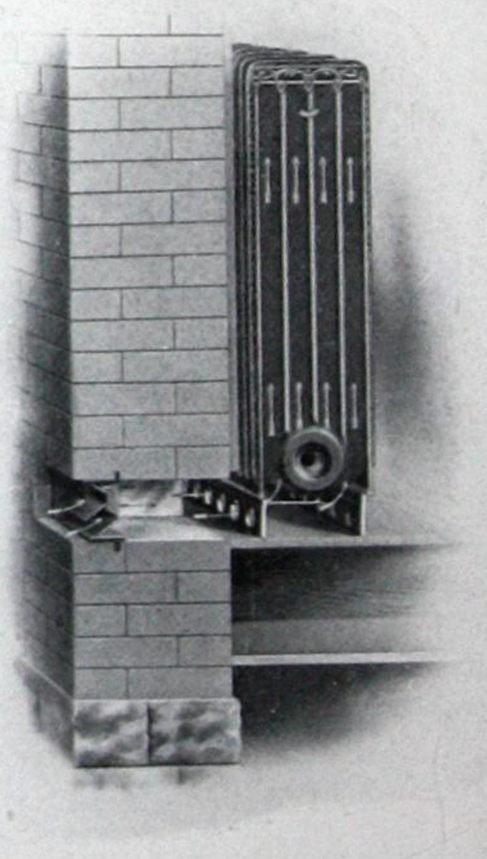
Attention is directed to the peculiar advantages of this type of radiator, when equipped with the Box-Base as a ventilating medium of the direct-indirect type.

The principle of construction of the Box-Base is such that all the air necessary for ventilation may be taken from without the building by means of air conduit in wall, and distributed through the Base into the interior or flue surface of radiator. The dampers in the Base may be adjusted to reduce the air supply if the outside temperature is very low, or the dampers may be entirely closed if desired, thus converting the radiator for the time into a direct radiator.

The special features of this Box-Base are simplicity of construction, ease of operation, and splendid distribution of air supply. The Base being entirely underneath the radiator and well recessed, is not liable to damage. The front of Base may be easily removed for cleaning purposes. Dampers may be operated by slight pressure of foot.

Plate A shows view of radiator with air supply being brought up underneath radiator through floor. Plate B shows Box-Base arranged for bringing air supply in at back of radiator, above floor level, in which case a galvanized or sheet iron sleeve is necessary to make connection between air conduit in wall and the cast iron collar on base.

For Capacities and Dimensions, see Ideal Flue Radiator.



B—BACK AIR INLET.

The usual openings through walls for the above box bases are:—Up to and including 9 sections, a 3½ x 8½ inch opening; 10 sections and above, 3½ x 16 inch opening.

If desired, we can supply these bases for radiators of 7 sections to 20 sections with a flange for back air inlet 3 x 8½ inches.

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CLIMAX INDIRECT RADIATORS.

WATER AND STEAM.



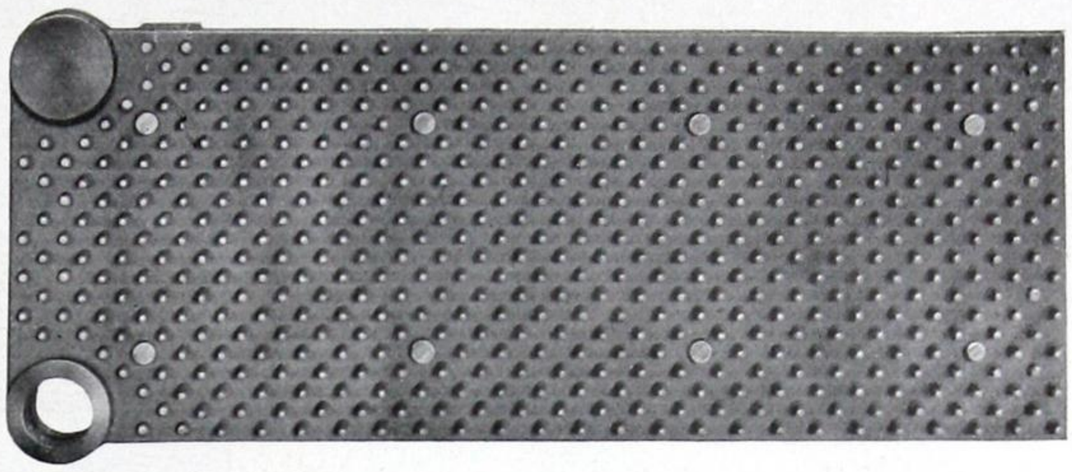
Length, 36 inches; height, 11 inches; width, 4 inches. Each Section contains 13 square feet of heating surface. Distance between centres of tappings is 7 inches.

DATA FOR CLIMAX INDIRECT RADIATORS.

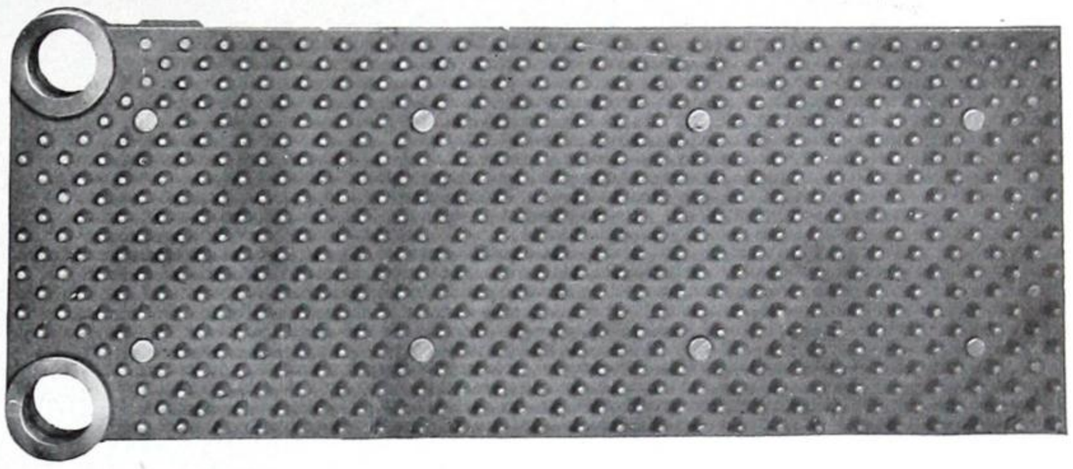
Sections in Stack	Square Feet of Heating Surface	Area Cold Air Supply Square Inches	Area Hot Air Flue Square Inches	Size for Brickwork Hot Air Flue Inches	Size Register Inches	Ratio 1 to 30	Ratio 1 to 35	Ratio 1 to 40
2	26	54	72	8 x 8	9 x 12	780	910	1,040
3	39	72	96	8 x 12	10 x 14	1,170	1,365	1,560
4	52	90	120	8 x 12	12 x 15	1,560	1,820	2,080
5	65	108	144	12 x 12	12 x 19	1,950	2,275	2,600
6	78	126	168	12 x 12	14 x 22	2,340	2,730	3,120
7	91	144	192	12 x 16	14 x 24	2,730	3,185	3,640
8	104	162	226	12 x 16	16 x 20	3,120	3,640	4,160
9	117	180	240	12 x 20	16 x 24	3,510	4,095	4,680
10	130	198	264	12 x 20	20 x 20	3,900	4,550	5,200
11	143	216	288	12 x 24	20 x 24	4,290	5,005	5,720
12	156	234	312	12 x 24	20 x 24	4,680	5,460	6,240

SCHOOL PIN INDIRECT RADIATORS.

WATER AND STEAM.



STEAM SECTION.



WATER SECTION.

20 SQUARE FOOT SECTION.—Length, 36 inches; height, $13\frac{7}{8}$ inches; height at connecting points, 15 inches; width each section occupies in stack, $3\frac{3}{4}$ inches; distance between centres of openings, $11\frac{3}{8}$ inches.

15 SQUARE FOOT SECTION.—Length, $34\frac{3}{4}$ inches; height, $11\frac{1}{2}$ inches; height at connecting points, $13\frac{3}{4}$ inches; width each section occupies in stack, $2\frac{7}{8}$ inches; distance between centres of openings, $10\frac{1}{8}$ inches.

Sections will be shipped separately, unless orders specify that they are required assembled in stacks. When ordered assembled, they will be shipped in stacks of not more than six sections each.

NOTE.—We can also supply Gold Pin Indirect Radiators containing 10 square feet of heating surface per section. Length, 36 inches; height, $7\frac{1}{2}$ inches; height at connecting point, 11 inches; width each section occupies in stack, $2\frac{3}{4}$ inches; distance between centres of openings, 6 inches.

DIRECTIONS FOR SETTING INDIRECT RADIATORS.

Hangers for Indirect Radiators may be cheaply and substantially constructed from $\frac{1}{2}$ inch round iron, having gimlet pointed coach screw threads or flattened ends to permit of their being fastened to joists or timbers overhead. The lower end should be formed into an eye or ring large enough to receive 1 inch or $1\frac{1}{4}$ inch pipe. These hangers should be placed one at each side of the four corners about 6 inches from the ends of stack and immediately opposite each other, so that the supporting pipe may pass through rings or eyes.

The hangers at the return end of the stack should be about $\frac{1}{4}$ to $\frac{1}{2}$ inch lower than the hangers at the feed end, and, if possible, the entire stack should be inclined slightly towards the return end to insure a positive flow of the water of condensation toward the return connection.

In encasing Indirect Radiators care should be taken to provide an air chamber above the stack of at least 12 inches and a space below stack of about 6 inches.

On account of the very high rate of condensation in steam Indirects, we specially recommend the use of large size flow and return pipes.

EMPRESS HUMIDIFYING TWO-COLUMN RADIATOR.

SQUARE TOP. (Patented.) WATER AND STEAM.



EMPRESS HUMIDIFYING RADIATOR.

This new Humidifying Radiator is a decided innovation, and, we feel sure, will commend itself to all heating engineers. The highly nickel-plated copper water pan is placed inside the radiator in such a position as to render it almost invisible, and at the same time to permit of the highest possible vaporization of the water.

The desirability of imparting moisture to the atmosphere of rooms heated by either steam or water will appeal especially to those who desire perfect hygienic conditions, and the added efficiency of the radiating surface consequent upon the increased humidity makes this radiator a most valuable addition to the "Safford" line.

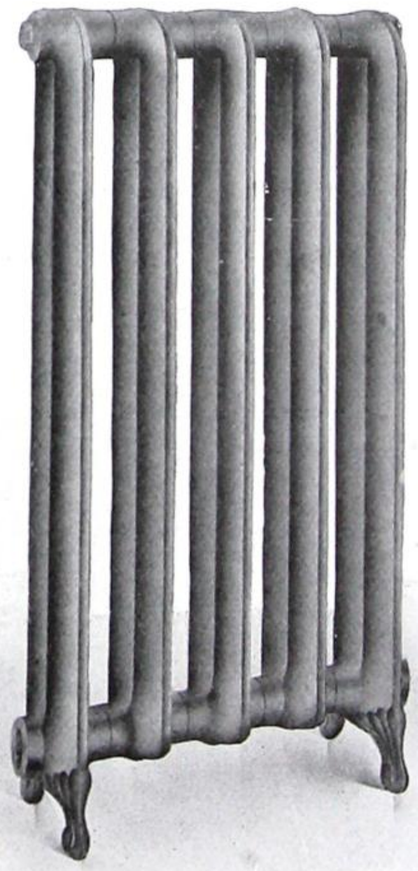
For capacities and dimensions, see "Regina" Radiator.

HOSPITAL RADIATORS.

These Radiators are made with special wide hubs, making the distance from centre to centre of loops $3\frac{1}{2}$ inches and allowing easy access to the sections for cleaning purposes. Where desired, Radiators can be furnished with extra wide hubs 5 inches centre to centre of loops. Orders should specify style of radiator and hub required.

Perfect Radiators may be supplied in square top pattern.

For capacities, see "Perfect" Radiator.



PERFECT (ROUND TOP) HOSPITAL RADIATOR

CONTINUED ON NEXT PAGE

REGINA ORNAMENTAL
LOW-DRIP LEG.
FOR STEAM.



REGINA PLAIN
LOW-DRIP LEG.
FOR STEAM.



TRIDENT ORNAMENTAL
LOW-DRIP LEG.
FOR STEAM.



Distance from centre of opening to floor, 3½ inches.
In a one pipe steam system the low drip section is on the feed end of the radiator.
In a two pipe steam system the low drip section is on the return end of the radiator.
Safford Low-Drip Radiators eliminate "water-hammer."

STANDARD TAPPINGS.

STEAM RADIATORS.

All Safford Steam Radiators will be tapped as per schedule below. If any special tappings are desired, they should be plainly stated on orders.

ONE PIPE STEAM RADIATORS, Direct and Direct-Indirect:

25 square feet and under	1 inch.
Above 25 square feet but not exceeding 60 square feet	1¼ "
Above 60 square feet but not exceeding 100 square feet	1½ "
Above 100 square feet	2 "

All one pipe steam connections are tapped left hand with eccentric tappings.

TWO PIPE STEAM RADIATORS, Direct and Direct-Indirect:

50 square feet and under	1 x ¾ inch.
Above 50 square feet but not exceeding 95 square feet	1¼ x 1 "
Above 95 square feet	1½ x 1¼ "

All two pipe steam connections are tapped right hand, the tapping on return end of radiator being made eccentric.

TWO PIPE STEAM RADIATORS, Indirect only:

40 square feet and under	1 x ¾ inch.
Above 40 square feet but not exceeding 80 square feet	1¼ x 1 "
Above 80 square feet but not exceeding 120 square feet	1½ x 1¼ "
Above 120 square feet	2 x 1½ "

Steam Indirect Radiators are always tapped for two pipe system.

WATER RADIATORS.

All Safford Water Radiators will be tapped as per schedule below. If any special tappings are desired, they should be plainly stated on orders.

WATER RADIATORS, SINGLE OR TWIN CONNECTIONS, all Patterns:

50 square feet and under	1 x 1 inch.
Above 50 square feet but not exceeding 100 square feet	1¼ x 1¼ "
Above 100 square feet	1½ x 1½ "

All Twin Connection Radiators are tapped left hand. All Single Connection or opposite end tappings will be made with right hand threads. All Water Radiators are shipped twin connection, tapped left hand unless otherwise specified on orders.

All Wall Radiators for hot water are tapped top and bottom same end left hand, and will be shipped accordingly unless otherwise specified on orders. Wall Radiator sections are tapped 1½ inch left hand and are bushed to sizes required.

The special tappings for the various vacuum steam and pressure water systems on application.

NOTE.—When using union valves or union elbows, please state this fact in ordering, so that connections may be tapped right hand.

CONTINUED ON NEXT PAGE

SAFFORD ROUND WATER BOILERS.

LIST PRICES AND DATA.

No.	List Price Low Base	List Price High Base	Ratings after deducting allowances for Mains, Returns, etc. (Note). Cast Iron Radiaton Sq. Ft.	Ratings after deducting allowances for Mains, Returns, etc. (Note). Lineal Feet 1-in Pipe	Height to Top Outlets on Headers Low Base Inches	Height to Top Outlets on Headers High Base Inches	Grate Area Sq. Ft	Average Fire Pot Sq. Ft.	Outlet and Inlet on Boilers Inches	Outlets and Inlets on Headers Inches	Smoke Pipe Inches	Size of Coal
1 -A	$105.00	$111.00	235	700	45⅜	51⅜	1.06	1.13	3	4-2	7	Stove
1½-A	125.00	131.00	270	800	49⅝	55⅞	1.06	1.13	3	4-2	7	Stove
2 -A	140.00	147 00	335	1,000	50⅜	57⅛	1.40	1.46	3	4-2	7	Stove
2½-A	150.00	157.00	400	1,200	54⅞	61⅜	1 40	1.46	3	4-2	7	Stove
3 -A	160.00	170.00	500	1,500	51⅞	58⅜	1.76	1.84	3	4-2	8	Stove
3½-A	180.00	190.00	570	1,700	55¼	62¼	1 76	1.84	3	4-2	8	Stove
4 -A	200 00	215.00	670	2.000	54⅜	61½	2.40	2 58	4	4-2	9	Stove
4½-A	220 00	235.00	750	2,250	59⅛	66¼	2.40	2 58	4	4-2	9	Stove
5 -A	240.00	260.00	835	2,500	55⅞	63¼	3.44	3.24	4	6-2	10	Stove or Egg
5½ -A	260.00	280 00	935	2,800	60¼	67⅜	3.44	3.24	4	6-2	10	Stove or Egg
6 -A	270.00	290.00	1,000	3,000	58⅜	66⅜	4.12	4.35	5	6-2	11	Egg
6½-A	335.00	360.00	1,250	3,750	63½	71½	4 12	4 35	5	6-2	11	Egg
7 -A	392.00	420.00	1,500	4,500	60¼	68¼	4 90	5 10	5	8-2	12	Egg
7½-A	425.00	453.00	1,750	5,250	65⅜	73⅜	4 90	5 10	5	8-2	12	Egg
8 -A	475.00	505 00	2,000	6,000	62⅜	70⅜	5 94	6.00	6	10-2	13	Egg
8½-A	500.00	530.00	2,250	6,750	68⅝	76⅝	5 94	6.00	6	10-2	13	Egg

WHERE DESIRED, SAFFORD ROUND WATER BOILERS, NOS. 5A TO 8½A, CAN BE FURNISHED WITH SPECIAL HEADERS HAVING 2-4 IN. FLOW OUTLETS AND 2-4 IN. RETURN INLETS.

THESE HEADERS SHOULD BE DESCRIBED ON ORDERS AS "WESTERN HEADERS."

For installations requiring larger boiler capacity, we recommend the use of Safford Sectional Boilers, as round boilers having larger grate areas than above are difficult to operate, and show a lower ratio of efficiency in proportion to coal consumed.

FUELS AND CAPACITIES.

The ratings for Safford Round Water Boilers are based on the use of hard coal, because the anthracite fuels have more uniform heat-making qualities than all other kinds.

RATING CONDITIONS.

The ratings on Safford Boilers are based on their capacity to maintain a temperature of 170 degrees in the water in the Radiators throughout a period of eight hours on one firing. It is, of course, assumed that sufficient radiating surface has been allowed in the various rooms to maintain a temperature of 70 degrees Fahrenheit during zero weather. Under more severe climatic conditions a reasonable allowance should be made to provide for the additional tax imposed on the Boiler. A liberal allowance has been made for mains, returns, risers, etc., so that the ratings shown indicate the actual capacity of these Boilers in direct radiation.

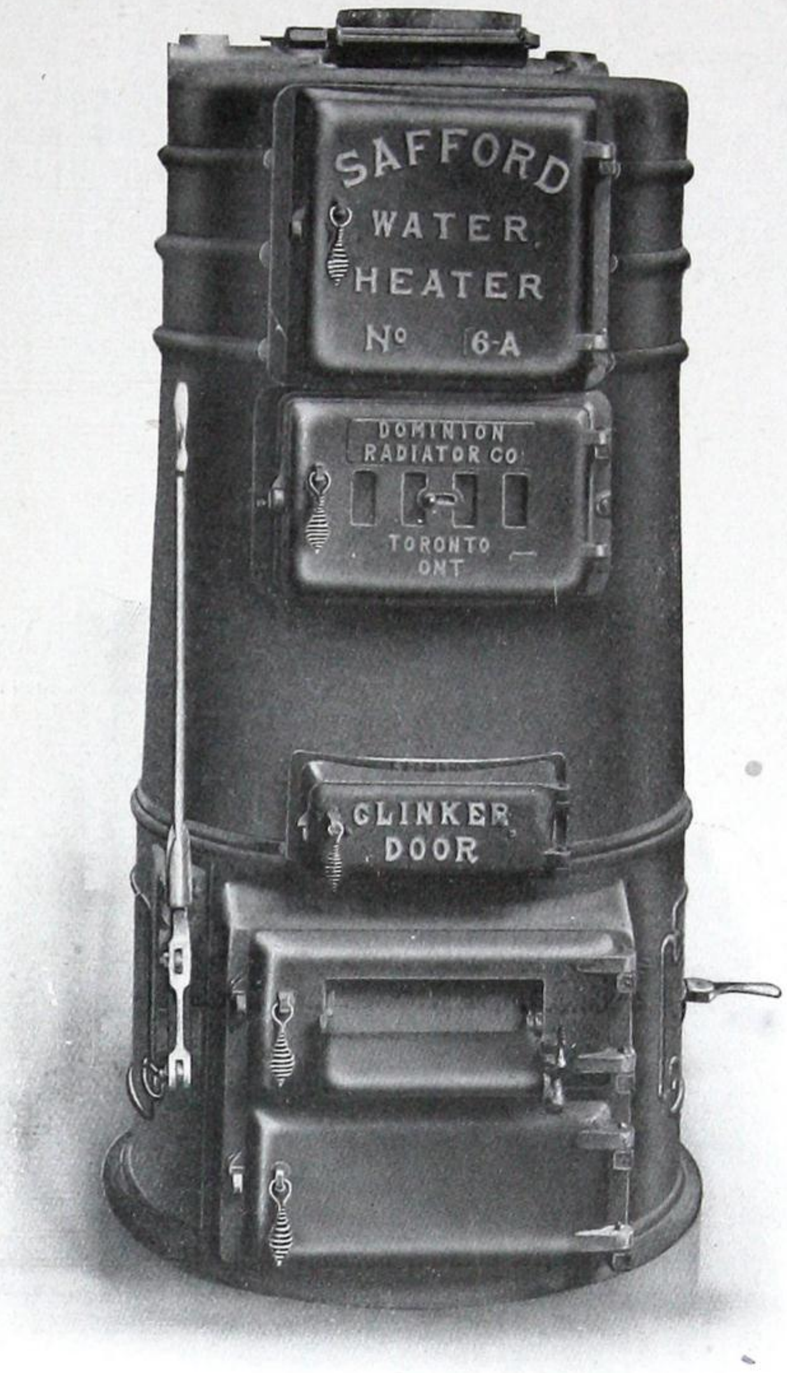
When indirect radiation is to be used, not less than 75 per cent. increase over direct radiation should be figured in determining size of Boiler required.

When a pipe, coil or cast iron section is introduced into the fire-pot for the purpose of heating water for domestic use, additional capacity should be figured in determining size of Boiler, viz.: 2½ square feet of direct radiation for each gallon of water to be thus heated according to the capacity of the tank to which the coil or section is connected.

Best results are secured by an independent Triumph Water Heater, which provides ample supply on every day of the year with trifling fuel expense.

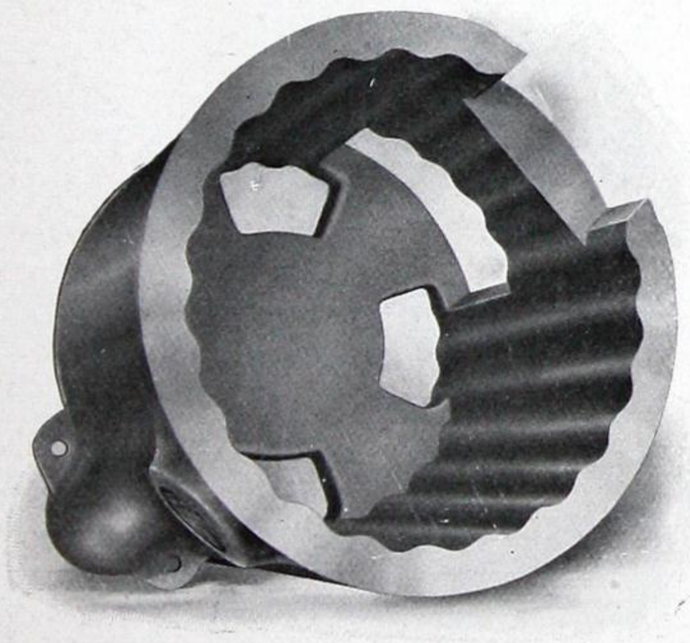
COVERINGS.

Both on account of increased efficiency and greater economy, we recommend that all boilers be thoroughly protected by a substantial covering of asbestos.

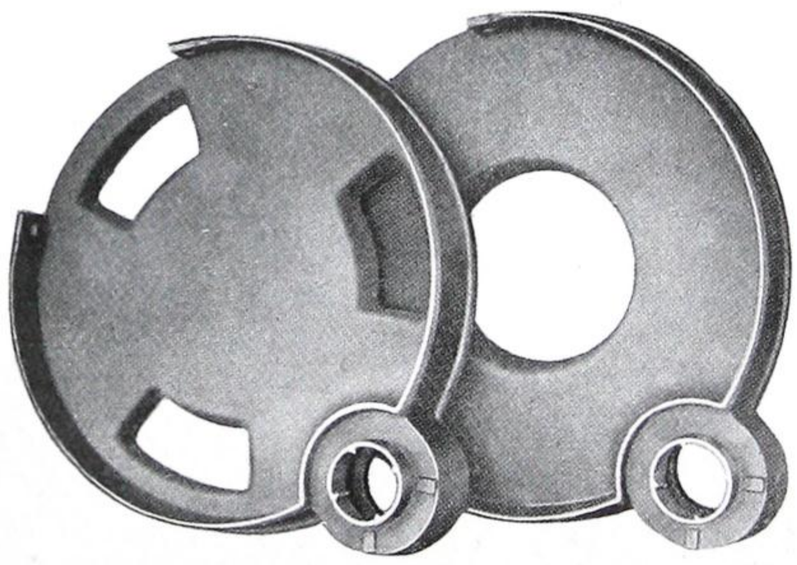


No. 6A. High Base Boiler.

SOME FEATURES OF SAFFORD ROUND WATER BOILER.



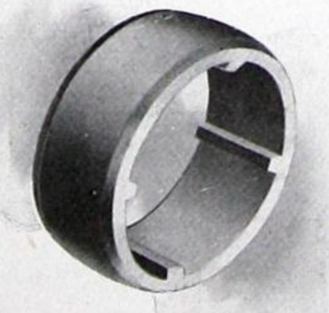
Fire-pot of Safford Round Water Boiler, showing Top Crown.



Intermediate Sections of Safford Round Water Boiler.



Smoke Pipe Check Damper for Fuel Economy.

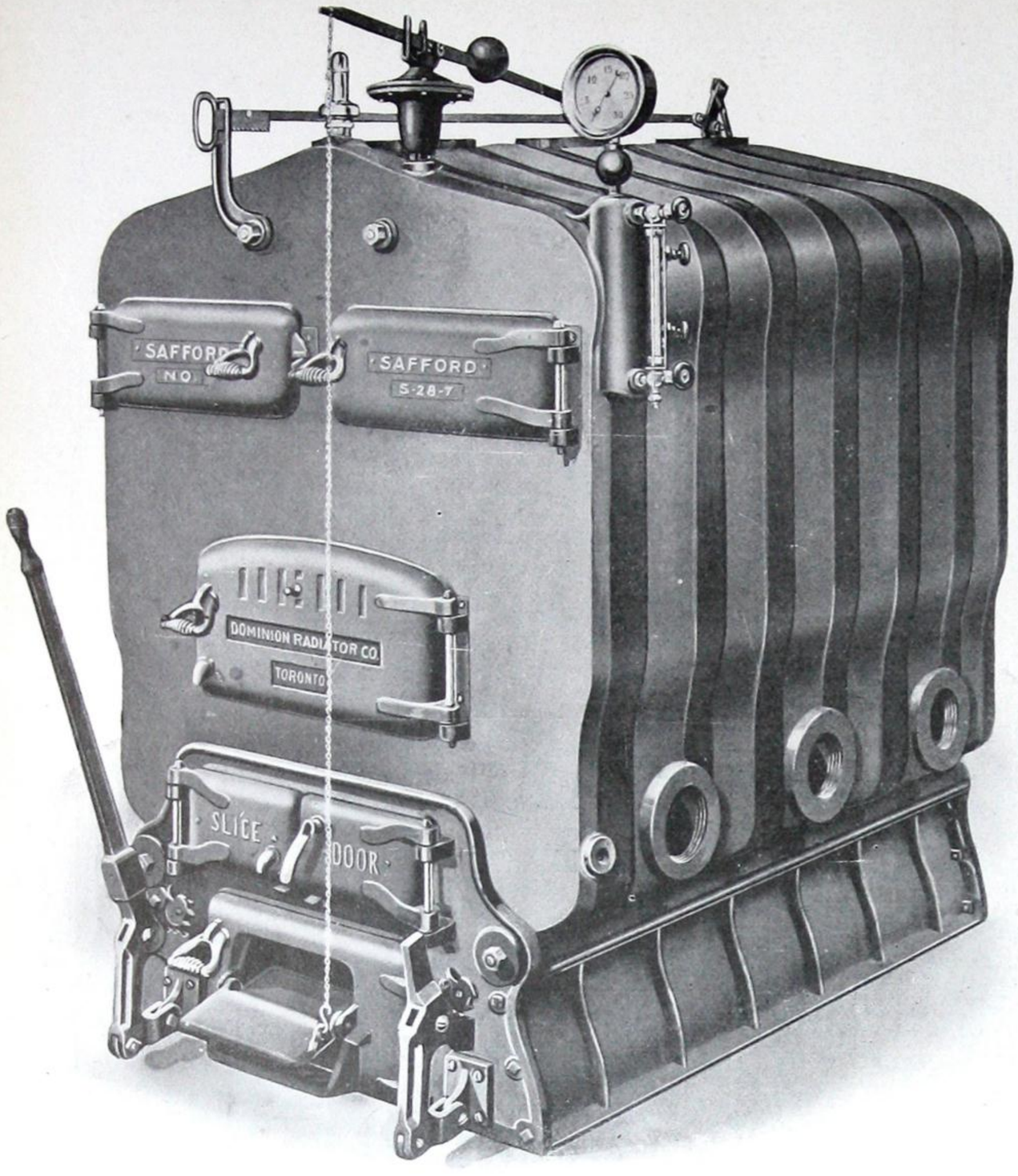


The Push Nipple.

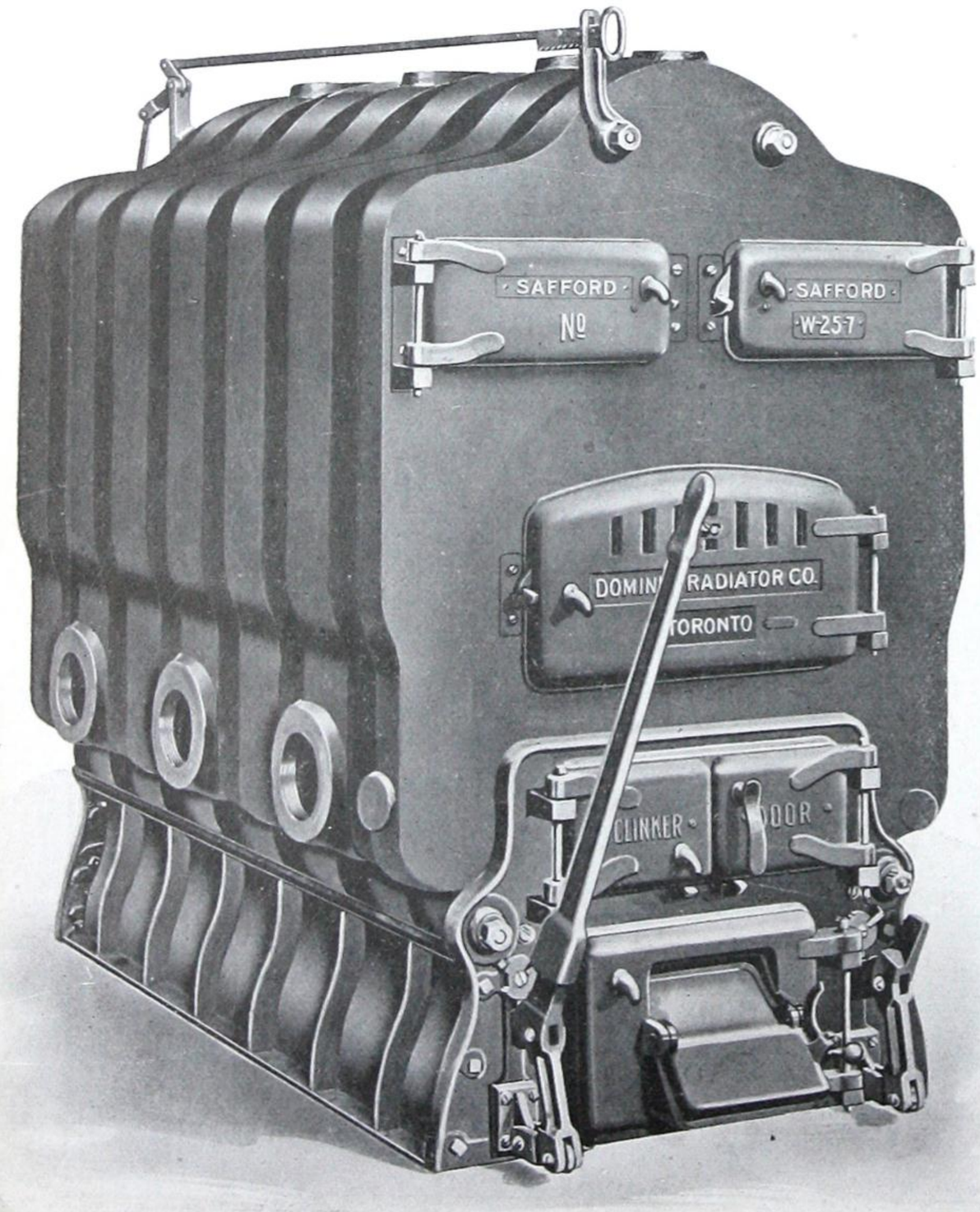


Showing Large Flues and Cleanout of Safford Round Water Boiler.

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No. S-28-7—STEAM BOILER.



No. W-25-7—WATERBOILER

SAFFORD SECTIONAL BOILERS.

LIST PRICES AND DATA.

No. Including Sections	Price Complete	Ratings (Note) Sq. Feet Radiation	Ratings (Note) Feet 1 in. Pipe	*Length Total Inches	Height Total Inches	Width Total Inches	Water Line Inches	Grate Area Sq. Feet	Average Fire-Pot Sq. Feet	Outlets Inches	Smoke Pipe Inches	Ash Pit (Inside) Inches
S-15-4	$215 00	300	900	40⅞	53½	34½	38⅞	1.95	2.47	2-3	8	20⅛ x 21½
S-15-5	255.00	425	1,275	47⅛	53½	34½	38⅞	2.60	3.30	2-3	8	20⅛ x 27⅛
S-15-6	295.00	550	1,650	53⅜	53½	34½	38⅞	3.25	4.10	2-3	8	20⅛ x 34
S-19-5	312 50	600	1,800	52¾	55¾	38	42⅛	3.32	4.00	2-3	9	20 x 29⅛
S-19-6	350.00	750	2,250	58⅜	55¾	38	42⅛	4.15	5.00	2-3	9	20 x 36⅜
S-19-7	400.00	900	2,700	65	55¾	38	42⅛	4.98	6.00	3-3	9	20 x 43⅝
S-22-5	375 00	800	2,400	53¾	59½	42	44¾	4.08	4.84	2-4	10	23⅛ x 31⅛
S-22-6	425 00	1,000	3,000	60¼	59½	42	44¾	5.10	6.05	2-4	10	23⅛ x 38⅞
S-22-7	475 00	1,200	3,600	67¼	59½	42	44¾	6.12	7.26	3-4	10	23⅛ x 45⅛
S-25-5	450 00	1,100	3,300	59¼	64⅛	47¼	49	5.44	6.48	2-4	11	28 x 35⅛
S-25-6	512.50	1,350	4,050	66⅞	64⅛	47¼	49	6.80	8.10	2-4	11	28 x 42⅞
S-25-7	575.00	1,600	4,800	74½	64⅛	47¼	49	8.16	9.72	3-4	11	28 x 50⅝
S-25-8	637.50	1,850	5,550	82¼	64⅛	47¼	49	9.52	11.34	3-4	11	28 x 58¼
S-28-5	500 00	1,300	3,900	60	67⅛	50½	51⅜	6.24	7.33	2-4	12	30⅜ x 35½
S-28-6	587 50	1,625	4,875	68	67⅛	50½	51⅜	7.80	9.16	2-4	12	30⅜ x 43½
S-28-7	662.50	1,950	5,850	76	67⅛	50½	51⅜	9.36	10.99	3-4	12	30⅜ x 51½
S-28-8	750.00	2,275	6,825	84	67⅛	50½	51⅜	10.92	12.83	3-4	12	30⅜ x 59½
S-36-5	700.00	2,100	6,300	69¾	76¼	60	60½	9.12	10.40	2-5	15	38⅛ x 40¾
S-36-6	837.50	2,625	7,875	78⅞	76¼	60	60½	11.40	13.00	2-5	15	38⅛ x 49⅞
S-36-7	962.50	3,150	9,450	88	76¼	60	60½	13.68	15.60	3-5	15	38⅛ x 59
S-36-8	1,100.00	3,675	11,025	97⅛	76¼	60	60½	15.96	18.20	3-5	15	38⅛ x 68⅛
S-36-9	1,225 00	4,200	12,600	106¼	76¼	60	60½	18.24	20.80	4-5	15	38⅛ x 77¼
S-48-6	1,362 50	4,750	14,250	92	97	80	70	18.00	18.75	2-6	21	50¾ x 58⅛
S-48-7	1,600 00	5,700	17,100	102¾	97	80	70	21.60	22.50	2-6	21	50¾ x 68⅛
S-48-8	1,837 50	6,650	19,950	114	97	80	70	25.20	26.25	3-6	21	50¾ x 79⅛
S-48-9	2,075 00	7,600	22,800	124¼	97	80	70	28.80	30.00	3-6	21	50¾ x 89⅛
S-48-10	2,312.50	8,550	25,650	135	97	80	70	32.40	33.75	3-6	21	50¾ x 100⅛

* Inside measurement.

For each supply outlet on top of Boiler there is a corresponding return inlet in either side.

Return tappings on 48 inch Steam Boilers are 4 inches, and the two on the face of back section should be yoked together and used in preference to the other inlets.

Do not bush flow-pipe outlets, connect all of them the full size of main.

Above are hard coal ratings. Soft coal and wood require one size larger in each case.

For Wood Burning. On special order, wood grates can be supplied for the 19 in., 22 in., 25 in., 28 in., and 36 in. Boilers. The 19 in. Boilers are fitted with special fire-door for wood burning, 10¼ x 18 in.; 22 and 25 in., with 11⅛ x 18 in. fire-door; and 28 in. with 12⅞ x 20 in. fire-door.

All Boilers can be furnished with pea-coal grates if desired.

SAFFORD SECTIONAL WATER BOILERS.

LIST PRICES AND DATA.

No. Including Sections	Price Complete	Ratings (Note) Sq. Feet Radiation	Ratings (Note) Feet 1-in. Pipe	*Length Total Inches	Height Total Inches	Width Total Inches	Grate Area Sq. Feet	Average Fire Pot Sq. Feet	Outlets Inches	Smoke Pipe	Ash Pit (Inside) Inches
W-15-4	$190.00	500	1,500	40⅞	42½	27½	1.95	2.47	2-3	8	20⅛x21½
W-15-5	230.00	700	2,100	47⅛	42½	27½	2.60	3.30	2-3	8	20⅛x27⅛
W-15-6	270.00	900	2,700	53⅜	42½	27½	3.25	4.10	2-3	8	20⅛x34
W-19-5	287.50	1,000	3,000	52¾	50	31¼	3.32	4.00	2-3	9	20 x29⅛
W-19-6	325.00	1,250	3,750	58⅜	50	31¼	4.15	5.00	2-3	9	20 x36⅜
W-19-7	375.00	1,500	4,500	65	50	31¼	4.98	6.00	3-3	9	20 x43⅝
W-22-5	350.00	1,300	3,900	53¾	52¼	36	4.08	4.84	2 4	10	23⅛x31⅛
W-22-6	400.00	1,650	4,950	60¼	52¼	36	5.10	6.05	2-4	10	23⅛x38⅞
W-22-7	450.00	2,000	6,000	67¼	52¼	36	6.12	7 26	3-4	10	23⅛x45⅛
W-25-5	425.00	1,825	5,475	59¼	57⅞	40⅜	5.44	6.48	2-4	11	28 x35⅛
W-25-6	487.50	2,225	6,675	66⅞	57⅞	40⅜	6.80	8.10	2-4	11	28 x42⅞
W-25-7	550.00	2,650	7,950	74½	57⅞	40⅜	8.16	9.72	3-4	11	28 x50⅝
W-25-8	612.50	3,050	9,150	82¼	57⅞	40⅜	9.52	11.34	3-4	11	28 x58¼
W-28-5	475.00	2,150	6,450	60	60⅝	44	6.24	7.33	2-4	12	30⅜x35½
W-28-6	562.50	2,675	8,025	68	60⅝	44	7.80	9 16	2-4	12	30⅜x43½
W-28-7	637.50	3,200	9,600	76	60⅝	44	9.36	10.99	3-4	12	30⅜x51½
W-28-8	725.00	3,725	11,175	84	60⅝	44	10.92	12.83	3-4	12	30⅜x59½
W-36-5	675.00	3,450	10,350	69¾	70	53¼	9.12	10.40	2-5	15	38⅛x40¾
W-36-6	800.00	4,325	12,975	78⅞	70	53¼	11.40	13.00	2-5	15	38⅛x49⅞
W-36-7	925.00	5,200	15,600	88	70	53¼	13.68	15.60	3-5	15	38⅛x59
W-36-8	1,062.50	6,050	18,150	97⅛	70	53¼	15.96	18 20	3-5	15	38⅛x68⅛
W-36-9	1,187.50	6,925	20,775	106¼	70	53¼	18.24	20.80	4-5	15	38⅛x77¼
W-48-6	1,300.00	7,825	23,475	92	81¾	68	18.00	18.75	2-6	21	50¾x58⅛
W-48-7	1,537 50	9,400	28,200	102¾	81¾	68	21.60	22.50	2-6	21	50¾x68⅛
W-48-8	1,775.00	10,975	32,925	114	81¾	68	25.20	26.25	3-6	21	50¾x79⅛
W-48-9	2,012.50	12,550	37,650	124¼	81¾	68	28.80	30.00	3-6	21	50¾x89⅛
W-48-10	2,250.00	14,125	42,375	135	81¾	68	32.40	33.75	3-6	21	50¾x100

* Inside measurement.

For each supply outlet on top of Boiler there is a corresponding return inlet in either side.

The return tappings on the back section of the 48 inch Boilers should be yoked together and used in preference to the additional return tappings on either side of the Boiler.

Above are hard coal ratings. Soft coal requires one size larger.

For Wood Burning. On special order, wood grates can be supplied for the 19 in., 22 in., 25 in., 28 in., and 36 in. Boilers. The 19 inch Boilers are fitted with special fire-door for wood burning, 10¼ x 18 in.; 22 and 25 in., with 11⅛ x 18 in. fire door; and 28 in. with 12⅞ x 20 in. fire door.

All Boilers can be furnished with pea-coal grates if desired.

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SAFFORD ROUND STEAM BOILERS.

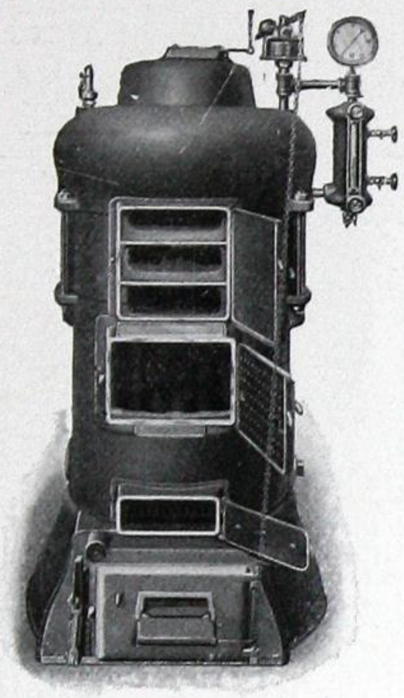
FOR HARD COAL.

FUELS AND CAPACITIES.

The ratings for Safford Boilers are based on the use of hard coal, because the anthracite fuels have more uniform heat-making qualities than all other kinds.

No standard ratings can be made based on the soft or lignite fuels, because their heat-making values differ so widely. The heat-making value of anthracite coal averages about 12,000 British thermal units per pound, while some soft coals run as low as 9,000 B.t.u. per pound—some lignite fuels still lower. One cubic foot of hard coal weighs approximately 50 pounds, while a cubic foot of soft coal weighs approximately 40 pounds. Consequently, any soft coal having a heat-making value equal to hard coal requires a Boiler with 25 per cent. more coal-holding capacity to hold an equal weight of fuel. And when coal with a lower heat-making value is to be used, a Boiler having a *fire-pot* of correspondingly larger fuel-holding capacity should be selected.

Caking soft coals have a much higher heating power than coals which are free burning or non-caking.



No. 2-22-S Steam Boiler (patented).
Showing Feeding and Cleaning Arrangements.
Made with either High or Low Base.

Hard Coal Boilers. LIST PRICES AND DATA. High and Low Base.

No.	Price Complete		Ratings (Note)		Height to Top Outlet		Diameter at Base Inches	Grate Area Square Feet	Average Fire Pot Square Feet	Height Water Line		1 Outlet 2 Inlets Size Inches	Smoke Pipe Inches
	Low Base	High Base	Square Feet Radiation	Feet 1-in. Pipe	Low Base Inches	High Base Inches				Low Base Inches	High Base Inches		
2-19-S	$215.00	$227 50	350	1,050	57	64¼	30½	1.76	1.84	50	57¼	2½	8
3-19-S	235 00	247.50	400	1,200	61½	68¾	30½	1.76	1.84	54½	61¾	2½	8
2-22-S	295.00	313.75	525	1,575	58¾	65¼	35	2.40	2.53	53½	60	3	9
3-22-S	312.50	331.25	575	1,725	63¾	70¼	35	2.40	2.53	56⅞	63⅜	3	9
2-25-S	325.00	350.00	625	1,875	61¾	69	38	3.14	3.20	54¼	61½	3½	9
3-25-S	337 50	362.50	700	2,100	66¾	74	38	3 14	3.20	59¼	66½	3½	9
2-28-S	400.00	431.25	900	2,700	62½	69¼	41⅜	4.12	4.30	56	62¾	4	10
3-28-S	425.00	456.25	1,000	3,000	67 7/16	74 7/16	41⅜	4.12	4.30	61¾	68½	4	10
2-31-S	500.00	535.00	1,275	3,825	66	73½	44⅛	4.90	5.10	57¼	64¾	4	10
3-31-S	525.00	560.00	1,400	4,200	71⅞	79⅜	44⅛	4.90	5.10	63¼	70¾	4	10
2-34-S	550.00	587.50	1,500	4,500	69	77	48⅞	5.94	6.00	59⅜	67⅜	5	11
3-34-S	587.50	625.00	1,650	4,950	75	83	48⅞	5.94	6.00	65½	73½	5	11

RATING CONDITIONS.

The ratings for Safford Sectional Water and Steam, Safford Round Steam and Safford Premier Steam Boilers provide that all piping (mains and risers, flow and return), in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of the Boiler required.

These ratings are for direct radiation. When any other heating surface than direct radiation is to be supplied, increased Boiler capacity must be figured according to the demand in each case.

When indirect radiation is to be used, not less than 75 per cent. increase over direct radiation should be figured in determining size of Boiler required.

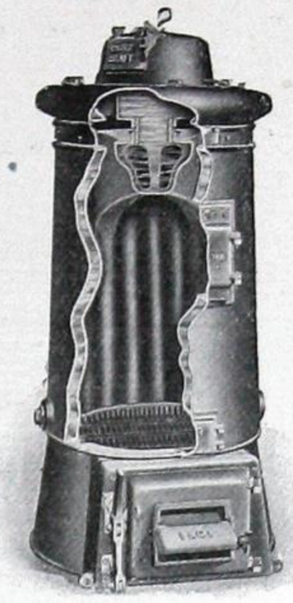
For installations of Hot Blast type or where a fan is used, the additional tax or condensing power of the radiation will be increased from 3 to 6 times that of direct radiation depending on the velocity of the air passing through same. Due allowance should be made for this special tax in estimating Boiler power required.

In rating Steam Boilers as above, it is understood that an average pressure of 2 pounds will be maintained at the Boiler. In rating Water Boilers as above, it is understood that the temperature of the water leaving the Boiler will be 180 degrees Fahrenheit.

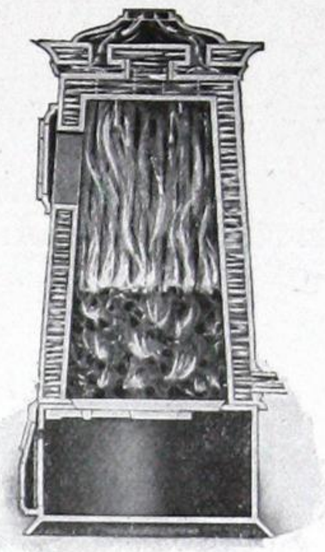
When a pipe-coil or cast-iron section is introduced into the fire-pot for the purpose of heating water for domestic use, additional capacity should be figured in determining size of Boiler—viz., in the case of Steam Boilers, 1½ square feet of direct radiation for each gallon of water to be thus heated; and in case of Water Boilers, 2½ square feet of direct radiation for each gallon of water to be thus heated, according to the capacity of the tank to which the coil or section is connected.

Best results are secured by an independent TRIUMPH Water Heater, which provides ample supply on every day of the year with trifling fuel expense.

TRIUMPH WATER HEATERS.



No. 152 Triumph Premier Junior
(Sectional View).



No. 10 Triumph Junior
(Sectional View).

LIST PRICES AND DATA.

Style	No.	Grate Area Sq Ft.	Outlets Inches	* Capacity Gallons	Price Complete
† Triumph Premier Junior	101	.59	1-1½	140	$ 30.00
" " "	121	.84	3-1½	210	56.00
" " "	§122	.84	3-1½	230	67.00
" " "	151	1.23	3-2	335	78.00
" " "	§152	1.23	3-2	375	93.00
" " "	181	1.92	3-2	600	102.00
" " "	§182	1.92	3-2	660	122.00
†† Triumph Junior	0	.54	1-1½	90	28.00
" "	10	.80	3-1½	190	51.00
" "	§ 12	.80	3-1½	210	60.00
" "	20	1.23	3-2	380	71.00
" "	§ 22	1.23	3-2	425	85.00
" "	30	1.92	3-2	600	91.00
" "	§ 32	1.92	3-2	660	111.00
Triumph	10	.54	1-1½	80	27.00
"	12	.80	1-1½	145	33.00
"	15	1.23	1-1½	240	47.00
Triumph Laundry	1-D	.54	1-1	100	29.00

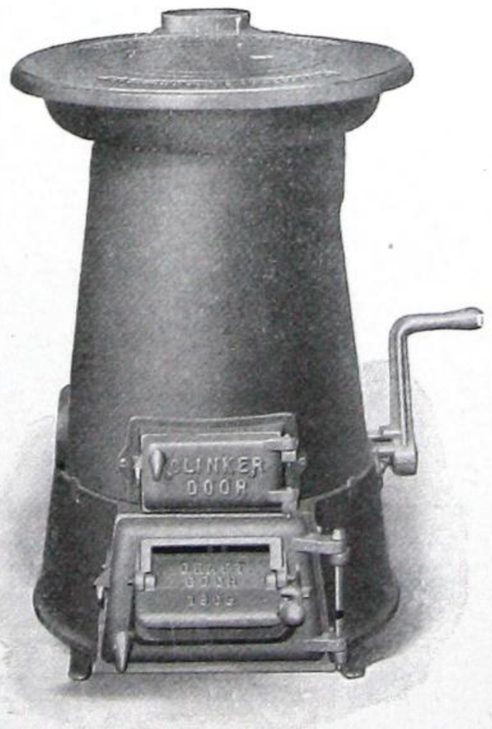
* Actual practice has demonstrated that a heater which will raise the water from 25 to 30 degrees per hour in the storage tank is sufficiently large for the ordinary residence. The above ratings are based on raising the quantity of water stated in gallons 25 degrees Fahrenheit per hour for eight consecutive hours on one full charge of hard coal as fuel. In apartment buildings, barber shops, etc., where the demand is proportionately heavier, larger heater capacity must be provided.

† No. 101 is not provided with butterfly doors, but can be so equipped if ordered. None of these Heaters have an intermediate section.

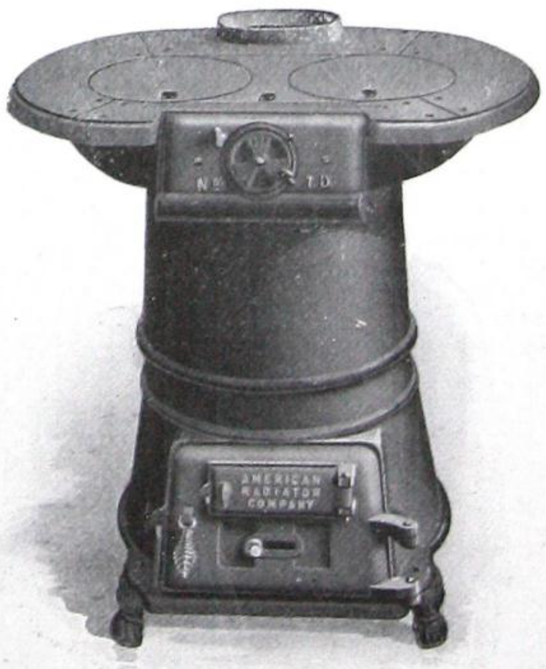
†† Nos. 0 to 12 have slide centre grates; Nos. 20 to 32 have rocking grates.

§ Equipped with Dome sections.

No fire tools are supplied with TRIUMPH Water Heaters.



No. 12 Triumph.



Triumph Laundry Heater No. 1-D.

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TRIUMPH WATER HEATERS.

SPECIAL WATER TEMPERATURE RATINGS.

Actual practice has demonstrated that a Water Heater which will impart from 25 to 30 degrees per hour to the water in the storage tank is sufficiently large for the ordinary residence; and for apartment buildings, in which the demand is proportionately heavier, a Heater that will impart from 40 to 45 degrees per hour. These capacities are indicated in the tables by heavy-faced figures.

It is, however, for the architect or heating contractor, who alone is familiar with all the conditions and requirements, to select from the tables the capacity of Heater needed for each specific installation. The tables are equally applicable to the heating of water for special requirements, as swimming pools, bottle washing vats, and other purposes. The figures in line 1 represent so many hours' firing from one charge of hard coal, which is the basis, because its available heating power is constant.

No. 10 Triumph Water Heater

Heater's total potential energy, 1,276,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	4.00	3.33	2.86	2.50	2.22	2.00	1.82	1.67	1.54	1.43
3—Power per hr., B. t. u.	272,000	226,666	194,285	170,000	151,111	136,000	123,636	113,333	104,615	97,142
4—Radiation, sq. ft.	130	108	93	81	72	65	59	54	50	46

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	130	108	93	81	72	65	59	54	50	46
30	108	90	77	68	60	54	49	45	42	38
35	92	77	66	58	51	46	42	38	36	33
40	82	68	58	51	45	41	37	34	32	29
45	72	60	51	45	40	36	33	30	28	26
50	65	54	46	40	36	32	29	27	25	23
55	59	49	42	36	32	29	26	24	23	21
60	54	45	39	34	30	27	25	23	21	20
65	50	42	36	31	28	25	23	21	20	18
70	46	38	33	29	26	23	21	20	18	17
75	44	37	31	28	24	22	20	18	17	16
80	42	35	29	25	22	20	18	17	16	15
90	38	31	27	23	21	19	17	16	15	14
100	35	29	25	22	19	18	16	15	14	13

No. 9 Triumph Junior Water Heater

Heater's total potential energy, 1,154,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	4.40	3.66	3.14	2.75	2.44	2.20	2.00	1.83	1.69	1.57
3—Power per hr., B. t. u.	300,000	250,000	214,285	187,500	166,666	150,000	136,363	125,000	115,384	107,142
4—Radiation, sq. ft.	178	145	124	109	96	87	79	72	66	61

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	180	150	128	112	99	90	82	75	69	64
30	150	120	107	94	83	75	68	62	58	53
35	128	107	91	80	71	64	58	53	49	46
40	112	94	80	70	62	56	51	47	43	40
45	100	83	71	62	55	50	45	42	38	35
50	90	75	64	56	50	45	41	37	34	32
55	82	68	58	51	45	41	37	34	31	29
60	75	63	53	47	41	37	34	31	29	27
65	69	58	49	43	38	34	31	29	27	25
70	64	53	46	40	36	32	29	27	25	23
75	60	50	43	37	33	30	27	25	23	22
80	56	47	40	35	31	28	25	23	22	20
90	50	42	35	31	28	25	23	21	19	18
100	45	38	32	28	25	22	20	19	17	16

No. 1-D Triumph Laundry Water Heater

Heater's total potential energy, 1,188,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	4.12	3.57	3.03	2.64	2.33	2.11	1.94	1.78	1.65	1.57
3—Power per hr., B. t. u.	329,600	284,000	241,000	211,000	186,666	169,000	154,545	142,222	132,000	125,714
4—Radiation, sq. ft.	196	169	143	125	111	100	92	84	78	74

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	198	171	145	127	112	101	93	85	79	75
30	165	142	121	106	94	84	77	71	66	62
35	141	122	103	90	80	72	66	61	56	53
40	124	107	90	79	70	63	58	53	49	47
45	110	95	80	70	62	56	51	47	44	41
50	99	85	72	63	56	50	46	42	39	37
55	90	78	65	57	51	46	42	38	36	33
60	83	71	60	53	47	42	38	35	33	31
65	76	65	55	49	43	39	35	33	30	28
70	71	61	51	45	40	36	33	30	28	26
75	66	57	48	42	37	34	31	28	26	25
80	62	53	45	39	35	31	29	26	25	23
90	55	47	40	35	31	28	26	23	22	21
100	50	43	36	32	28	25	23	21	20	19

No. 15 Triumph Water Heater

Heater's total potential energy, 402,200 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	11.2	9.33	8.00	7.00	6.22	5.60	5.09	4.66	4.30	4.00
3—Power per hr., B. t. u.	308,440	257,200	220,457	192,650	171,244	154,220	140,200	128,433	118,554	110,114
4—Radiation, sq. ft.	456	380	325	285	254	228	207	190	175	163

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	396	328	277	242	216	194	176	162	149	138
30	330	275	231	202	180	162	147	135	125	116
35	283	235	198	173	154	139	126	116	107	99
40	247	206	173	151	135	121	110	101	93	87
45	220	183	154	135	120	108	98	90	83	77
50	198	165	139	121	108	97	88	81	75	69
55	180	150	126	110	98	88	80	73	68	63
60	165	137	116	101	90	81	73	68	62	58
65	152	126	107	93	83	75	68	62	58	53
70	141	118	99	87	77	69	63	58	53	49
75	132	110	93	81	72	65	59	54	50	46
80	124	103	87	76	68	61	55	51	47	43
90	110	92	77	67	60	54	49	45	41	38
100	99	82	69	61	54	49	44	40	37	34

No. 15D Triumph Premier Junior Water Heater

Heater's total potential energy, 1,584,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	16.4	13.9	12.2	11.0	9.9	9.0	8.3	7.7	7.2	6.8
3—Power per hr., B. t. u.	440,000	373,333	328,235	296,000	268,363	246,000	226,909	211,000	197,647	186,666
4—Radiation, sq. ft.	652	553	486	438	398	365	336	313	293	277

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	565	479	422	380	344	316	291	271	254	239
30	471	400	351	317	287	263	243	226	212	200
35	404	343	301	271	246	226	208	194	182	171
40	353	300	263	237	215	197	182	169	159	150
45	314	266	234	211	191	175	162	151	141	133
50	283	240	211	190	172	158	146	135	127	120
55	257	218	192	173	157	144	133	123	115	109
60	236	200	175	158	144	131	121	113	106	100
65	217	185	162	146	132	121	112	104	98	92
70	202	171	151	135	123	113	104	97	91	86
75	189	160	140	127	115	105	97	90	85	80
80	177	150	132	119	108	99	91	85	79	75
90	157	133	117	105	96	88	81	75	71	67
100	141	120	105	95	86	79	73	68	64	60

No. 15S Triumph Premier Junior Water Heater

Heater's total potential energy, 560,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	5.80	4.92	4.23	3.70	3.29	2.96	2.69	2.47	2.28	2.11
3—Power per hr., B. t. u.	155,555	132,000	113,571	99,375	88,333	79,500	72,272	66,250	61,153	56,785
4—Radiation, sq. ft.	230	195	168	147	131	117	107	98	90	84

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	199	169	145	127	113	101	92	84	78	72
30	166	141	121	106	94	84	77	70	65	60
35	142	121	104	91	81	72	66	60	56	51
40	125	106	91	80	71	63	58	53	49	45
45	111	94	81	71	63	56	51	47	43	40
50	100	85	73	64	57	50	46	42	39	36
55	91	77	66	58	51	46	42	38	35	33
60	83	71	61	53	47	42	38	35	32	30
65	77	65	56	49	44	39	35	32	30	28
70	71	61	52	46	41	36	33	30	28	26
75	67	57	49	43	38	34	31	28	26	25
80	63	53	46	40	36	32	29	27	25	23
90	56	47	41	35	32	28	26	24	22	21
100	50	43	37	32	29	26	23	21	20	19

No. 15Z Triumph Junior Water Heater

Heater's total potential energy, 440,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	4.55	3.86	3.33	2.91	2.58	2.33	2.11	1.94	1.79	1.66
3—Power per hr., B. t. u.	122,222	103,666	89,285	78,125	69,444	62,500	56,818	52,083	48,076	44,444
4—Radiation, sq. ft.	181	153	132	115	103	92	84	77	71	66

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	156	132	114	100	89	80	73	67	62	57
30	130	110	95	83	74	67	61	55	51	48
35	111	94	81	71	63	57	52	48	44	41
40	97	83	71	62	56	50	45	42	38	36
45	87	73	63	55	49	44	40	37	34	32
50	78	66	57	50	44	40	36	33	31	29
55	71	60	52	45	40	36	33	30	28	26
60	65	55	47	41	37	33	30	28	26	24
65	60	51	43	38	34	31	28	25	24	22
70	56	47	41	35	31	28	26	24	22	21
75	52	44	38	33	29	26	24	22	21	19
80	49	41	35	31	28	25	23	21	19	18
90	43	37	31	27	24	22	20	18	17	16
100	39	33	28	25	22	20	18	17	15	14

No. 15Y Triumph Premier Junior Water Heater

Heater's total potential energy, 616,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	6.37	5.40	4.66	4.07	3.61	3.25	2.95	2.71	2.50	2.32
3—Power per hr., B. t. u.	171,111	145,000	125,000	109,375	97,222	87,500	79,545	72,916	67,307	62,500
4—Radiation, sq. ft.	254	215	185	162	144	130	118	108	100	93

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	218	185	159	140	124	112	102	93	86	80
30	182	154	133	116	104	93	85	78	72	67
35	156	132	114	100	89	80	73	67	62	57
40	136	116	100	87	78	70	64	58	54	50
45	122	103	89	78	69	63	57	52	48	44
50	109	93	80	70	62	56	51	47	43	40
55	99	84	73	64	57	51	46	42	39	36
60	91	77	67	58	52	47	42	39	36	33
65	84	71	61	54	48	43	39	36	33	31
70	78	66	57	50	44	40	36	33	31	29
75	73	62	53	47	41	37	34	31	29	27
80	68	58	50	44	39	35	32	29	27	25
90	61	51	44	39	34	31	28	26	24	22
100	54	46	40	35	31	28	25	23	22	20

No. 20 Triumph Junior Water Heater

Heater's total potential energy, 840,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	16.00	12.22	11.42	10.00	8.89	8.00	7.27	6.66	6.15	5.71
3—Power per hr., B. t. u.	420,000	320,000	300,000	262,500	233,333	210,000	190,909	175,000	161,538	150,000
4—Radiation, sq. ft.	729	600	515	450	400	360	327	300	277	257

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	614	512	439	384	341	307	280	256	236	219
30	512	426	365	320	284	256	233	213	197	183
35	438	365	313	274	243	219	199	182	168	156
40	384	320	274	240	213	192	175	160	148	137
45	339	282	242	212	188	170	154	141	130	121
50	307	256	220	192	171	154	140	128	118	110
55	279	233	199	174	154	139	126	116	107	100
60	256	213	183	160	142	128	116	107	99	91
65	236	197	169	148	131	118	108	98	91	84
70	219	183	156	137	122	110	100	92	84	78
75	205	171	146	128	114	102	93	85	79	73
80	192	160	137	120	107	96	88	80	74	68
90	170	142	122	106	94	85	77	71	65	61
100	154	128	110	96	86	77	70	64	59	55

No. 22 Triumph Junior Water Heater

Heater's total potential energy, 784,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	14.93	11.73	10.66	9.33	8.29	7.46	6.78	6.21	5.73	5.32
3—Power per hr., B. t. u.	392,000	298,666	280,000	245,000	217,777	196,000	178,181	163,333	150,769	140,000
4—Radiation, sq. ft.	680	560	480	420	373	336	305	280	260	243

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	572	460	420	365	323	289	263	240	221	205
30	460	367	336	292	259	232	211	193	177	164
35	393	314	288	250	222	199	181	165	152	141
40	343	275	252	219	194	174	158	144	133	123
45	305	244	224	194	173	155	141	129	118	110
50	275	220	202	175	156	140	127	116	107	99
55	250	200	183	159	142	127	116	105	97	90
60	229	183	168	146	130	117	106	97	89	83
65	212	169	155	135	120	108	98	89	82	76
70	196	157	144	125	111	100	91	83	76	71
75	183	147	134	117	104	94	85	78	72	66
80	172	137	126	109	97	88	80	73	67	62
90	153	122	112	98	86	78	71	65	60	55
100	138	110	101	88	78	70	64	58	54	50

No. 25 Triumph Premier Junior Water Heater

Heater's total potential energy, 1,008,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	20.8	16.6	15.2	13.3	11.8	10.6	9.6	8.8	8.2	7.6
3—Power per hr., B. t. u.	560,000	426,666	400,000	350,000	311,111	280,000	254,545	233,333	215,384	200,000
4—Radiation, sq. ft.	971	800	686	600	533	480	436	400	369	343

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	819	655	561	491	437	393	357	328	303	281
30	655	524	449	393	349	314	286	262	242	225
35	561	449	385	337	299	269	245	225	208	193
40	491	393	337	295	262	236	214	196	181	168
45	437	349	299	262	233	209	190	175	161	150
50	393	314	269	236	209	188	171	157	145	134
55	357	286	245	214	190	171	155	143	132	122
60	328	262	225	196	174	157	143	131	121	112
65	303	242	208	181	161	145	132	121	112	104
70	281	225	193	168	150	134	122	112	104	96
75	262	209	180	157	139	126	114	105	96	89
80	246	196	168	147	130	118	107	98	90	83
90	218	174	150	131	116	105	95	87	80	74
100	197	157	135	118	105	94	86	79	72	67

No. 30 Triumph Junior Water Heater

Heater's total potential energy, 1,008,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	25.0	20.0	17.8	15.0	12.9	12.5	11.4	10.4	9.6	9.0
3—Power per hr., B. t. u.	300000	240000	214285	187500	166666	150000	136363	125000	115384	107142
4—Radiation, sq. ft.	1166	960	857	700	647	583	530	486	449	417

Capacity in U. S. Gallons per hour:

Temperature to be Produced										
25	983	800	686	600	533	480	436	400	369	343
30	800	666	571	500	444	400	363	333	307	285
35	685	571	489	428	380	342	311	285	263	244
40	600	500	428	375	333	300	272	250	230	214
45	533	444	381	333	296	267	242	222	205	190
50	480	400	342	300	267	240	218	200	184	171
55	436	363	312	272	242	218	198	181	168	156
60	400	333	285	250	222	200	181	166	153	142
65	369	308	264	231	205	184	168	154	142	132
70	342	285	245	214	190	171	155	142	131	122
75	320	267	228	200	178	160	145	133	123	114
80	300	250	215	188	167	150	136	125	115	107
90	267	222	190	167	148	133	121	111	102	95
100	240	200	171	150	133	120	109	100	92	85

No. 12 Triumph Junior Water Heater

Heater's total potential energy, 352,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	8.00	6.66	5.72	5.00	4.44	4.00	3.63	3.33	3.07	2.85
3—Power per hr., B. t. u.	214,000	178,666	153,428	134,000	119,111	107,000	97,272	89,166	82,307	76,428
4—Radiation, sq. ft.	389	332	284	249	220	199	180	166	153	142

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	329	280	240	210	187	168	154	140	129	120
30	280	238	205	179	159	143	130	119	110	102
35	239	209	177	156	139	125	114	104	96	89
40	210	179	154	134	119	107	97	89	82	76
45	186	159	136	119	106	95	86	79	73	68
50	168	143	123	107	95	86	78	71	66	61
55	153	130	112	98	87	78	71	65	60	56
60	140	119	102	89	79	71	65	59	55	51
65	129	110	95	82	73	66	60	55	50	47
70	120	102	88	76	68	61	56	51	47	44
75	112	95	82	71	63	57	52	47	44	41
80	105	89	77	67	59	53	49	44	41	38
90	93	79	68	59	53	47	43	39	36	34
100	84	71	61	53	47	43	39	35	33	31

No. 12Z Triumph Premier Junior Water Heater

Heater's total potential energy, 385,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	8.8	7.33	6.14	5.28	4.78	4.3	3.93	3.63	3.37	3.14
3—Power per hr., B. t. u.	234,000	195,000	167,142	146,250	130,000	117,000	106,363	97,500	90,000	84,000
4—Radiation, sq. ft.	425	361	310	271	242	218	199	184	170	159

Capacity in U. S. gallons per hour:

Temperature to be Produced										
25	359	306	264	231	205	185	168	154	142	132
30	306	257	220	192	171	154	140	128	118	110
35	264	223	189	167	149	134	122	112	103	96
40	231	196	167	146	130	117	106	97	90	83
45	205	174	148	130	116	104	95	87	80	74
50	185	156	134	117	104	94	85	78	72	67
55	168	142	122	107	95	85	78	71	65	61
60	154	130	112	98	87	78	71	65	60	56
65	142	120	103	90	80	72	65	60	55	51
70	132	112	96	84	74	67	61	56	51	48
75	123	104	89	78	69	62	57	52	48	45
80	115	97	84	73	65	58	53	48	45	42
90	102	87	74	65	58	52	47	43	40	37
100	92	78	67	58	51	47	42	39	36	33

No. 30Z Triumph Junior Water Heater

Heater's total potential energy, 1,100,000 British thermal units.

1—Hours	3	4	5	6	7	8	9	10	11	12
2—Hard coal, per hr., lbs.	25.0	20.8	17.8	15.6	13.8	12.5	11.4	10.4	9.6	9.0
3—Power per hr., B. t. u.	300000	240000	214285	187500	166666	150000	136363	125000	115384	107142
4—Radiation, sq. ft.	1166	960	857	700	647	583	530	486	449	417

Capacity in U. S. gallons per hour:

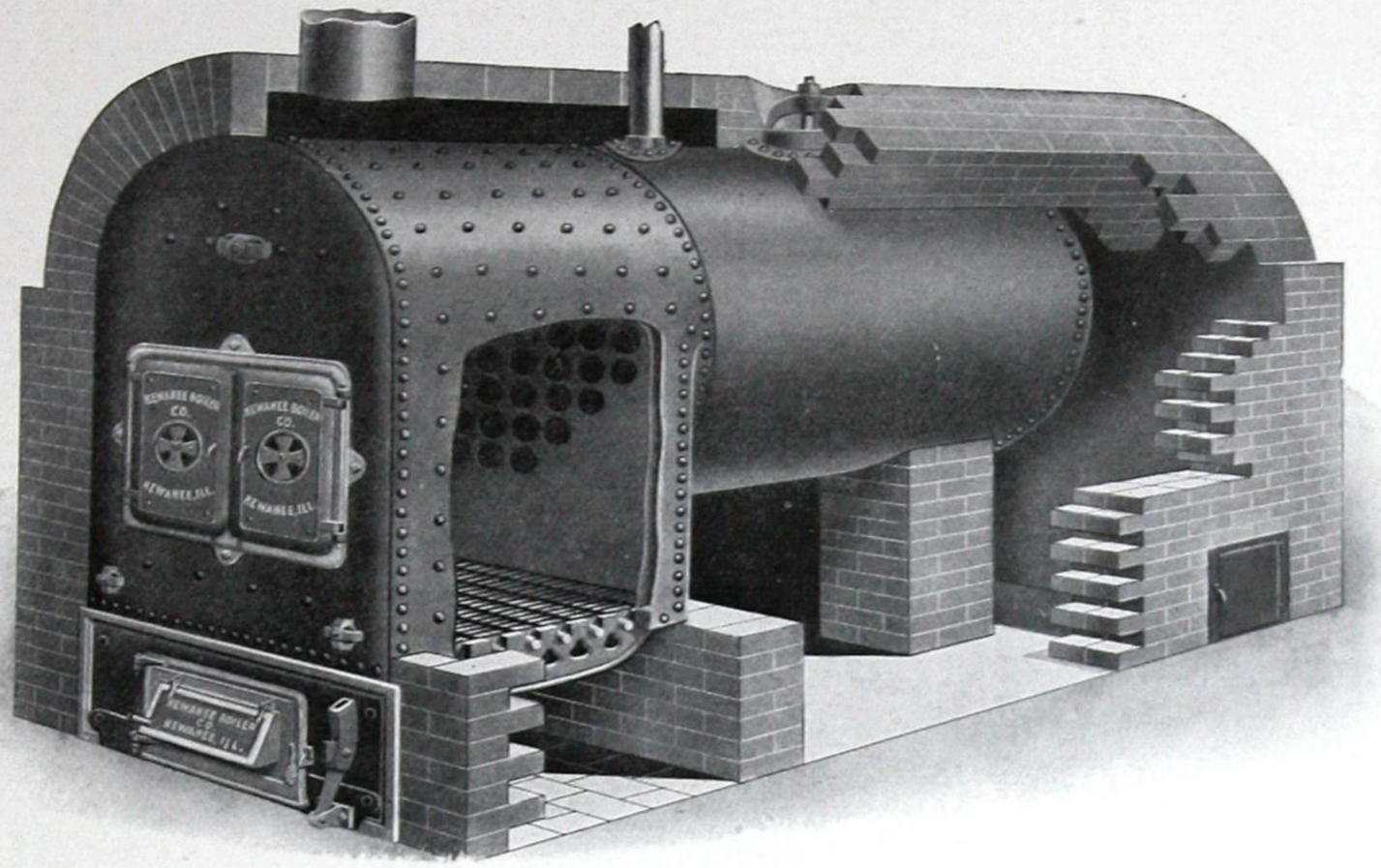
Temperature to be Produced										
25	983	800	686	600	533	480	436	400	369	343
30	800	666	571	500	444	400	363	333	307	285
35	685	571	489	428	380	342	311	285	263	244
40	600	500	428	375	333	300	272	250	230	214
45	533	444	381	333	296	267	242	222	205	190
50	480	400	342	300	267	240	218	200	184	171
55	436	363	312	272	242	218	198	181	168	156
60	400	333	285	250	222	200	181	166	153	142
65	369	308	264	231	205	184	168	154	142	132
70	342	285	245	214	190	171	155	142	131	122
75	320	267	228	200	178	160	145	133	123	114
80	300	250	215	188	167	150	136	125	115	107
90	267	222	190	167	148	133	121	111	102	95
100	240	200	171	150	133	120	109	100	92	85

No. 15Z2 Triumph Premier Junior Water Heater

Heater's total potential energy, 1,232,000 British thermal units.

| 1—Hours | 3 | 4 | 5 | 6 | 7 | 8

KEWANEE FIREBOX BOILERS.



An illustration of the boiler erected with a portion of brickwork removed.

SPECIFICATIONS AND PRICE LIST KEWANEE FIREBOX BOILERS.

FOR STEAM AND WATER HEATING.

Number	00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Capacity, Steam...square feet	500	700	900	1000	1200	1400	1700	2000	2200	2500	3000	3500	4000	4500	5200	6200	7000	8500	9500	10500	11500	13000
Capacity, Water...square feet	800	1100	1500	1600	2000	2300	2800	3300	3600	4100	4900	5700	6500	7300	8500	10100	11400	14000	15500	17100	18700	21200
Code, Steam Boiler Complete.	Dandy	Date	Dagon	Daft	Daub	Dawn	Dairy	Damp	Dark	Dash	Data	Dated	Dead	Dear	Debut	Defer	Devil	Deist	Delve	Demit	Dense	Dart
Code, Water Boiler Complete.	Deal	Deny	Dirty	Deter	Dingy	Dirge	Darn	Debar	Dish	Drill	Draft	Dregs	Drink	Debit	Decay	Dusk	Decot	Decry	Deflux	Delta	Demon	Dental
Price, Steam Boiler, Castings and Tools	$255	$270	$285	$300	$320	$375	$400	$435	$460	$510	$560	$630	$680	$735	$860	$935	$1200	$1310	$1500	$1600	$1800	$2000
Steam Trimmings	18	18	18	18	19	19	19	19	23	23	23	23	23	28	28	28	40	40	40	40	44	44
Price, Water Boiler, Castings and Tools	$265	$280	$295	$310	$330	$390	$415	$450	$475	$525	$575	$645	$695	$755	$880	$955	$1225	$1335	$1530	$1630	$1840	$2040
Approximate Weight...pounds	1800	2200	2700	2900	3200	3700	4200	4600	4800	5400	5900	6800	7400	8100	10300	11500	14200	15600	17000	18600	19800	21600

EXTRAS AND CHANGES—ADD TO ABOVE LIST.

For longer Shell, each foot or fraction of a foot	$11	$11	$15	$15	$15	$19	$19	$19	$23	$23	$23	$32	$32	$32	$40	$40	$50	$50	$60	$60	$70	$70
For longer Firebox, including Grate, each six inches	$15	$15	$20	$20	$20	$25	$25	$25	$30	$30	$30	$40	$40	$40	$45	$45	$55	$55	$65	$65	$80	$80
Wrought iron space rings and extra stays and braces for 100 pounds working pressure	$30	$30	$33	$33	$34	$36	$37	$38	$42	$45	$47	$50	$52	$53	$66	$71	$80	$85	$90	$95	$105	$110
Rear flue Clean-out Doors and frame	$12	$12	$12	$12	$12	$16	$16	$16	$18	$18	$18	$22	$22	$22	$26	$26	$32	$32	$38	$38	$46	$46

Openings in firebox for coil, $4.00 list per Boiler.

In regular Boilers all space rings or frames are made of semi-steel, which is much stronger than cast iron.

CONTINUED ON NEXT PAGE

ADDITIONAL SPECIFICATIONS KEWANEE FIREBOX BOILERS.

Number	00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Diameter Boiler....inches	24	24	30	30	30	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length Boiler over all....feet	5½	7½	6½	7½	8½	7½	9	10½	8½	10	11½	10½	12	13½	14	16½	15½	18	16	18	16	18
Width of Firebox....inches	19	19	24	24	24	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Firebox....inches	20	26	26	32	38	32	38	44	38	44	50	44	50	56	56	62	62	68	62	68	68	74
Height of Firebox....inches	30	30	35	35	35	41	41	41	43	43	43	47	47	47	49	49	54	54	59	59	64	64
Heating Surface....square feet	74	98	116	131	145	190	224	260	257	299	344	390	442	495	585	700	733	862	971	1097	1167	1325
Square Feet of Steam Capacity as rated for each square foot of heating surface.....	6.8	7.1	7.7	7.6	8.2	7.3	7.6	7.7	8.5	8.3	8.7	8.9	9.0	9.0	8.9	8.8	9.5	9.8	9.8	9.5	9.8	9.8
Area of Grate....square feet	2.6	3.4	4.3	5.3	6.3	6.7	8.0	9.2	9.5	11.0	12.5	12.8	14.6	16.3	18.7	20.6	22.8	25.0	25.4	28.0	30.7	33.4
Square Feet of Heating Surface for each square foot of grate.	28	29	27	25	23	28	28	28	27	27	28	30	30	30	31	34	32	34	38	39	38	40
Diameter of Breeching..inches	10	10	12	14	16	16	18	18	20	20	22	22	24	24	28	28	32	32	32	32	36	36
Diameter of Stack....inches	10	10	12	12	14	14	16	16	18	18	20	20	22	22	26	26	30	30	30	30	34	34
Minimum Height of Stack.feet	40	40	40	40	40	40	40	45	45	45	45	45	50	50	50	50	55	55	60	60	60	60
Diameter of Stack for 2 Boilers ....inches	.....	.....	.....	.....	.....	.....	.....	.....	24	26	28	28	30	32	34	34	36	36	36	38	40	42
Minimum Height of Stack for 2 Boilers....feet	.....	.....	.....	.....	.....	.....	.....	.....	50	50	50	50	50	50	55	60	60	70	70	70	70	70
Size of Steam Opening (one) in.	2½	2½	3	3	4	4	4	4	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Size of Return (one)....inches	2	2	2½	2½	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve....inches	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water.....inches	1-4	1-4	1-6	1-6	1-6	1-6	1-6	1-6	2-5	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10
Height of Water Line...inches	48	48	53	53	53	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80	85	85
Height from Floor to Top of Brick Work.....inches	64	64	70	70	70	77	77	77	83	83	83	90	90	90	96	96	108	108	114	114	120	120

Boilers No. 15 and larger have two single Fire-Doors, and are made with Clinker Doors.

RATINGS.

The rates capacity of "KEWANEE" Firebox Boilers, as printed in this advertisement, is the number of square feet of direct radiating surface for which the boilers will provide, if the radiators installed are ample to heat the building.

The boilers will positively do what they are rated to do.

The tables are based on a standard for steam of 2 pounds pressure at the boiler, and for water on a mean temperature of 180 degrees Fahrenheit as the water leaves the boiler.

SPECIFICATIONS AND PRICE LIST KEWANEE SMOKELESS FIREBOX BOILERS.

FOR STEAM AND WATER HEATING.

Number	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Capacity, Steam....square feet	1600	1900	2200	2500	2900	3300	3800	4400	5000	5800	7000	8200	9500	10500	12000	13000	15000
Capacity, Water....square feet	2600	3100	3600	4100	4700	5300	6200	7200	8200	9500	11400	13400	15500	17000	19600	21000	24500
Code, Steam Boiler complete...	Heal	Heap	Hear	Heck	Heed	Help	Hern	Hen	Henna	Herd	Herf	Herp	Herg	Hero	Herod	Heron	Hery
Code, Water Boiler complete...	Hide	Hie	Hill	Hind	Hinge	Hint	Hip	Hire	Hisk	Hiss	Hit	Hitch	Hive	Hiz	Hilt	Hing	Hick
Price, Steam Boiler, with Castings and Tools.....	$590	$620	$654	$710	$770	$840	$940	$1000	$1064	$1300	$1400	$1700	$1850	$2050	$2260	$2550	$2800
Steam Trimmings.....	20	20	20	24	24	24	24	24	30	30	30	40	40	40	40	44	44
Price, Water Boiler, with Castings and Tools.....	$605	$635	$670	$725	$785	$855	$955	$1015	$1084	$1320	$1420	$1725	$1875	$2080	$2290	$2590	$2840
Approximate Weight....pounds	4800	5200	5700	6100	6700	7200	8400	9100	9800	12300	13600	16000	17400	19400	21000	22400	24300

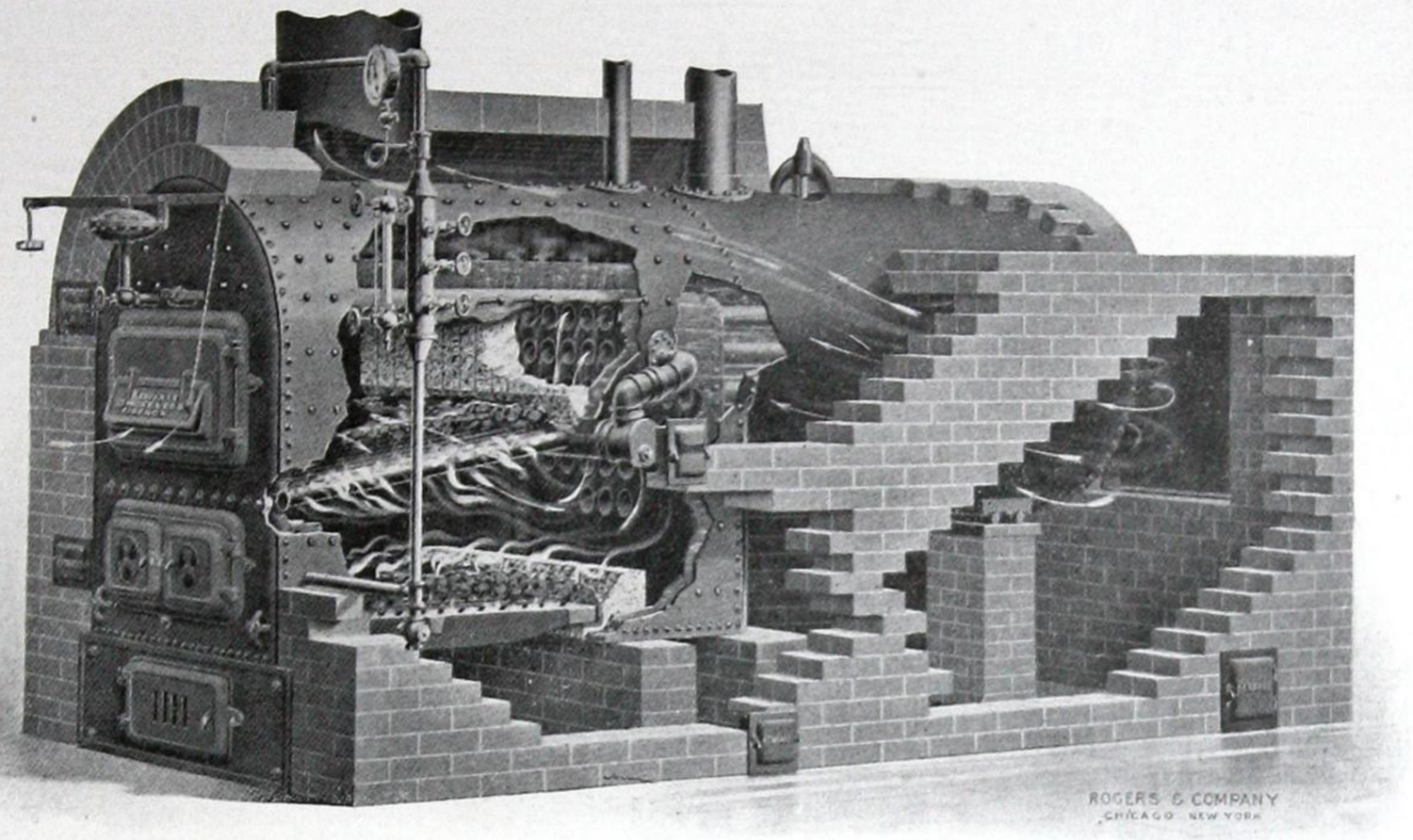
EXTRAS AND CHANGES—ADD TO ABOVE LIST.

For Longer Shell, each foot or fraction of a foot.....	$19	$19	$19	$23	$23	$23	$32	$32	$32	$40	$40	$50	$50	$60	$60	$70	$70
Wrought Iron Space Rings and extra stays and braces for 100 pounds Working Pressure	$68	$70	$72	$78	Regular boilers larger than No. 114 made with wrought iron mud rings. $82	$86	$92	$96	$100	$115	$125	$90	$100	$105	$115	$125	$135

Openings in firebox for coil, $4.00 list per Boiler.

CONTINUED ON NEXT

KEWANEE SMOKELESS FIREBOX BOILERS

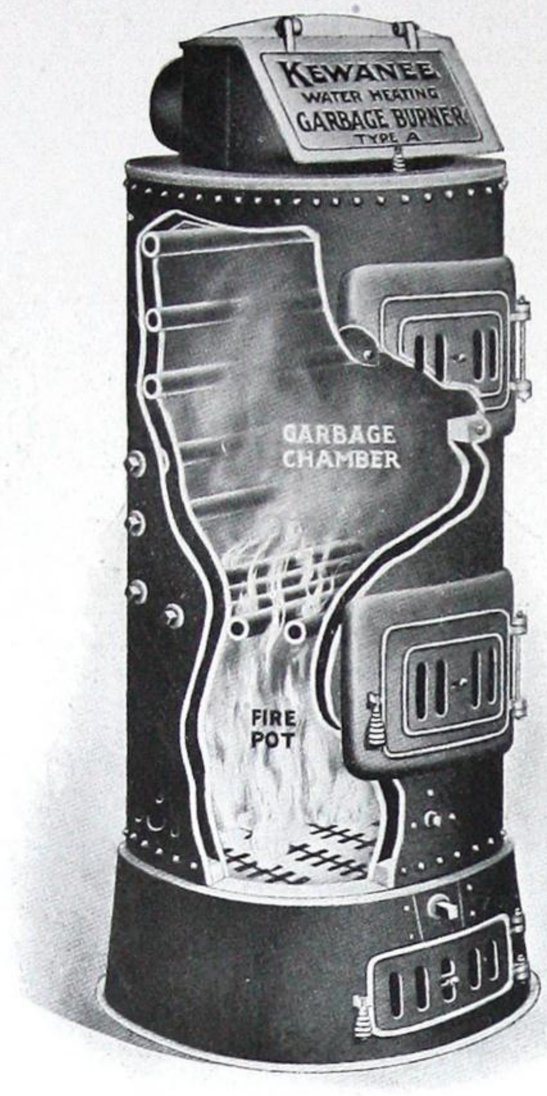


ADDITIONAL SPECIFICATIONS KEWANEE SMOKELESS FIREBOX BOILERS.

Number	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Diameter Boiler....inches	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length, Boiler, over all....feet, inches	8-7	10-2	11-7	9-10	11-4	12-11	12-4	13-10	15-4	15-10	18-4	17-10	20-4	18-4	20-4	18-4	20-4
Width of Firebox....inches	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Firebox....inches	45	51	57	54	60	66	66	72	78	78	84	90	96	90	96	96	102
Heating Surface....square feet	182	213	249	252	291	335	387	449	492	580	692	735	862	968	1092	1155	1310
Square Feet of Steam Capacity as rated for each square foot of heating surface....	8.8	8.9	8.8	9.9	9.9	9.9	9.8	9.8	10.0	10.0	10.1	11.1	11.0	10.8	11.0	11.2	11.4
Area of Upper Grate..square feet	5.8	7.1	8.3	8.5	10.0	11.3	11.7	13.1	14.9	17.0	19.0	21.0	23.2	23.4	25.8	28.4	31.1
Square Feet of Heating Surface for each square foot of grate.	31	30	30	30	29	30	33	34	33	34	36	35	37	41	42	40	42
Diameter of Breeching...inches	20	20	22	22	22	24	24	27	27	30	30	34	34	36	36	38	38
Diameter of Stack....inches	18	18	20	20	20	22	22	24	24	28	28	32	32	34	34	36	36
Minimum Height of Stack..feet	40	40	40	50	50	50	50	55	55	60	60	60	60	70	70	70	70
Diameter of Stack for two Boilers....inches	..	..	..	26	28	30	30	32	32	34	36	38	38	40	42	44	46
Minimum Height of Stack for two Boilers....feet	..	..	..	60	60	60	60	60	60	70	70	70	75	75	80	80	80
Size of Steam Opening (one)....inches	4	4	4	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Size of Return (one)....inches	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve....inches	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water....inches	2-5	2-5	2-6	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10	2-10
Height of Water Line....inches	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80	86	86
Height from Floor to Top of Brick Work....inches	76	76	76	82	82	82	89	89	89	95	95	107	107	113	113	119	119

CONTINUED ON NEXT PAGE

KEWANEE GARBAGE-BURNERS.



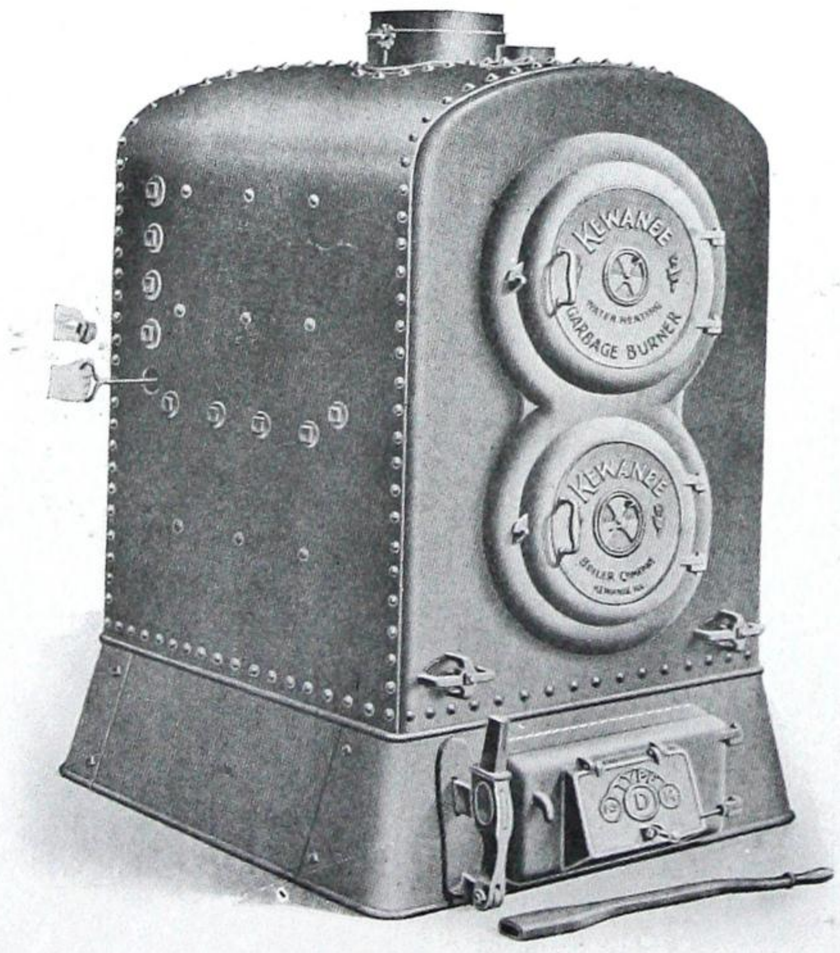
Copyright, 1911, by Kewanee Boiler Co.
Patented—Jan. 3, 1905; Dec. 12, 1905; Oct. 19, 1909; Aug. 16, 1910.
THE KEWANEE WATER-HEATING GARBAGE-BURNER.
TYPE A.

TABLE OF DIMENSIONS AND PRICE LIST.

TYPE A.

The following prices include *brass clean-out plugs and fire-tools.*

Number	30	31	32
Cipher	Gay	Gaze	Gear
Number of Gallons it will raise 50° per hour	200	400	550
Number of Apartments it will supply	2 to 3	3 to 6	6 to 12
Height over all ..... inches	58	64	64
Height to Bottom of Garbage-Door ..... inches	45	57	57
Size of Garbage-Door ..... inches	10 x 14	12 x 18	12 x 18
Size of Fire-Door ..... inches	7 x 9	7 x 9	7 x 9
Diameter of Grates ..... inches	12	16	20
Diameter of Heater ..... inches	17	21	25
Number and Size Flow Openings ..... inches	2—1½	2—2	2—2
Number and Size Return Openings ..... inches	2—1½	2—2	2—2
Diameter Smoke Outlet ..... inches	6	8	8
Diameter Floor Space ..... inches	22	25	30
Shipping Weight ..... pounds	700	900	1100
List Price	$128	$154	$200



Copyright, 1911, by Kewanee Boiler Co.
Patented—Jan. 3, 1905; Dec. 12, 1905; Oct. 19, 1909; Aug. 16, 1910.
THE KEWANEE WATER-HEATING GARBAGE-BURNER.
TYPE D.

TABLE OF DIMENSIONS AND PRICE LIST.

TYPE D.

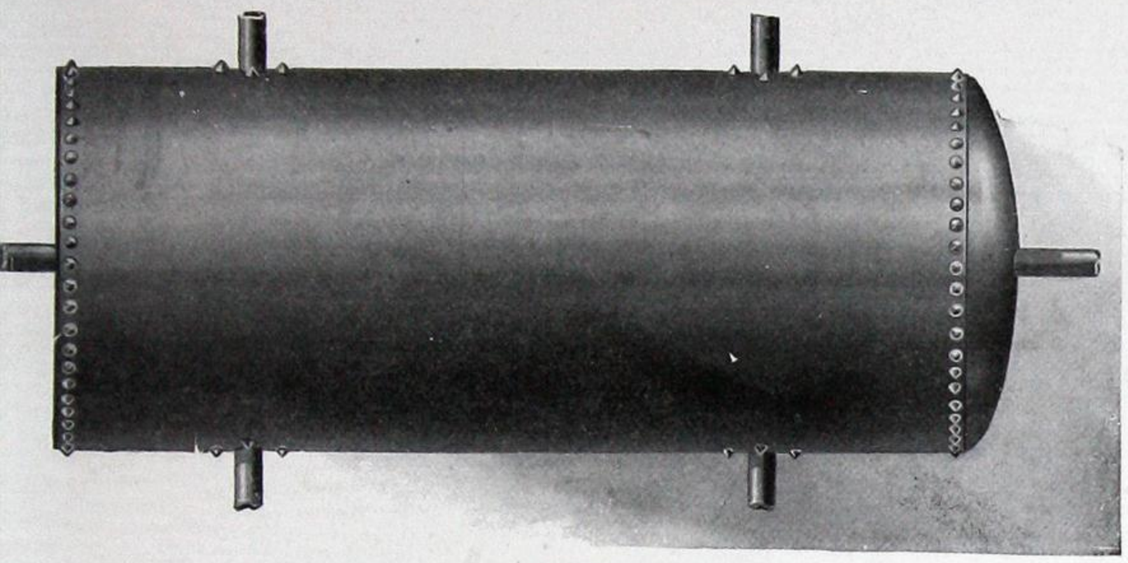
The following prices include *brass clean-out plugs and fire tools.*

Number	33	34	35	36	37	38	39	40
Cipher	Gag	Gain	Gale	Gamy	Gang	Gap	Garb	Gash
Approximate Number of Apartments it will supply	2 to 4	3 to 6	6 to 9	9 to 15	15 to 22	22 to 30	30 to 36	36 and larger
Number of Gallons it will raise 50° per hour	400	500	600	750	1,000	1,200	1,400	1,600
Height over all ..... inches	56	56	56	56	56	56	56	56
Height to Bottom of Garbage-Door. inches	33	33	33	33	33	33	33	33
Size of Garbage-Door (diameter) ... inches	12 x 14	14 x 16	14 x 16	16	16	16	16	16
Size of Fire-Door (diameter) ..... inches	12	14	14	14	14	14	14	14
Width of Grates ..... inches	16	18	18	24	24	24	30	30
Length of Grates ..... inches	16	18	24	24	30	36	42	48
Size and Number, Flow ..... inches	1—2	1—2	1—2	1—2½	1—2½	1—2½	1—3	1—3
Size and Number, Return ..... inches	1—2	1—2	1—2	1—2½	1—2½	1—2½	1—3	1—3
Width of Heater ..... inches	22	24	24	30	30	30	36	36
Length of Heater ..... inches	22	24	30	30	36	42	48	54
Size of Smoke Outlet (diameter) .... inches	8	9	9	10	10	10	12	12
Floor Space Occupied ..... inches	27 x 27	29 x 29	29 x 35	35 x 35	35 x 41	35 x 47	41 x 53	41 x 59
Shipping Weight ..... pounds	1,000	1,230	1,500	1,800	2,040	2,240	2,700	3,000
List Price	$180	$214	$244	$274	$318	$350	$396	$440

CONTINUED ON NEXT

STANDARD TABASCO TANKS.

Tested to 100 pounds hydrostatic pressure, and for use where water-working pressure does not exceed 65 pounds. Regularly made with openings so that they may be used horizontally or vertically. Manholes, handholes, and coils furnished only when specially ordered. We recommend that tanks containing coils be made with a manhole.



PRICE LIST AND SPECIFICATIONS.

Nominal Capacity Gallons	Diameter Inches	Length Feet	Approximate Weight Pounds	Size Openings Inches	Price Tanks: Plain	Price Tanks: Galvanized	Regular Coils Built in Tank: Size Coil in Horizontal Tank Inches	Price Coils: Plain	Price Coils: Galvanized	Price Coils: Brass or Copper
66	20	4	250	1½	$ 43.00	$ 57.00	4 pipes 1 in.	$12.00	$15.00	Prices on application.
85	20	5	290	1½	45.00	61.00	4 " 1 "	12.00	15.00	
100	24	4	300	1½	47.00	64.00	4 " 1¼ "	14.00	17.00	
120	24	5	350	1½	50.00	69.00	4 " 1¼ "	14.00	17.00	
140	24	6	400	1½	52.00	74.00	4 " 1¼ "	16.00	19.00	
150	30	4	420	2	55.00	79.00	4 " 1¼ "	14.00	17.00	
180	30	5	480	2	60.00	90.00	4 " 1¼ "	14.00	17.00	
220	30	6	540	2	64.00	97.00	4 " 1¼ "	16.00	19.00	
250	30	7	600	2	70.00	106.00	4 " 1¼ "	18.00	21.00	
295	30	8	660	2	77.00	117.00	4 " 1¼ "	20.00	23.00	
315	36	6	740	2	82.00	126.00	4 " 1½ "	20.00	23.00	
365	36	7	820	2	90.00	139.00	4 " 1½ "	22.00	25.00	
420	36	8	900	2	96.00	150.00	4 " 1½ "	24.00	28.00	
525	36	10	1060	2	106.00	170.00	4 " 1½ "	28.00	32.00	
430	42	6	890	2	102.00	.....	4 " 1½ "	20.00	23.00	
500	42	7	1000	2	110.00	.....	4 " 1½ "	22.00	25.00	
575	42	8	1080	2	116.00	.....	4 " 1½ "	24.00	28.00	
720	42	10	1260	2	128.00	.....	4 " 1½ "	28.00	32.00	
865	42	12	1450	2	140.00	.....	4 " 1½ "	32.00	36.00	
1000	42	14	1650	2	156.00	.....	4 " 1½ "	36.00	40.00	

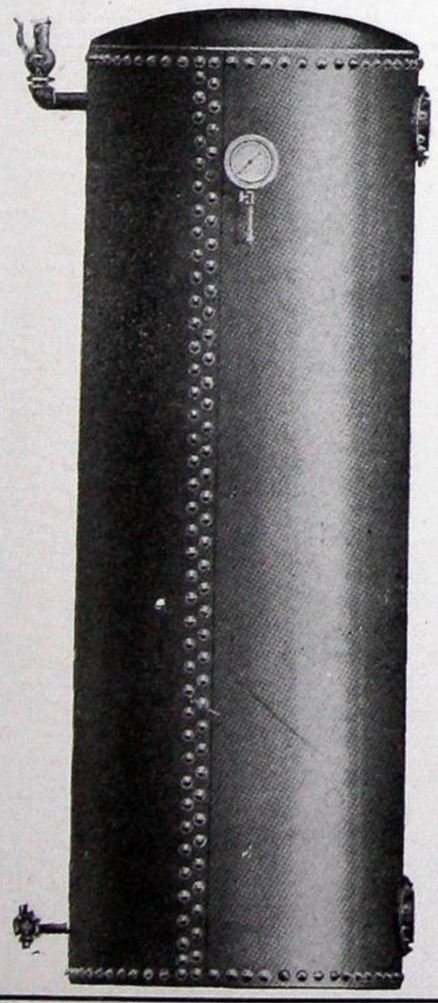
Flanged openings add to list for each opening: 2-inch, or 2½-inch, $5.00. 3-inch, or 3½-inch, $6.00. 4-inch, $7.00. Manhole in head, $15.00; in shell, $25.00. Manhole in head or shell, $5.00.

HEAVY CAST IRON STANDS FOR VERTICAL TANKS.

Diameter of Tank	20	24	30	36	42
Price Stand	$8.00	$10.00	$15.00	$17.00	$20.00

KEWANEE AIR RECEIVERS.

We use steel of 60,000 pounds tensile strength in the shell and heads of all Air Receivers. Shell seams are lap joint, double-riveted; circular seams single-riveted. Heads are dished to a radius equal to the diameter of the shell, making an exceptionally strong receiver, which is tested to 175 pounds hydrostatic pressure, and insures it being safe and tight under 115 pounds working pressure. Receivers larger in diameter than 36 inches are regularly made with a manhole.

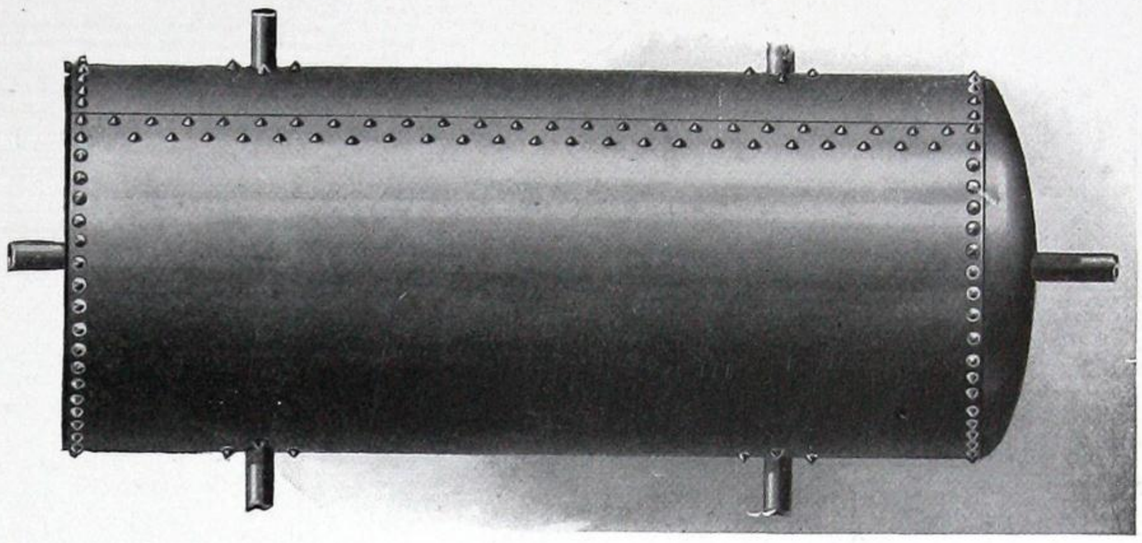


DIMENSIONS OF COMMON SIZES

Diameter, Inches	Length, Feet	Thickness Shell, Inches	Thickness Heads, Inches	Size Safety-Valve Tapping, Inches	Weight, Pounds	Price
30	6	3-16	3-8	1½	650	$ 76.00
30	8	3-16	3-8	1½	800	87.00
36	6	¼	3-8	1½	1000	96.00
36	8	¼	3-8	1½	1200	110.00
36	10	¼	3-8	1½	1450	125.00
42	6	¼	7-16	2	1450	127.00
42	8	¼	7-16	2	1700	153.00
42	10	¼	7-16	2	2000	169.00
48	12	¼	7-16	2½	2650	220.00
48	14	¼	6-16	2½	2950	240.00
48	16	¼	7-16	2½	3250	260.00

EXTRA HEAVY TABASCO TANKS.

Tested to 150 pounds hydrostatic pressure, and for use where water-working pressure does not exceed 100 pounds, otherwise arranged the same as Standard tanks listed on opposite page. For greater pressure, prices and specifications will be submitted on application.



PRICE LIST AND SPECIFICATIONS.

Nominal Capacity Gallons	Diameter Inches	Length Feet	Thickness Shell Inches	Thickness Convex Head Inches	Thickness Concave Head Inches	Approximate Weight Pounds	Size Openings Inches	Price	Coils Built in Tank
120	24	5	3-16	5-16	5-16	400	1½	$ 58.00	Same specifications and prices shown on opposite table for Standard Tanks.
140	24	6	3-16	5-16	5-16	460	1½	62.00	
180	30	5	3-16	5-16	3-8	560	2	69.00	
220	30	6	3-16	5-16	3-8	640	2	73.00	
250	30	7	3-16	6-16	3-8	700	2	82.00	
295	30	8	3-16	5-16	3-8	770	2	87.00	
315	36	6	¼	5-16	3-8	900	2	95.00	
365	36	7	¼	5-16	3-8	1080	2	104.00	
420	36	8	¼	5-16	3-8	1180	2	112.00	
525	36	10	¼	5-16	3-8	1400	2	129.00	
430	42	6	¼	3-8	7-16	1230	2	113.00	
500	42	7	¼	3-8	7-16	1350	2	124.00	
575	42	8	¼	3-8	7-16	1480	2	135.00	
720	42	10	¼	3-8	7-16	1750	2	153.00	
865	42	12	¼	3-8	7-16	2000	2	171.00	
1000	42	14	¼	3-8	7-16	2250	2	191.00	
750	48	8	¼	3-8	7-16	1800	3	168.00	
940	48	10	¼	3-8	7-16	2100	3	188.00	
1130	48	12	¼	3-8	7-16	2400	3	209.00	
1300	48	14	¼	3-8	7-16	2700	3	230.00	

For extra price of flanged openings, manholes, handholes, and stands, see bottom of opposite table.

Prices on larger tanks on application.

PRESSURE AND STORAGE TANKS.

FOR OIL, WATER, ETC.

We do not attempt to give all of the different styles and sizes of tanks in the following list. These tanks can be built for all purposes and pressures, and of any size. In making inquiry for prices and specifications, always give the purpose for which the tank is to be used, the pressure to be carried, and the number of gallons capacity. Tanks listed below are for pressures up to 100 pounds.



Size Tanks In.	Ft.	Thickness Shell Inches	Thickness Head Inches	Weight Pounds	Capacity Gallons	Size Tanks In.	Ft.	Thickness Shell Inches	Thickness Head Inches	Weight Pounds	Capacity Gallons
48 x	8	¼	7-16	1700	750	60 x	28	5-16	7-16	7800	4090
48 x	10	¼	7-16	2000	940	60 x	32	5-16	7-16	8700	4670
48 x	12	¼	7-16	2300	1130	60 x	36	5-16	7-16	9800	5260
48 x	14	¼	7-16	2600	1300	72 x	20	5-16	½	7400	4240
48 x	16	¼	7-16	2900	1500	72 x	24	5-16	½	8500	5090
48 x	18	¼	7-16	3200	1700	72 x	28	5-16	½	9700	5940
48 x	20	¼	7-16	3500	1880	72 x	32	5-16	½	10800	6780
48 x	24	¼	7-16	4100	2260	72 x	36	5-16	½	11900	7630
54 x	12	5-16	7-16	3500	1420	84 x	20	5-16	½	9200	5760
54 x	14	5-16	7-16	3900	1660	84 x	24	5-16	½	10500	6910
54 x	16	5-16	7-16	4300	1890	84 x	28	5-16	½	11800	8070
54 x	18	5-16	7-16	4700	2130	84 x	32	5-16	½	13200	9220
54 x	20	5-16	7-16	5200	2360	84 x	36	5-16	½	14500	10370
54 x	24	5-16	7-16	6000	2840	96 x	24	3-8	5-8	14600	9000
60 x	20	5-16	7-16	5900	2920	96 x	30	3-8	5-8	17200	11250
60 x	24	5-16	7-16	6900	3470	96 x	36	3-8	5-8	20000	13500

Manholes and flanges can be located where desired.

PEASE FOUNDRY COMPANY, LIMITED

MANUFACTURERS OF
"ECONOMY" HEATERS.

GENERAL OFFICES, 118 KING STREET EAST,
TORONTO, CANADA.

AGENCIES:
PEASE WESTERN FOUNDRY, LIMITED, WINNIPEG. PEASE PACIFIC FOUNDRY, LIMITED, VANCOUVER.
PEASE FOUNDRY CO., LIMITED, HAMILTON.

PRODUCTS. HOT WATER AND STEAM BOILERS, COMBINATION HEATERS, HEATERS AND VENTILATORS FOR PUBLIC BUILDINGS, WARM AIR FURNACES, REGISTERS, VENTILATORS, ETC.

PEASE "ECONOMY" STEAM HEATER AND VENTILATOR.

For installation in Schools, Churches, Halls, or wherever it is desired to heat with direct low-pressure steam, and at the same time introduce large volumes of fresh tempered air for ventilation.

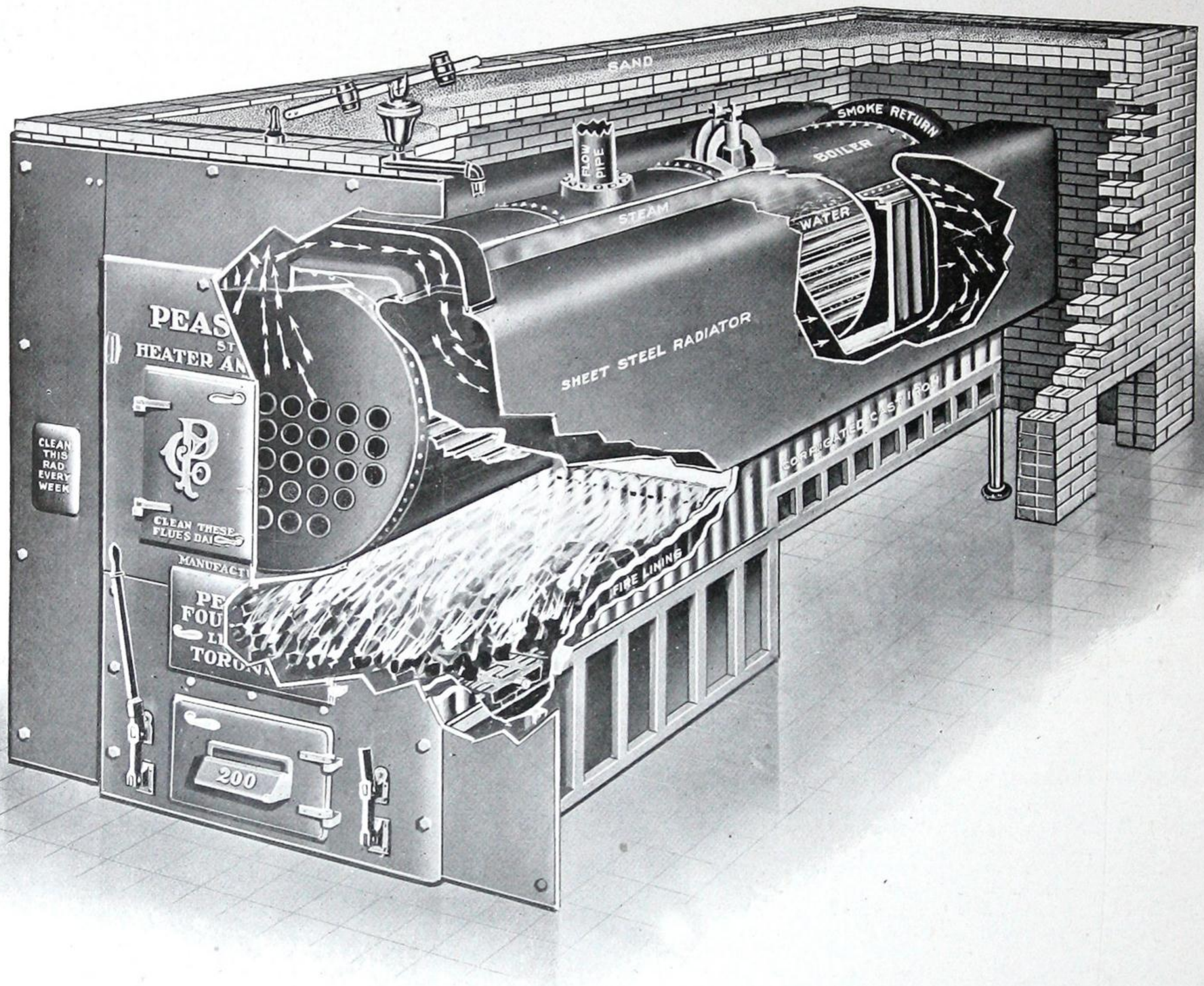


Illustration showing fire travel and details of construction.

WHAT IT IS. This heater is used in connection with low-pressure gravity single-pipe circuit or with two-pipe steam systems. With it rooms, assembly halls, corridors, etc., are heated by direct steam and at the same time sufficient tempered air is provided for ventilating purposes. This does away entirely with the use of indirect steam radiators and means the saving of at least 33⅓ per cent. in fuel bills, as all of the indirect work is taken care of by surfaces heated with units that are wasted in the boiler room or through the smoke flue in standard boiler construction. It is designed for use in connection with gravity system of heating and ventilation, but is constructed so as to permit of installation in conjunction with a steel plate blower to promote forced circulation of air, vacuum system, thermostatic control devices, etc.

DETAILS OF CONSTRUCTION. The low parts of heater are all cast iron, the sides of the fire-box being corrugated and fitted with heavy linings so constructed as to feed hot air into the fire on all sides of, as well as above, the burning fuel, thereby insuring perfect combustion. An oscillating and dumping grate that actually sifts its own ashes is an important feature. A horizontal tubular boiler, tested to 100 lbs. pressure, constructed to meet our special requirements, and built to conform with the latest patterns of low-pressure steam boilers, is suspended immediately above the fire-box in such a way as to expose at least two-thirds of its circumference to the direct rays of the heat. The shell of this boiler is made of the best ¼-inch boiler plate, and the heads of ⅜-inch boiler plate. Tempered air for ventilation is provided by two steel radiators with cast iron smoke connections on each end, which extend along the entire length of the heater on both sides. The fire travel is first to the rear, under the boiler, then back to the front through boiler tubes, then the smoke and heat units divide and pass into the radiators on either side of the boiler, which transmit the heat into the surrounding air currents, but conduct the smoke to the chimney flue at the rear of the heater.

RESULTS. Since this heater was placed on the market some ten years ago, it has done excellent work in a large number of localities both in Ontario and in the West. We will be pleased to mail on request reports received from numerous School Boards and others giving valuable information about fuel consumption, heat distribution and ventilation.

HEATING PLANS. Owing to the special construction of heaters, we do not issue tables of capacities, but we are always prepared on short notice to furnish, for the consideration of architects, heating plans and specifications. Engineering Departments are maintained in our Toronto and Winnipeg offices for this purpose.

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"ECONOMY" HOT WATER BOILER.

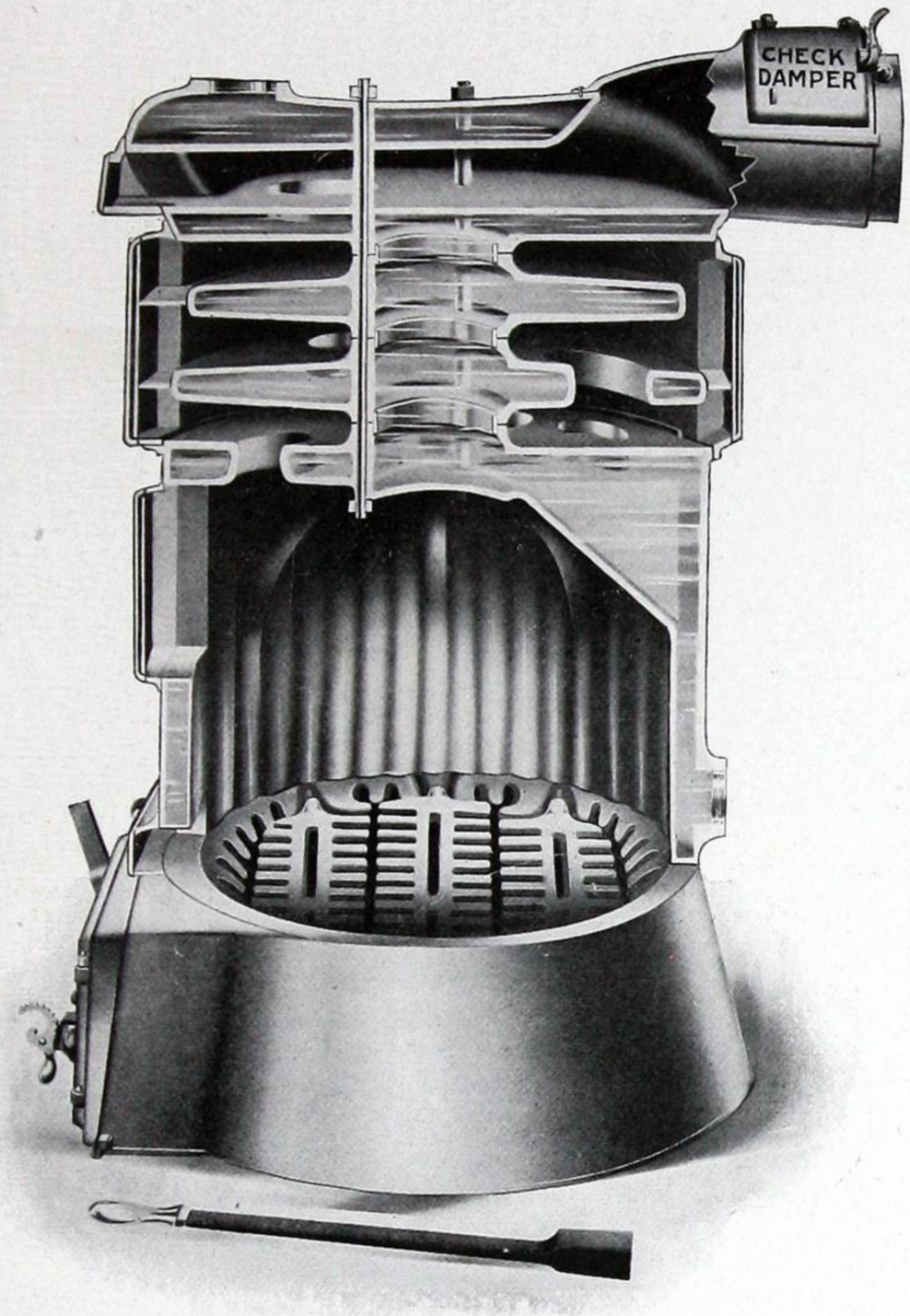


ILLUSTRATION WITH TWO INTERMEDIATE SECTIONS; SECTIONAL VIEW SHOWING GRATES, DEEP CORRUGATED FIREPOT, CENTRE WATERWAY AND FIRE TRAVEL.

SPECIAL FEATURES.

Water ways are correctly proportioned for free, rapid circulation.

Fire and flue surfaces are backed by water, and so arranged that heat rays will impinge upon every inch of their area.

They have deep corrugated firepots with overhanging fire surfaces.

The fire and ashpit doors are large, simplifying the adding of fresh fuel and the removal of ashes.

Flue doors are placed to the front and rear of flue surfaces to permit of cleaning.

Convenient butterfly check and draft dampers add to ease in regulating fires.

The rocking and dumping grates are simple and effective and cannot be forced out of position.

The water column is in the centre of the sections and insures of free, rapid circulation.

All joints are made with push nipples, and, being iron to iron, they are absolutely water-tight (no rubber packing being required).

DIMENSIONS, LIST PRICES, ETC.

Number.	Diam. Base, Inches.	Height Firepot, Inches.	Diam. Dome, Inches.	Diam. Grate, Inches.	Number and Size Inlets.	Number and Size Outlets.	Height Outlets, Low Base, without Headers, Inches.	Height Outlets High Base, without Headers, Inches.	Size Smoke Pipe, Inches.	Size of Coal.	Net Rating, Sq. Ft., not Includ'g Mains	List Price, Low Base.	List Price, High Base.	Compares Standard Nos.
N-151-W	23	23	23	15	3-2	3-1½	43	49¼	6	Stove	167	$ 88 00	$ 94 00	0
N-152-W	23	23	23	15	3-2	3-1½	47	53¼	6	Stove	233	105 00	111 00	1
N-173-W	25¾	24	25¾	17	3-2	3-2	53⅛	60	7	Stove	333	140 00	147 00	2
N-193-W	27	24½	27	19	3-2½	3-2½	53¼	60½	8	Stove	500	160 00	170 00	3
N-222-W	30⅞	25½	30⅞	22	3-3	3-3	51⅝	59¾	9	Stove	570	180 00	190 00	3½
N-223-W	30⅞	25½	30⅞	22	3-3	3-3	55⅝	63¾	9	Stove	667	200 00	215 00	4
N-253-W	33⅞	26½	33⅞	25	3-3	3-3	56⅛	64⅞	10	Stove	833	240 00	260 00	5
N-282-W	37⅝	28	37⅝	28	3-4	3-4	52⅜	61⅜	11	Egg	1000	270 00	290 00	6
N-283-W	37⅝	28	37⅝	28	3-4	3-4	56¾	65¾	11	Egg	1250	335 00	360 00	6½
N-312-W	40	29½	40	31	3-4	3-4	52⅝	62⅛	12	Egg	1500	392 00	420 00	7
N-313-W	40	29½	40	31	3-4	3-4	57¼	66¾	12	Egg	1750	425 00	453 00	7½
N-343-W	42	31	43½	34	3-5	3-5	57⅞	68	13	Egg	2000	475 00	505 00	8

We furnish headers with all sizes of these boilers when desired, but do not recommend their use.

TWIN CONNECTIONS.

LIST PRICE, INCLUDING VALVES.

No. 4, $110.00; No. 5 to No. 6, $135.00; No. 6½, $175.00; No. 7, $190.00; No. 8, $230.00.

Net Allowance for each Valve (when not required).

No. 4, $4.00; No. 5 to No. 6, $5.00; No. 6½, $5.75; No. 7, $6.25; No. 8, $7.50.

No allowance made for ordinary headers.

DOMESTIC WATER HEATERS.

Small Size.....$2.00 Large Size.....$3.75

"ECONOMY" ROUND BOILER FOR STEAM.

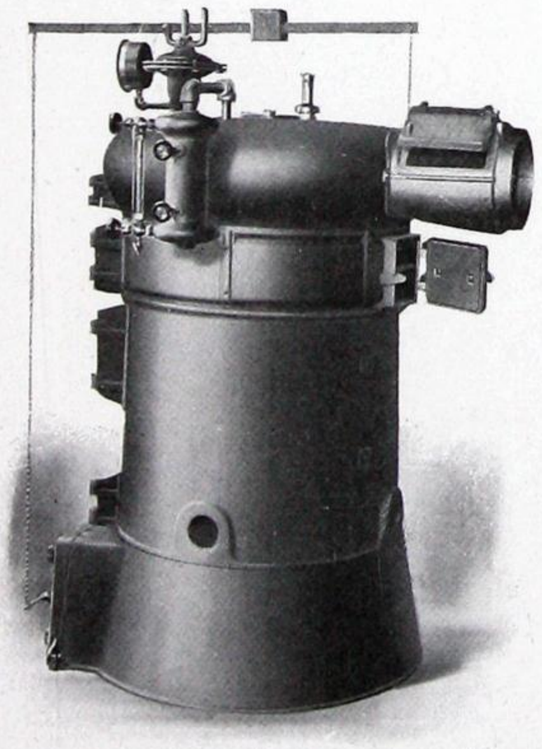


ILLUSTRATION WITH ONE INTERMEDIATE SECTION.

SPECIAL FEATURES.

These boilers are similar in construction to the Economy Hot Water Boiler illustrated above, but have a special top or dome section.

DIMENSIONS, REVISED LIST PRICES, ETC.

Number of Heater.	Diameter of Base.	Height Firepot Incl. Corrugated Dome.	Water Line.	Diameter of Grate.	Number and Size. of Inlets.	Height of Inlets.	Number and Size of Outlets.	Height of Outlets	Size Smoke Collar	Height of Centre of Smoke Collar.	Gro. Rating, Sq. Including Mains.	List Price.
N-173-S	25¾	24	49½	17	3-2	14½	1-2	56½	7	57¼	300	$205 00
N-193-S	27	24½	49½	19	3-2½	14¾	1-2½	57½	8	57¼	400	235 00
N-222-S	30⅞	25½	46⅝	22	3-3	15½	1-3	55	9	55⅝	525	295 00
N-223-S	30⅞	25½	50⅝	22	3-3	15½	1-3	59	9	59⅝	575	312 50
N-253-S	33⅞	26½	50¾	25	3-4	16	1-3	60	10	61⅛	700	337 50
N-282-S	37⅝	28	47⅛	28	3-4	16¼	1-4	56⅛	11	57⅜	900	400 00
N-283-S	37⅝	28	51½	28	3-4	16¼	1-4	60½	11	61½	1000	425 00
N-312-S	40	29½	47⅝	31	3-4	16¼	1-4	51¾	12	58¾	1275	500 00
N-313-S	40	29½	52	31	3-4	16¼	1-4	56⅜	12	62½	1400	525 00
N-343-S	42	31	52½	34	3-5	17	1-5	61	12	63¾	1650	587 50

Above list covers boilers with or without headers.

RATINGS.—The ratings given provide that all piping, in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of boiler required.

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"PEASE IDEAL" SECTIONAL STEAM BOILERS.

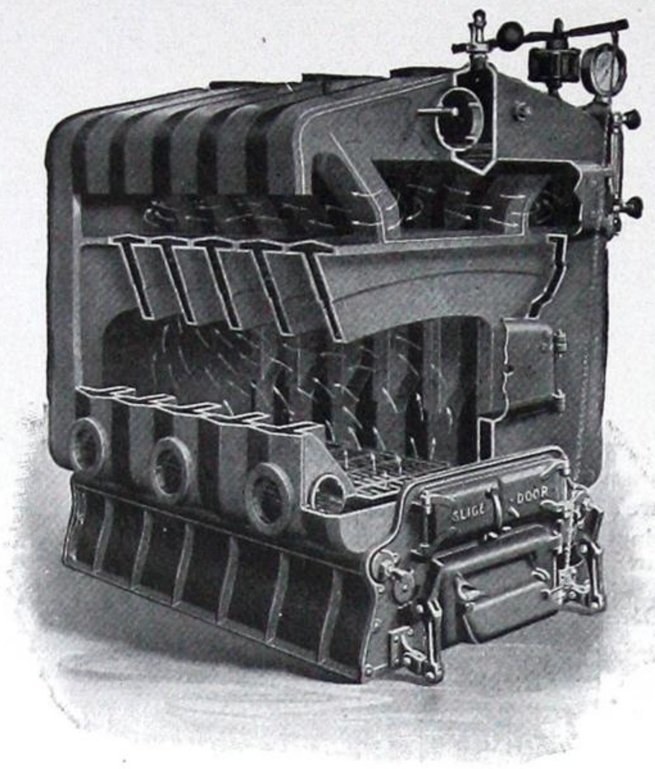


ILLUSTRATION SHOWING FIRE TRAVEL.

CAPACITIES, LIST PRICES, ETC.

Number Including Sections	Total Length Inches	Total Hght. Ins.	Total Width Ins.	Water Line Ins.	Ashpit Inside Inches	Outlets Inches	Size Smoke Pipe	Grate Area Sq. Ft.	Average Fire Pot Sq. Ft.	*Note Ratings Sq. Ft.	List Price	Number Including Sections
S-15- 4	40 7/8	53 1/2	34 1/2	38 7/8	20 15/16 x 21 5/8	2—3	8	1.95	2.47	300	$ 215.00	S-15- 4
S-15- 5	47 1/8	53 1/2	34 1/2	38 7/8	20 15/16 x 27 13/16	2—3	8	2.60	3.30	425	255.00	S-15- 5
S-15- 6	53 3/8	53 1/2	34 1/2	38 7/8	20 15/16 x 34	2—3	8	3.25	4.10	550	295.00	S-15- 6
S-19- 5	52 3/4	55 3/4	38	42 1/8	20 x 29 15/16	2—3	9	3.32	4.00	600	312.50	S-19- 5
S-19- 6	58 3/8	55 3/4	38	42 1/8	20 x 36 5/8	2—3	9	4.15	5.00	750	350.00	S-19- 6
S-19- 7	65	55 3/4	38	42 1/8	20 x 43 5/16	3—3	9	4.98	6.00	900	400.00	S-19- 7
S-22- 5	53 1/4	59 1/2	42	44 3/4	23 1/8 x 31 13/16	2—4	10	4.08	4.84	800	375.00	S-22- 5
S-22- 6	60 1/4	59 1/2	42	44 3/4	23 1/8 x 38 7/8	2—4	10	5.10	6.05	1,000	425.00	S-22- 6
S-22- 7	67 1/4	59 1/2	42	44 3/4	23 1/8 x 45 15/16	3—4	10	6.12	7 26	1,200	475.00	S-22- 7
S-25- 5	59 1/4	64 1/8	47 1/4	49	28 x 35 3/16	2—4	11	5.44	6.48	1,100	450.00	S-25- 5
S-25- 6	66 7/8	64 1/8	47 1/4	49	28 x 42 7/8	2—4	11	6.80	8.10	1,350	512.50	S-25- 6
S-25- 7	74 1/2	64 1/8	47 1/4	49	28 x 50 9/16	3—4	11	8.16	9.72	1,600	575.00	S-25- 7
S-25- 8	82 1/4	64 1/8	47 1/4	49	28 x 58 1/4	3—4	11	9.52	11.34	1,850	637.50	S-25- 8
S-28- 5	60	67 1/16	50 1/2	51 3/8	30 5/8 x 35 1/2	2—4	12	6.24	7.33	1,300	500.00	S-28- 5
S-28- 6	68	67 1/16	50 1/2	51 3/8	30 5/8 x 43 1/2	2—4	12	7.80	9.16	1,625	587.50	S-28- 6
S-28- 7	76	67 1/16	50 1/2	51 3/8	30 5/8 x 51 1/2	3—4	12	9.36	10.99	1,950	662.50	S-28- 7
S-28- 8	84	67 1/16	50 1/2	51 3/8	30 5/8 x 59 1/2	3—4	12	10.92	12.83	2,275	750.00	S-28- 8
S-36- 5	69 3/4	76 1/4	60	60 1/2	38 5/16 x 40 3/4	2—5	15	9.12	10.40	2,100	700.00	S-36- 5
S-36- 6	78 7/8	76 1/4	60	60 1/2	38 5/16 x 49 7/8	2—5	15	11.40	13.00	2,625	837.50	S-36- 6
S-36- 7	88	76 1/4	60	60 1/2	38 15/16 x 59	3—5	15	13.68	15.60	3,150	962.50	S-36- 7
S-36- 8	97 1/8	76 1/4	60	60 1/2	38 15/16 x 68 1/8	3—5	15	15.96	18.20	3,675	1,100.00	S-36- 8
S-36- 9	106 1/4	76 1/4	60	60 1/2	38 15/16 x 77 1/4	4—5	15	18.24	20.80	4,200	1,225.00	S-36- 9
S-48- 6	92	97	80	70	50 3/4 x 58 1/8	2—6	21	18.00	18.75	4,750	1,362.50	S-48- 6
S-48- 7	102 3/4	97	80	70	50 3/4 x 68 13/16	2—6	21	21.60	22.50	5,700	1,600.00	S-48- 7
S-48- 8	114	97	80	70	50 3/4 x 79 1/8	3—6	21	25.20	26.25	6,650	1,837.50	S-48- 8
S-48- 9	124 1/4	97	80	70	50 3/4 x 89 13/16	3—6	21	28.80	30.00	7,600	2,075.00	S-48- 9
S-48-10	135	97	80	70	50 3/4 x100 1/2	3—6	21	32.40	33.75	8,550	2,312.50	S-48-10

Above lists cover shipment of boilers with or without headers.

For each supply outlet on top of "Pease Ideal" Boilers there is a corresponding return inlet in either side. Extra tappings provided if desired. Do not bush flow-pipe outlets on Steam Boilers—Connect all of them full size to the main. Ratings above are for hard coal; soft coal requires size larger boiler.

For Wood Burning.—On special order, wood grates can be supplied for the 19-inch, 22-inch, 25-inch and 28-inch boilers. The 19-inch boilers can be fitted with special fire door 10 1/4 x 18-inch, 22-inch and 25-inch with 11 1/8 x 18-inch fire door, and the 28-inch with 12 7/8 x 20-inch fire door.

"PEASE IDEAL" SECTIONAL WATER BOILERS.

CAPACITIES, LIST PRICES, ETC.

Number Including Sections	Total Length Inches	Total Height Inches	Total Width Inches	Ashpit Inside Inches	Outlets Inches	Size Smoke Pipe	Grate Area Sq. Ft.	Average Fire Pot Sq. Ft.	*Note Ratings Sq. Ft.	List Price	Number Including Sections
W-15- 4	40 7/8	42 1/2	27 1/2	20 15/16 x 21 5/8	2—3	8	1.95	2.47	500	$ 190.00	W-15- 4
W-15- 5	47 1/8	42 1/2	27 1/2	20 15/16 x 27 13/16	2—3	8	2.60	3.30	700	230.00	W-15- 5
W-15- 6	53 3/8	42 1/2	27 1/2	20 15/16 x 34	2—3	8	3.25	4.10	900	270.00	W-15- 6
W-19- 5	52 3/4	50	31 1/4	20 x 29 15/16	2—3	9	3.32	4.00	1,000	287.50	W-19- 5
W-19- 6	58 3/8	50	31 1/4	20 x 36 5/8	2—3	9	4.15	5.00	1,250	325.00	W-19- 6
W-19- 7	65	50	31 1/4	20 x 43 5/16	3—3	9	4.98	6.00	1,500	375.00	W-19- 7
W-22- 5	53 1/4	52 1/4	36	23 1/8 x 31 13/16	2—4	10	4.08	4.84	1,300	350.00	W-22- 5
W-22- 6	60 1/4	52 1/4	36	23 1/8 x 38 7/8	2—4	10	5.10	6.05	1,650	400.00	W-22- 6
W-22- 7	67 1/4	52 1/4	36	23 1/8 x 45 15/16	3—4	10	6.12	7.26	2,000	450.00	W-22- 7
W-25- 5	59 1/4	57 7/8	40 3/8	28 x 35 3/16	2—4	11	5.44	6.48	1,825	425.00	W-25- 5
W-25- 6	66 7/8	57 7/8	40 3/8	28 x 42 7/8	2—4	11	6.80	8.10	2,225	487.50	W-25- 6
W-25- 7	74 1/2	57 7/8	40 3/8	28 x 50 9/16	3—4	11	8.16	9.72	2,650	550.00	W-25- 7
W-25- 8	82 1/4	57 7/8	40 3/8	28 x 58 1/4	3—4	11	9.52	11.34	3,050	612.50	W-25- 8
W-28- 5	60	60 5/8	44	30 5/8 x 35 1/2	2—4	12	6.24	7.33	2,150	475.00	W-28- 5
W-28- 6	68	60 5/8	44	30 5/8 x 43 1/2	2—4	12	7.80	9.16	2,675	562.50	W-28- 6
W-28- 7	76	60 5/8	44	30 5/8 x 51 1/2	3—4	12	9.36	10.99	3,200	637.50	W-28- 7
W-28- 8	84	60 5/8	44	30 5/8 x 59 1/2	3—4	12	10.92	12.83	3,725	725.00	W-28- 8
W-36- 5	69 3/4	70	53 1/4	38 15/16 x 40 3/4	2—5	15	9.12	10.40	3,450	675.00	W-36- 5
W-36- 6	78 7/8	70	53 1/4	38 15/16 x 49 7/8	2—5	15	11.40	13.00	4,325	800.00	W-36- 6
W-36- 7	88	70	53 1/4	38 15/16 x 59	3—5	15	13.68	15.60	5,200	925 00	W-36- 7
W-36- 8	97 1/8	70	53 1/4	38 15/16 x 68 1/8	3—5	15	15.96	18.20	6,050	1,062.50	W-36- 8
W-36- 9	106 1/4	70	53 1/4	38 15/16 x 77 1/4	4—5	15	18.24	20.80	6,925	1,187.50	W-36- 9
W-48- 6	92	81 3/4	68	50 3/4 x 58 1/8	2—6	21	18.00	18.75	7,825	1,300.00	W-48- 6
W-48- 7	102 3/4	81 3/4	68	50 3/4 x 68 13/16	2—6	21	21.60	22.50	9,400	1,537.50	W-48- 7
W-48- 8	114	81 3/4	68	50 3/4 x 79 1/8	3—6	21	25.20	26.25	10,975	1,775.00	W-48- 8
W-48- 9	124 1/4	81 3/4	68	50 3/4 x 89 13/16	3—6	21	28.80	30.00	12,550	2,012.50	W-48- 9
W-48-10	135	81 3/4	68	50 3/4 x100 1/2	3—6	21	32.40	33.75	14,125	2,250.00	W-48-10



ILLUSTRATION SHOWING NO. W-25-7 WATER BOILER.

Above lists cover shipment of boilers with or without headers.
For each supply outlet on top of "Pease Ideal" Boilers there is a corresponding return inlet in either side.
Extra tappings provided if desired. Ratings above are for hard coal; soft coal requires size larger boiler.
For Wood Burning.—On special order, wood grates can be supplied for the 19-inch, 22-inch, 25-inch and 28-inch boilers. The 19-inch boilers can be fitted with special fire door 10 1/4 x 18 inch, 22-inch and 25 inch with 11 1/8 x 18 inch fire door, and the 28-inch with 12 7/8 x 20 inch fire door.

SPECIAL FEATURES

In the "Pease Ideal" Sectional Boilers with square or oblong firepots and grates are embodied substantially all features common to the "Economy" Boilers with round grates and firepots.

These features are, of course, changed somewhat in form to suit their application to the work which each type or size of boiler has to perform.

As stated, these features include:—

Correctly proportioned waterways for free and rapid circulation.

Fire and flue surfaces all backed by water, and so arranged that the heat rays will impinge upon every inch of their area.

Air burning features fully developed.

Overhanging fire surfaces.

Liberal steam dome.

Deep firebox.

Large fire door, and large ashpit door, with butterfly damper.

Convenient smoke pipe check dampers.

Flue doors so placed as to permit of easy cleaning of all flue surfaces.

Cast-iron nipples, making a perfectly tight and permanent joint, without any kind of packing.

Easy-operating grates, built upon the rocking and dumping principles, with lug to prevent accidental dumping.

Liberal size ashpit, with large opening to permit easy removal of ashes.

All steam boilers of this type are fitted with the Ideal Sylphon Automatic Damper Regulator without extra charge.

The sections are assembled on the unit plan. If, therefore, the structure in which boilers are placed should be rebuilt or extended, additional sections may be added.

THE GURNEY FOUNDRY CO., LIMITED

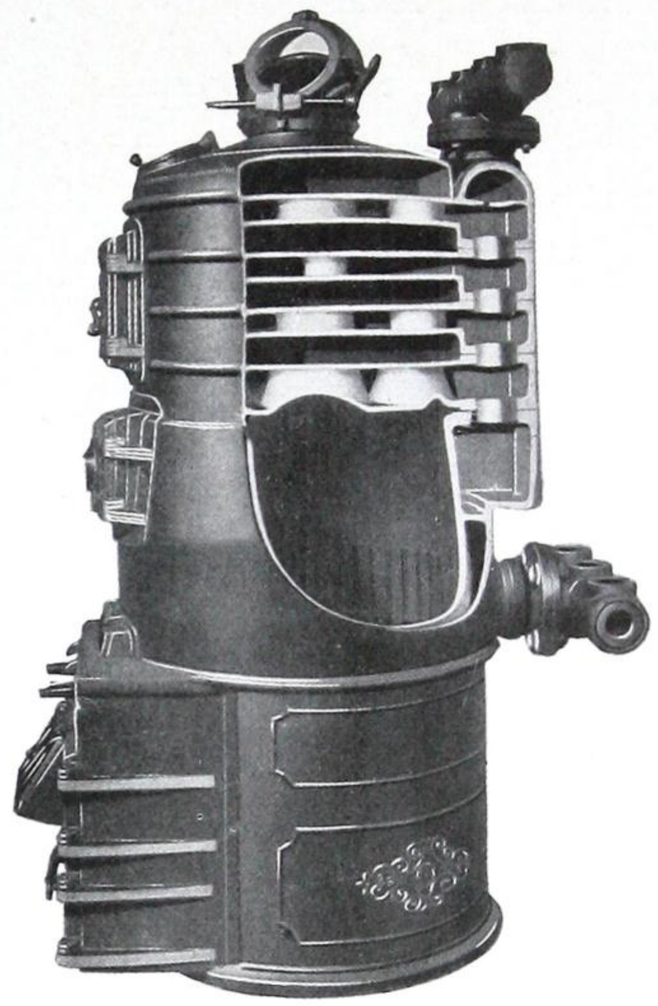
HEATING APPARATUS.

TORONTO AND WEST TORONTO.

MONTREAL, HAMILTON, WINNIPEG, CALGARY, EDMONTON, LETHBRIDGE, VANCOUVER.

THE GURNEY-OXFORD ROUND HOT WATER BOILER.

This illustration is an actual photograph of an Oxford Boiler that has been cut open. Note the deep fire-pot, with insloping walls that corral the heat. The first section is double the usual thickness, and the smoke flues have sloping walls. The first section has more inches of fire surface per pound of water than in any boiler made.



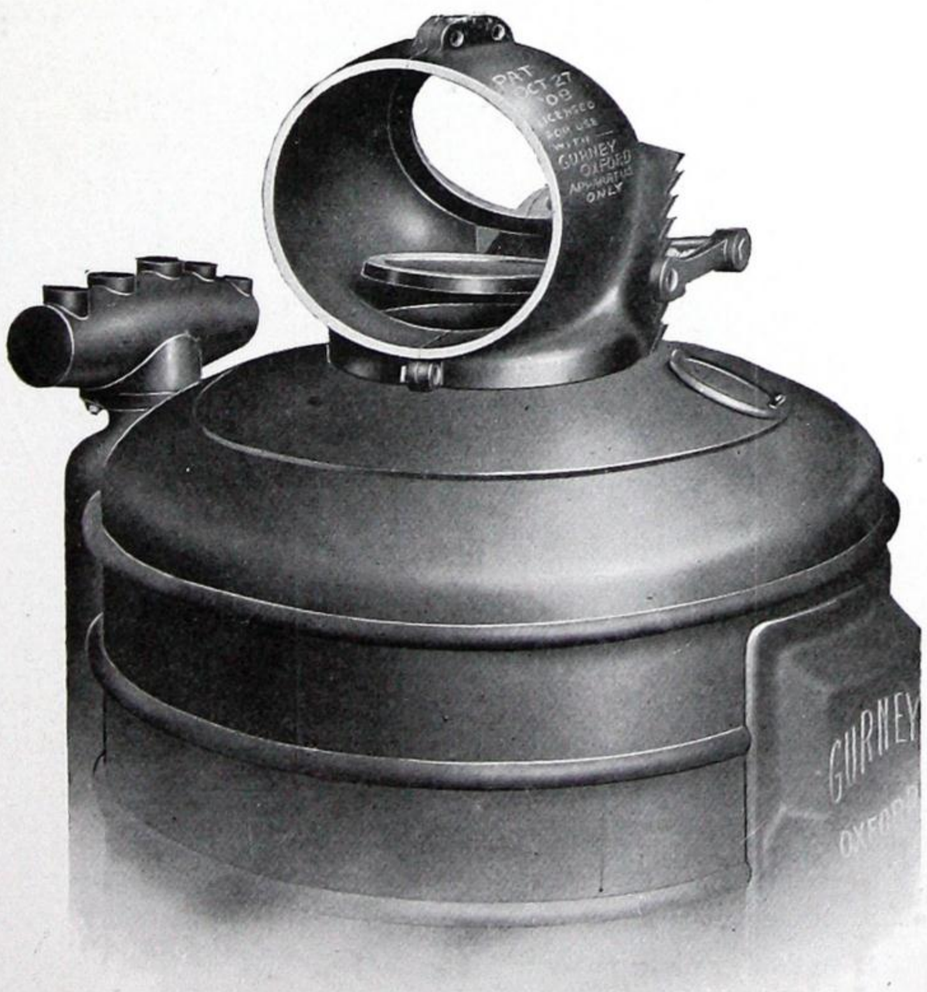
Note the heavy iron nipples forming the ground joints between sections. Rubber gaskets have been eliminated on all steam sectional boilers of every make—we advocate this same *all-metal* joint on all boilers.

The grate bars revolve, and are gear driven—each bar is removable through the base front, and the ash pit is free from levers, etc.—there is more ash-pit head room.

Most Canadian Round Boilers are numbered from 1 to 10. Size for size the Oxford Boiler is decidedly larger in grate area. Your customer and client will get greater boiler power when the Oxford is used.

THE GURNEY-OXFORD ECONOMIZER.

A boiler must be installed with ample capacity for coldest weather. Yet for a large part of the heating season the boiler is "damped down." Milder weather has made a slow fire desirable.



Other boilers accomplish this by means of a shell top damper or by opening the fire-door. This method cools the sections that coal has been burned to heat up, with a sharp loss in economy, and the possibility of coal gas throughout the house is another undesirable feature.

Note the cast iron elbow or housing on the smoke opening of the Gurney-Oxford Boiler. The check air is taken in above all the water sections, and, as one flap acts as check damper and direct draft damper, the proportion of drafts is nicely maintained. It is easily possible with this device to hold fire for 24 hours, and one lever controls the fire, acting as a throttle valve on the entire system.

CONTINUED ON NEXT PAGE

OXFORD HOT WATER BOILERS

RATINGS, PRICES, ETC.

No.	Net Capacity Radiation. Feet.	Net Capacity. Lin. Feet. 1-in. Pipe.	List Price, Low Base.	List Price, High Base.	Diam. of Grate.	Diam. of Smoke Pipe.	Size of Chimney Required.	No. of Flow and Return Outlets.	Size Hard Coal.	Approximate Shipping Weight. Oxford Hot Water Boilers.	
										Low Base.	High Base.
0 E	170	500	$ 88.00	$ 94.00	17¼	7	8 x 8	2-2	Stove	800	900
1 E	235	700	105.00	111.00	17¼	7	8 x 8	2-2	Stove	940	1000
2 E	335	1000	140.00	147.00	20¼	7	8 x 8	4-2	Stove	1170	1250
3 E	500	1500	160.00	170.00	22¼	8	8 x 12	4-2	Stove	1420	1510
4 E	670	2000	200.00	215.00	25¼	8	8 x 12	4-2	Stove	1650	1750
5 E	835	2500	240.00	260.00	27¼	10	12 x 12	6-2	Stove	2000	2125
6 B	1000	3000	270.00	290.00	29¼	10	12 x 12	6-2	Egg	2365	2510
6½C	1250	3750	335.00	360.00	32¼	10	12 x 12	6-2	Egg	2750	2950
7 B	1500	4500	392.00	420.00	35¼	11	12 x 12	8-2	Egg	3350	3550
8 C	2000	6000	475.00	505.00	37	11	12 x 12	8-2	Egg	3800	4060
9 D	2667	8000	524.00	554.00	38½	11	12 x 12	12-2	Egg	4360	4585
10 C	4000	12000	850.00	.....	42	12	12 x 16	12-2	Egg	5225	.....

All mains should be securely covered with good non-conducting material.

Note diameter of above Firepots and compare with others.

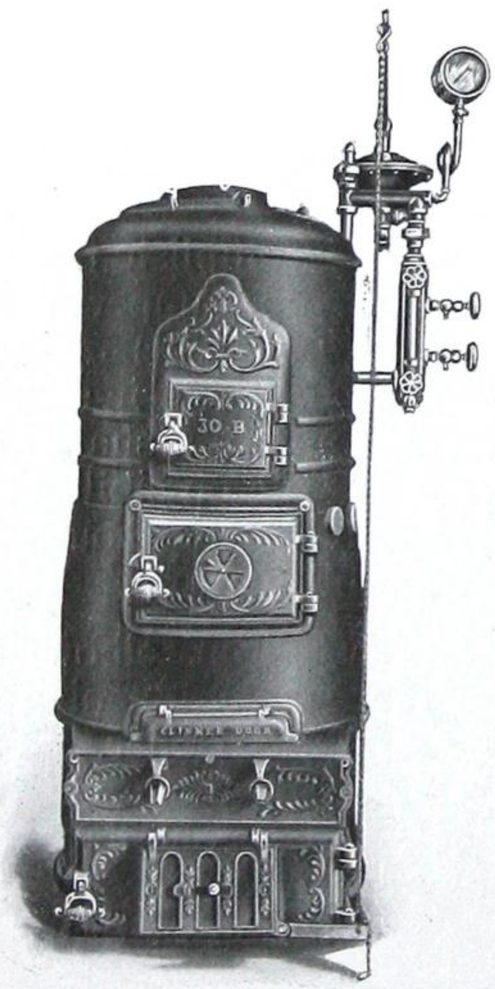


OXFORD STEAM BOILERS

FOR HARD OR SOFT COAL OR COKE OR NATURAL GAS.

DIMENSIONS, CAPACITIES AND LIST PRICES.

No.	Outside Diameter of Boiler. Inches.	Height to Smoke Outlet. Inches. Low Base.	Height to Smoke Outlet. Inches. High Base.	Height of Water Line. Inches. Low Base.	Height of Water Line. Inches. High Base.	Diameter of Grate. Inches.	Grate Area. Square Feet.	Actual Capacity Direct Radiation. Ft.	Capacity, Lin. Feet, 1-inch Pipe.	Size Main Outlet. Inches.	Size Return Outlet. Inches.	Diameter of Smoke Outlet. Inches.	Size of Chimney Required.	List Price, including Trimmings. Low Base.	List Price, including Trimmings. High Base.
00 E	22	53	56	41	44	17¼	1⅔	200	600	2	1½	7	8 x 8	$165.00	$172.25
10 E	22	56½	59½	44½	47½	17¼	1⅔	250	750	2	1½	7	8 x 8	185.00	192.25
20 E	24	58½	63½	44½	49½	20¼	2¼	350	1,050	2½	2	7	8 x 8	215.00	227.50
30 E	27	60	66	45½	51½	22¼	2¾	450	1,350	3	2	8	8 x 12	255.00	267.50
40 E	29	61	69	47	55	25¼	3½	550	1,650	3	2	8	8 x 12	295.00	313.75
50 E	33	62	70	47½	55½	27¼	4	700	2,100	3	2	10	12 x 12	337.50	362.50
60 B	34	63	72½	48	57½	29¼	4⅔	900	2,700	3½	2½	10	12 x 12	400.00	431.25
60½B	38	70	79½	54	63½	32¼	5⅔	1,000	3,075	4	2½	11½	12 x 12	425.00	468.75
70 B	43½	73	82½	57	66½	35¼	6⅔	1,275	3,825	4	2½	11½	12 x 12	500.00	535.00



Regular steam trimmings included are: Steam Gauge, Safety Valve, Water Column, Glass Water Gauge, Gauge Cocks, Automatic Damper Regulator, also Cleaning Brush. This applies excepting in British Columbia, where special fittings are required.

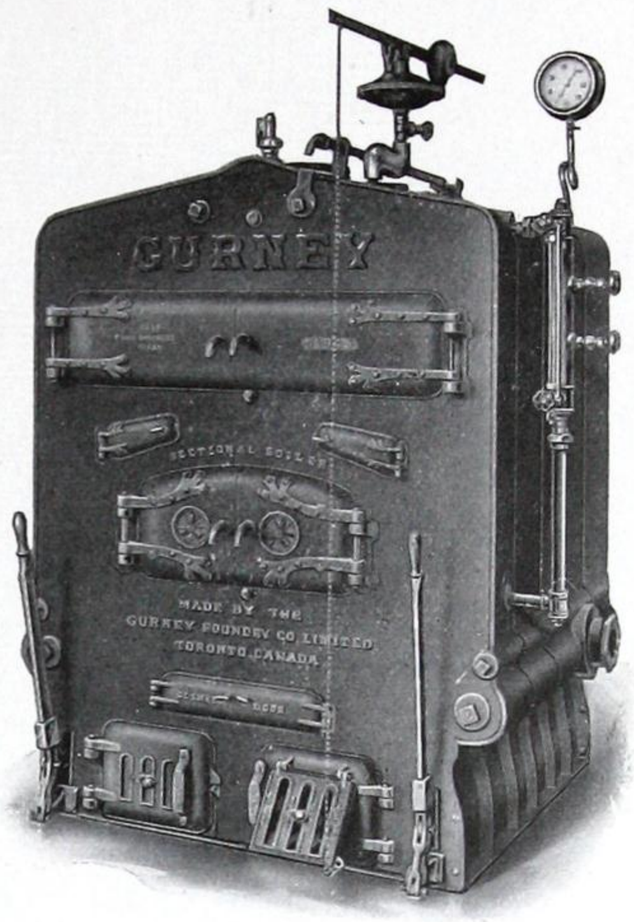
Make due allowance for mains and risers when selecting size of boiler required. All mains and boilers should be covered.

When soft coal is used for fuel, select a size larger boiler.

Direct-indirect radiation requires 50% more boiler capacity. Indirect radiation requires 75% increased boiler capacity.

CONTINUED ON NEXT PAGE





GURNEY-OXFORD 900 SERIES WATER AND STEAM BOILERS.

The headerless, cast-iron boiler is now recognized as one of the best types for a great many buildings. The Gurney-Oxford 900 Series Boiler is designed to represent the utmost in efficiency, combined with great durability.

The fire-pot is very deep, and the grate is of the rocking and dumping type, well adapted to either hard or soft coal. The fire travels three times the length of the boiler, and the fire-box has the maximum number of square inches on which the fire shines. The sections are mounted together with heavy push nipples. This series is built in four grate widths and 22 sizes altogether, giving the widest possible range of choice, permitting the installation of a boiler exactly suited to the load it has to carry.

SPECIFICATIONS.

STEAM BOILERS.

DESCRIPTION, CAPACITIES AND PRICES.

No.	List Price	Capacity, Feet	Equivalent in 1-inch Pipe	Height of Flow, Inches	Height, Water Line, Inches	Width, Inches	Length, Inches	Grate, Inches	Flows, Inches	Returns, Inches	Approximate Shipping Weight, Lbs.	Smoke Opening, Inches	Size of Flue Required, Inches
913S	$ 215.00	300	900	50¼	39½	29⅛	34¾	17x21	1-4	1-4	1,400	9	8x 8
914S	255.00	450	1,350	50¼	39½	29⅛	43½	17x30	2-4	2-4	1,725	9	8x 8
915S	312.50	600	1,800	50¼	39½	29⅛	51¼	17x39	2-4	2-2	2,050	9	8x12
916S	350.00	750	2,250	50¼	39½	29⅛	60	17x48	2-4	2-2	2,375	9	8x12
917S	400.00	900	2,700	50¼	39½	29⅛	68¾	17x57	2-4	2-2	2,700	9	8x12
924S	255.00	425	1,275	56	48	32	25	21x16	1-4	2-2	1,100	8	8x 8
925S	312.50	575	1,725	56	48	32	31	21x22	2-4	2-2	1,600	8	8x13
926S	350.00	725	2,175	56	48	32	37½	21x28¼	2-4	2-2	2,100	8	8x13
927S	400.00	875	2,625	56	48	32	44	21x34½	2-4	2-3	2,600	10	8x13
928S	437.50	1,050	3,150	56	48	32	50½	21x40¾	2-4	2-3	3,100	10	12x12
929S	462.50	1,125	3,375	56	48	32	57	21x47	2-4	2-3	3,600	10	12x12
934S	475.00	1,200	3,600	64	56½	44	42	30x28	2-5	2-3	3,200	12	12x12
935S	550.00	1,500	4,500	64	56½	44	51	30x37	2-5	2-3	3,700	12	12x12
936S	625.00	1,800	5,400	64	56½	44	60	30x46	2-5	2-3	4,400	12	12x16
937S	700.00	2,100	6,300	64	56½	44	68	30x54	3-5	3-3	5,000	12	12x16
938S	775.00	2,400	7,200	64	56½	44	77	30x63	3-5	4-3	5,700	12	16x16
939S	850.00	2,700	8,100	64	56½	44	85½	30x72	3-5	4-3	6,300	12	16x16
945S	800.00	2,500	7,500	72	60	56½	51	42x37	2-5	2-4	5,600	15	16x16
946S	962.50	3,125	9,375	72	60	56½	60	42x46	2-5	2-4	6,500	15	16x16
947S	1,112.50	3,750	11,250	72	60	56½	68½	42x55	3-5	3-4	7,400	15	16x16
948S	1,275.00	4,375	13,125	72	60	56½	77¼	42x64	3-5	3-4	8,300	15	16x20
949S	1,425.00	5,000	15,000	72	60	56½	86	42x73	3-5	3-4	9,200	15	16x20

All the above sizes are suitable for use with hard coal. Sizes 913S to 939S inclusive are suitable for use with soft coal. Sizes 945S to 949S inclusive require a chimney flue of 16x16 inches or equivalent when used with soft coal.

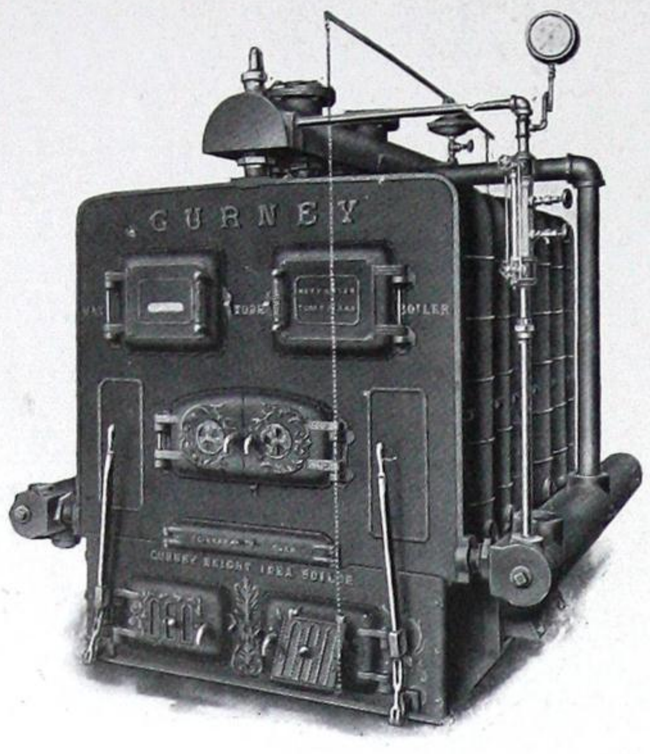
HOT WATER BOILERS.

DESCRIPTION, CAPACITIES AND PRICES.

No.	List Price	Capacity, Feet	Equivalent in 1-inch Pipe	Height of Flow, Inches	Width, Inches	Length, Inches	Grate, Inches	Flows, Inches	Returns, Inches	Approximate Shipping Weight, Lbs.	Smoke Opening, Inches	Size of Flue Required, Inches
913W	$ 190.00	500	1,500	50¼	29⅛	34¾	17x21	1-4	1-4	1,400	9	8x 8
914W	230.00	750	2,250	50¼	29⅛	43½	17x30	2-4	2-4	1,725	9	8x 8
915W	287.50	1,000	3,000	50¼	29⅛	51¼	17x39	2-4	2-4	2,050	9	8x12
916W	325.00	1,250	3,750	50¼	29⅛	60	17x48	2-4	2-4	2,375	9	12x12
917W	375.00	1,500	4,500	50¼	29⅛	68¾	17x57	2-4	2-4	2,700	9	12x12
924W	230.00	700	2,100	56	32	25	21x16	1-4	2-4	1,100	8	8x 8
925W	287.50	900	2,700	56	32	31	21x22	2-4	2-4	1,600	8	8x13
926W	325.00	1,150	3,450	56	32	37½	21x28¼	2-4	2-4	2,100	8	8x13
927W	375.00	1,400	4,200	56	32	44	21x34½	2-4	2-4	2,600	10	12x12
928W	412.50	1,650	4,950	56	32	50½	21x40¾	2-4	2-4	3,100	10	12x12
929W	437.50	1,900	5,700	56	32	57	21x47	2-4	2-4	3,600	10	12x12
934W	450.00	2,000	6,000	64	44	42	30x28	2-5	2-5	3,200	12	12x12
935W	525.00	2,500	7,500	64	44	51	30x37	2-5	2-5	3,700	12	12x12
936W	600.00	2,975	8,925	64	44	60	30x46	2-5	2-5	4,400	12	12x16
937W	675.00	3,500	10,500	64	44	68	30x54	3-5	3-5	5,000	12	12x16
938W	750.00	3,900	11,700	64	44	77	30x63	3-5	3-5	5,600	12	16x16
939W	812.50	4,450	13,350	64	44	85½	30x72	3-5	3-5	6,300	12	16x16
945W	762.50	4,000	12,000	72	56	51	42x37	2-5	2-5	5,600	14	16x16
946W	925.00	5,100	15,300	72	56	60	42x46	2-5	2-5	6,500	14	16x16
947W	1,075.00	6,200	18,600	72	56	69	42x55	3-5	3-5	7,400	14	16x16
948W	1,212.50	7,300	21,900	72	56	78	42x64	3-5	3-5	8,300	14	16x20
949W	1,362.50	8,400	25,200	72	56	87	42x73	3-5	3-5	9,200	14	16x20

All the above sizes are suitable for use with hard coal. Sizes 913W to 939W inclusive are suitable for use with soft coal. Sizes 945W to 949W inclusive require a chimney flue of 16x16 inches or equivalent when used with soft coal.

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GURNEY BRIGHT IDEA BOILER

FOR STEAM OR HOT WATER.

These Boilers have capacity of 1,000 to 7,250 feet of radiation for Steam; 1,650 to 12,000 feet of radiation for Hot Water.

The large number of these boilers in successful operation over a long period of years is our best argument in their favour. The Bright Idea exactly meets the requirements of the trade for a header boiler with large steam space. This boiler comes in sixteen different sizes and three different grate widths. It is built for any kind of fuel and for steam or hot water work. Every care is taken to insure uniform castings, and we have attained almost absolute freedom from expansion cracks. Any section may be removed without displacing the whole boiler. The grates are accessible for repairs and easily operated. The flue surfaces are extremely large, and the long fire travel insures the best use of the products of combustion. All boilers are supplied with full complement of firing tools and steam boilers with best grade of low pressure steam trimmings.

STEAM BOILERS.

DESCRIPTION, CAPACITIES AND PRICES

No	List Price, Hard and Soft Coal	Capacity, Feet	Capacity, Lin. Feet 1-inch Pipe	Height of Water Line, Inches	Height, including Headers, Inches	Length, Inches	Width, including Headers, Inches	Size Grate, Inches	Flow Outlets, Inches	Return Outlet, Inches	Diameter Smoke Pipe, Inches	Approx. Shipping Weights
1,020	$ 425 00	1,000	3,000	55	69½	41	56	28×26	2-4	2-3	12	3,500
1,021	475 00	1,200	3,600	55	69½	47	56	28×32	2-4	2-3	12	4,000
1,022	525 00	1,400	4,200	55	69½	53	56	28×38	2-4	2-3	12	4,400
1,023	575 00	1,600	4,800	55	69½	59	56	28×44	2-4	2-3	12	4,900
1,024	625 00	1,800	5,400	55	69½	65	56	28×50	3-4	3-3	12	5,400
1,025	675 00	2,000	6,000	55	69½	71	56	28×56	3-4	3-3	12	5,900
1,130	762 50	2,350	7,050	56	74	62	76	40×44	1-6 and 1-4	2-4	14	7,200
1,131	850 00	2,700	8,100	56	74	67	76	40×50	1-6 and 1-4	2-4	14	7,800
1,132	937 50	3,050	9,150	56	74	74	76	40×56	1-6 and 1-4	2-4	14	8,400
1,133	1,025 00	3,400	10,200	56	74	79	76	40×62	1-6 and 1-4	2-4	14	9,000
1,250	1,112 50	3,750	11,250	56	79	80	88	48×51	2-6	2-4	20	11,500
1,251	1,237 50	4,250	12,750	56	79	86	88	48×58	2-6	2-4	20	13,000
1,252	1,425 00	5,000	15,000	56	79	94	88	48×65	2-6	2-4	20	14,400
1,253	1,612 50	5,750	17,250	56	79	106	88	48×72	3-6	3-4	20	15,700
1,254	1,800 00	6,500	19,500	56	79	121	88	48×79	3-6	3-4	20	17,800
1,255	1,987 50	7,250	21,750	56	79	128	88	48×86	3-6	3-4	20	20,000

Regular Steam Trimmings included in price

All ratings are gross Allow for radiation of piping when selecting size of Boiler.

Direct-indirect radiation requires 50 per cent. increased boiler power.

Indirect radiation requires 75 per cent. increased boiler power

HOT WATER BOILERS.

DESCRIPTION, CAPACITIES AND PRICES

No.	List Price, Hard and Soft Coal	Capacity, Feet	Capacity, Lin. Feet 1-inch Pipe	Height, including Headers, Inches	Length, Inches	Width, Including Headers, Inches	Size Grate, Inches	Main Outlet, Inches, Flow and Return	Diameter Smoke Pipe, Inches	Approx. Shipping Weights
1,020	$ 400 00	1 650	4,950	69½	41	56	28×26	2-4	12	3,500
1,021	450 00	2,000	6,000	69½	47	56	28×32	2-4	12	4,000
1,022	500 00	2,325	6,975	69½	53	56	28×38	2-4	12	4,400
1,023	550 00	2,650	7,950	69½	59	56	28×44	3-4	12	4,900
1,024	600 00	2,975	8,925	69½	65	56	28×50	3-4	12	5,400
1,025	650 00	3,300	9,900	69½	71	56	28×56	3-4	12	5,900
1,130	737 50	3,875	11,625	74	62	76	40×44	1-6 and 1-4	14	7,200
1,131	812 50	4,450	13,350	74	67	76	40×50	1-6 and 1-4	14	7,800
1,132	900 00	5,025	15,075	74	74	76	40×56	1-6 and 1-4	14	8,400
1,133	987 50	5,600	16,800	74	79	76	40×62	1-6 and 1-4	14	9,000
1,250	1,075 00	6,200	18,600	79	80	88	48×51	2-6	20	11,500
1,251	1,175 00	7,000	21,000	79	86	88	48×58	2-6	20	13,000
1,252	1,362 50	8,250	24,750	79	94	88	48×65	2-6	20	14,400
1,253	1,550 00	9,575	28,725	79	106	88	48×72	3-6	20	15,700
1,254	1,737 50	10,750	32,250	79	121	88	48×79	3-6	20	17,800
1,255	1,925 00	12,000	36,000	79	128	88	48×86	3-6	20	20,000

All ratings are gross. Allow for radiation of piping when selecting size of boiler.

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THE GURNEY-OXFORD SMOKE CONSUMING BOILER

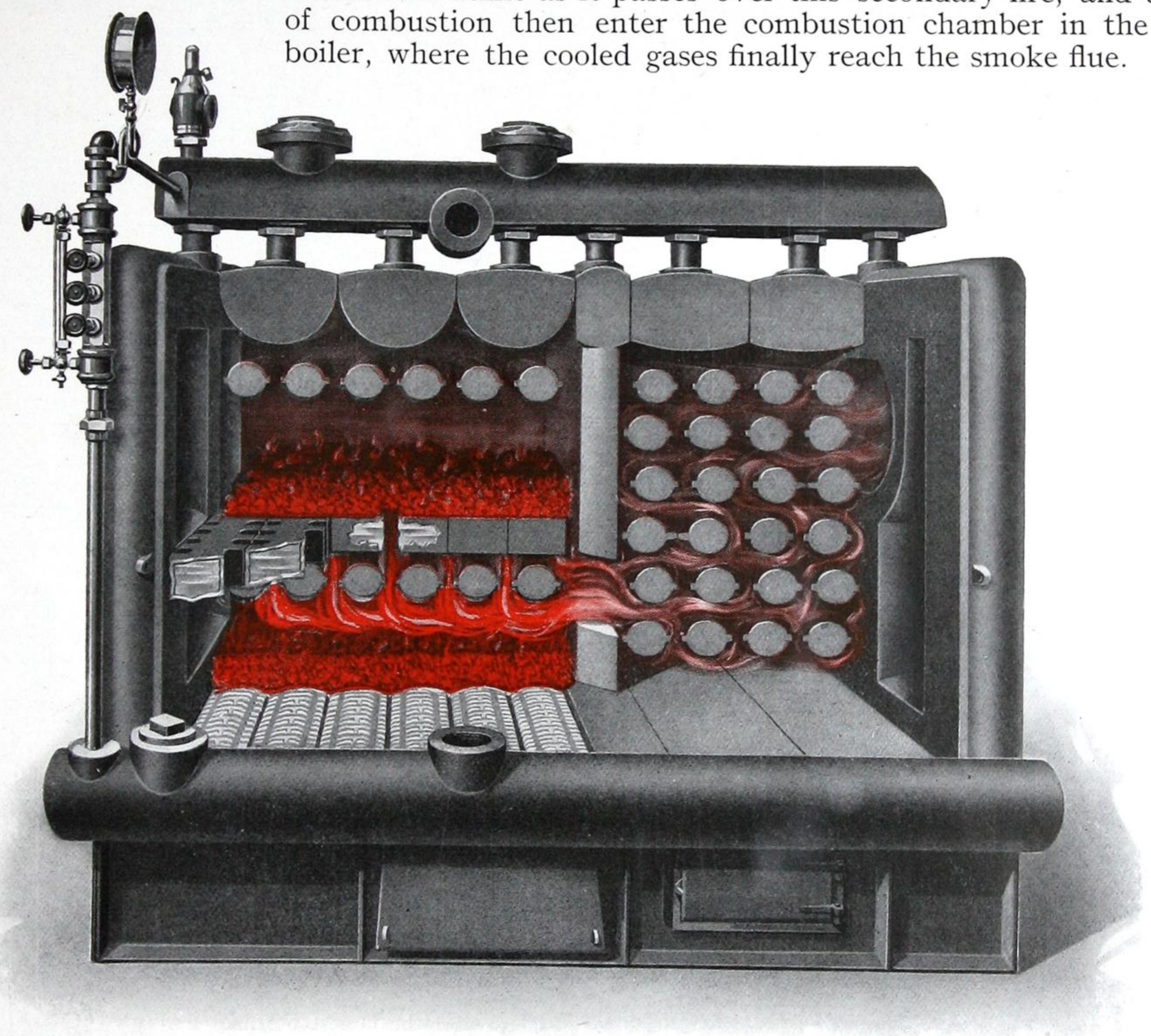
SCOPE.

The continued advance in the cost of anthracite coal in Canada is a well-known fact. Much effort has been devoted to produce an economic method of burning soft coal of the poorer grades. To accomplish this, it is necessary to burn the smoke, with its excess of carbon gases. This has been satisfactorily accomplished by various means in power plants, where ideal conditions and high-pressure steam were available.

It has remained for us to first accomplish this in a Canadian-made, low-pressure, steam or hot-water heating boiler successfully.

FUNDAMENTAL PRINCIPLE.

The primary fire is on the upper grate, which is hollow and contains water. The fresh air is taken in above this fire, and the flames plunge down through openings in this grate. Burning coals, also, drop through these holes, forming a shallow, incandescent bed of fuel on the lower grate. The heavy black smoke, full of unburnt carbon, bursts into flame as it passes over this secondary fire, and the products of combustion then enter the combustion chamber in the rear of the boiler, where the cooled gases finally reach the smoke flue.



RESULT.

With soft coal, slack or screenings, a result is obtained which compares favorably with other boilers burning high-grade anthracite—the fuel bill is, consequently, cut in half. The smoke from this boiler is as colorless as when anthracite coal has been used. *The smoke has been burned.*

DETAIL OF CONSTRUCTION.

The Boiler is built of sections which will readily enter through a 24-in. door. These sections are independently connected to flow and return headers. The tubes above each fire and in the combustion section insure greatest fire surface possible, embodying the principle of the water-tube boiler.

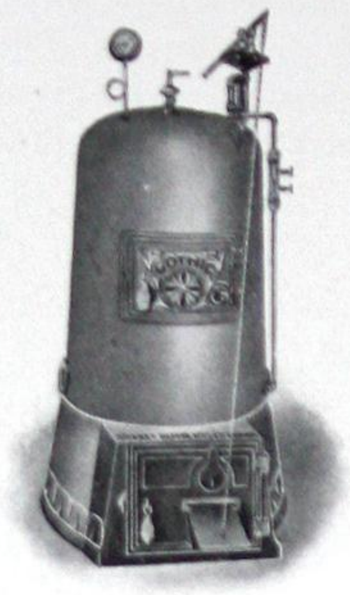
The upper grate, which contains water, is extremely heavy, and, as this water is between two fires, it certainly means the most active surface ever devised. The Steam Boiler is equipped with automatic damper regulator.

GUARANTEE.

We are prepared to stand behind these products as representing the last word in soft-coal heating boilers.

CONTINUED ON NEXT PAGE

GOTHIC STEAM BOILER



CAPACITY DIRECT RADIATION 200 FEET.

MADE IN ONE SIZE.

No.	Height, Inches	Diam. Base, Inches	Diam. Grate, Inches	Diam. Smoke Outlet, Inches	Number and Size Outlets, Inches	List Price, including Trimmings	Shipping Weight
16	45	25	16	7	1-2 Flow 1-1¼ Return	$165.00	700 lbs.

THE GOTHIC HEATER

A very efficient heater; will be found especially suitable when large quantities of water are required for barber shops, restaurants, small greenhouses, baths, etc. It is very strongly constructed. Has a deep firepot, which ensures slow combustion and economy of fuel. There are no water joints. The heater has a crown sheet—the products of combustion do not enter directly into the flue.



No.	Height Inches	Diameter of Firepot, Inches	Capacity Direct Radiation Feet	Tank Capacity Gallons	Diameter of Smoke Outlet, Inches	Size of Flue Required Inches	Sizes of Flow and Return Outlet, Inches	List Price	Approximate Shipping Weights
12	35	12	175	225	6	9 x 9	1-2 Flow 2-2 Return	$ 55.00	450
14	37	14	250	325	7	9 x 9	1-2½ Flow 2-2 Return	75.00	550
16	39	16	350	450	7	9 x 9	1-2½ Flow 2-2 Return	100.00	675

GURNEY-OXFORD DEFIANCE HEATER



A splendid tank heater, with convenient pot hole in top. Will give excellent satisfaction for very small hot water jobs. A splendid stable heater.

DATA.

FOR COAL.

No.	Tank Capacity	Capacity in 1-inch Pipe	Approx. Shipping Weight	List Price
110	150 gals.	400 feet	350 lbs.	$45.00
112	200 gals.	600 feet	400 lbs.	52.50

THE GURNEY-OXFORD NINEX GAS WATER HEATER

Owing to its construction, this heater will give a good quantity of hot water in a remarkably short space of time. Every user should be aware of the following valuable features about this heater:

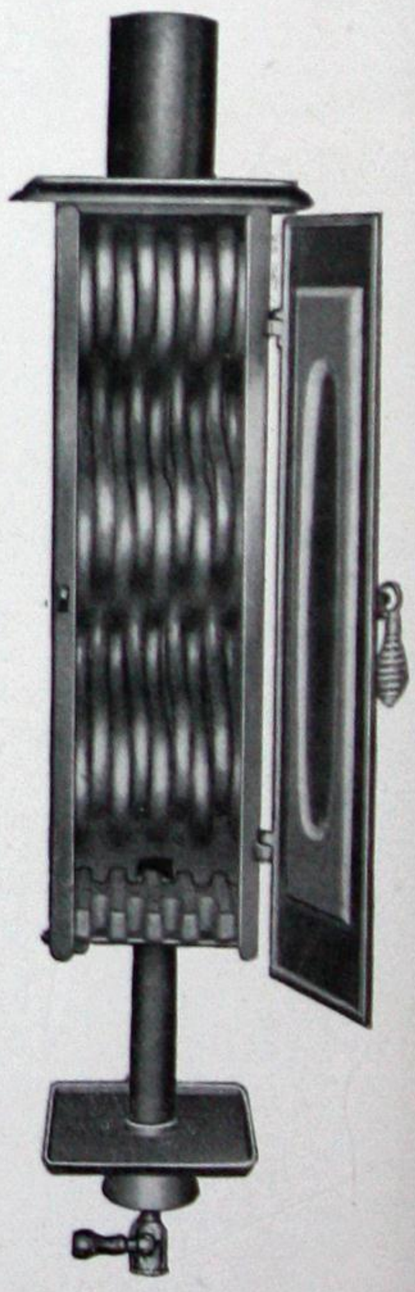
The Heater contains 30 feet of pure copper tubing, securely expanded in a cast metal header. The water is split into small units and heats very quickly. This is a great advantage over the single coil, where the water must travel through the entire heater before being freed.

The peculiar arrangement of these coils ensures the best possible combustion of the gas consumed, and provides the largest possible combustion space above the burners.

The burner is of the most modern design, capable of perfect results. The air mixer is unique in construction, ensuring the right proportion of air for combustion at all times.

The outside casing is of heavy cast iron, neat and well finished, and provided with full-sized door opening for cleaning coils and lighting burner. This is an immense advantage, as the heater may be kept at the highest point of efficiency at all times.

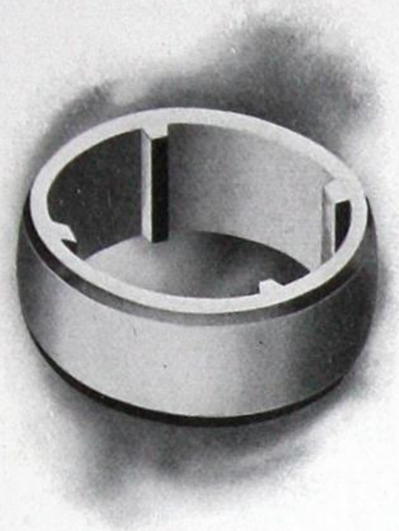
A cast iron drip pan is provided to catch any condensation.



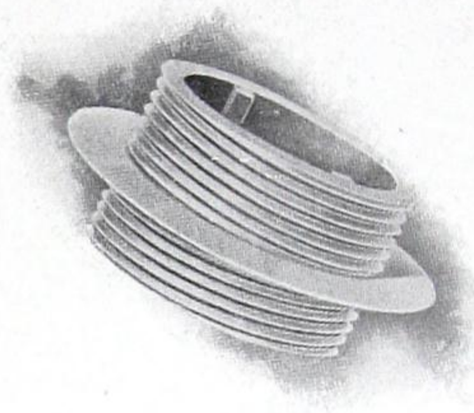
No.	Over-all Dimensions	Approx. Shipping Weight	List Price
1	7¾" wide, 9" deep x 27" high	49 lbs.	$19.00

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RADIATOR CONNECTIONS.



The vital point in all radiators is the joint. Two methods of joining together the sections or loops which make up a radiator are well known throughout the country—the Screw Nipple and the Push Nipple or Ground Joint. The screw nipple simply draws together two planed faces on a paper gasket by means of a right and left thread—the life of that gasket is the life of the joint.



When the ground joint or push nipple method is employed, the sections are connected by a ground hollow casting or nipple, which has been so machined that it fits into each loop like a ground-glass stopper in a bottle—imagine a double glass stopper that fitted into two bottles with a hole through it, and you have the principle used.

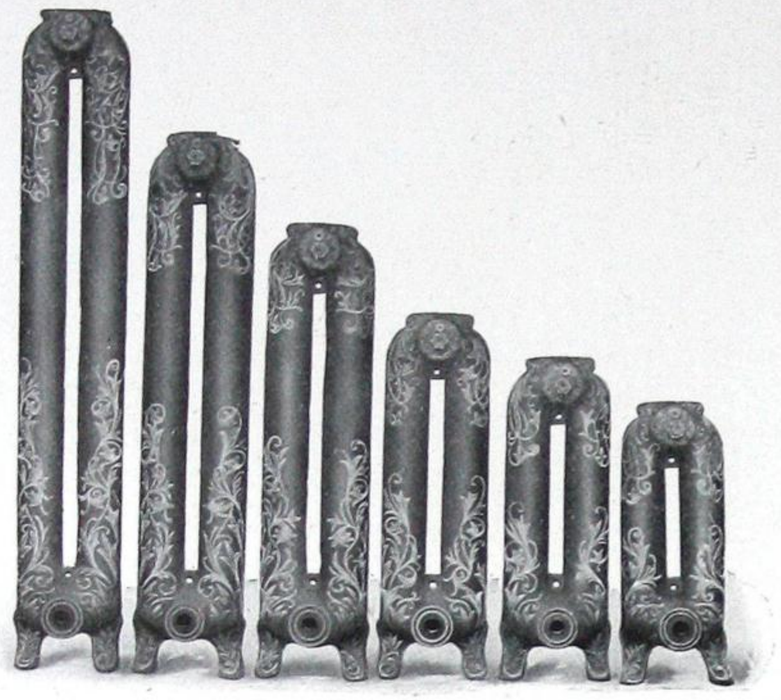
We sell both types, and so can meet any specification, but we recommend and guarantee the push nipple for two reasons: (1) It is an iron to iron joint, without packing of any kind; (2) if it ever is necessary to rebuild a radiator for the purpose of either increasing or diminishing the amount of surface, it is a simple matter with the push nipple type—see illustration—but practically impossible where the other joint is used.



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GURNEY-OXFORD DUET RADIATOR

Each Section is 7¼ inches wide.



Distance from floor to centre of tapping, one pipe, steam . 3½ inches
Distance from floor to centre of tapping in centre opening, hot water . . . . . 4 inches
Distance from floor to centre of tapping in twin opening . . 4 inches
Distance from wall to centre of tapping in centre opening . 4 inches
Distance from wall to centre of tapping in twin opening . . 2⅜ inches
Distance from centre to centre of twin opening . . . . . 3⅛ inches
Distance from floor to centre of top opening—
45-inch Radiator . . . . . 42¾ inches
38-inch Radiator . . . . . 35 inches
32-inch Radiator . . . . . 29¼ inches
26-inch Radiator . . . . . 23½ inches
23-inch Radiator . . . . . 20¾ inches
20-inch Radiator . . . . . 17¾ inches

TABLE OF GURNEY-OXFORD DUET RADIATOR CAPACITIES

PLAIN OR ORNAMENTAL. STEAM OR HOT WATER.

Size of Radiator No. of Loops Long	Extreme Length of Radiator, Inches	List 48 Cents 45 Inches High		List 48 Cents 38 Inches High		List 52 Cents 32 Inches High		List 56 Cents 26 Inches High		List 58 Cents 23 Inches High		List 62 Cents 20 Inches High	
		Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe
2 × 2	5	10	30	8	24	6⅔	20	5⅓	16	4⅔	14	4	12
2 × 3	7½	15	45	12	36	10	30	8	24	7	21	6	18
2 × 4	10	20	60	16	48	13⅓	40	10⅔	32	9⅓	28	8	24
2 × 5	12½	25	75	20	60	16⅔	50	13⅓	40	11⅔	35	10	30
2 × 6	15	30	90	24	72	20	60	16	48	14	42	12	36
2 × 7	17½	35	105	28	84	23⅓	70	18⅔	56	16⅓	49	14	42
2 × 8	20	40	120	32	96	26⅔	80	21⅓	64	18⅔	56	16	48
2 × 9	22½	45	135	36	108	30	90	24	72	21	63	18	54
2 × 10	25	50	150	40	120	33⅓	100	26⅔	80	23⅓	70	20	60
2 × 11	27½	55	165	44	132	36⅔	110	29⅓	88	25⅔	77	22	66
2 × 12	30	60	180	48	144	40	120	32	96	28	84	24	72
2 × 13	32½	65	195	52	156	43⅓	130	34⅔	104	30⅓	91	26	78
2 × 14	35	70	210	56	168	46⅔	140	37⅓	112	32⅔	98	28	84
2 × 15	37½	75	225	60	180	50	150	40	120	35	105	30	90
2 × 16	40	80	240	64	192	53⅓	160	42⅔	128	37⅓	112	32	96
2 × 17	42½	85	255	68	204	56⅔	170	45⅓	136	39⅔	119	34	102
2 × 18	45	90	270	72	216	60	180	48	144	42	126	36	108
2 × 19	47½	95	285	76	228	63⅓	190	50⅔	152	44⅓	133	38	114
2 × 20	50	100	300	80	240	66⅔	200	53⅓	160	46⅔	140	40	120

Width of Radiator, 7¼ in.

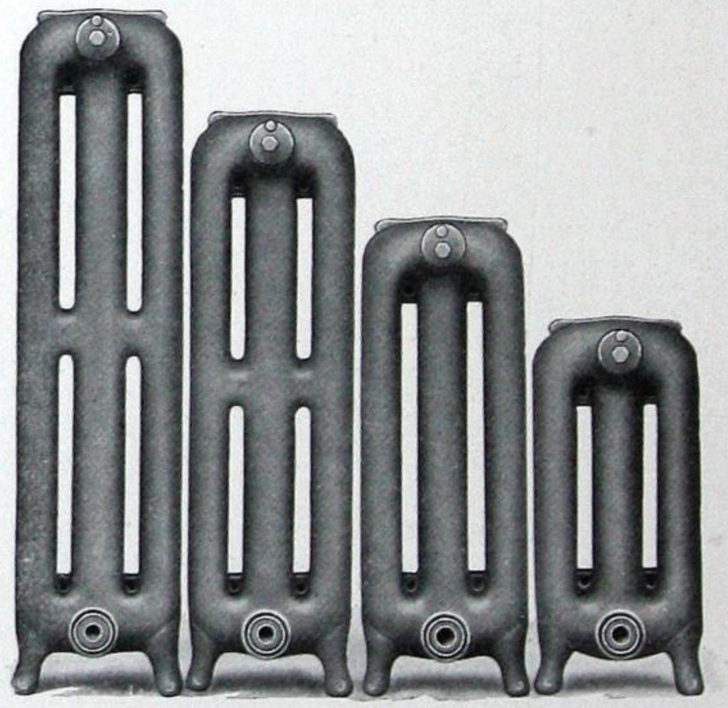
GURNEY-OXFORD TREMONT RADIATORS

FOR HOT WATER OR STEAM. PLAIN OR ORNAMENTAL.
DIMENSIONS AND CAPACITIES.

Size of Radiator No. of Loops Long	Extreme Length of Radiator in Inches	List 48 Cents		List 52 Cents		List 56 Cents		List 62 Cents	
		39 Inches High 6 Feet per Section	Equivalent Lineal Feet of 1-inch Pipe	33 Inches High 5¼ Feet per Section	Equivalent Lineal Feet of 1-inch Pipe	27 Inches High 4¼ Feet per Section	Equivalent Lineal Feet of 1-inch Pipe	21 Inches High 3¼ Feet per Section	Equivalent Lineal Feet of 1-inch Pipe
3 × 2	5	12	36	10½	31½	8½	25½	6½	19½
3 × 3	7½	18	54	15¾	47¼	12¾	38¼	9¾	29¼
3 × 4	10	24	72	21	63	17	51	13	39
3 × 5	12½	30	90	26¼	78¾	21¼	63¾	16¼	48¾
3 × 6	15	36	108	31½	94½	25½	76½	19½	58½
3 × 7	17½	42	126	36¾	110¼	29¾	89¼	22¾	68¼
3 × 8	20	48	144	42	126	34	102	26	78
3 × 9	22½	54	162	47¼	141¾	38¼	114¾	29¼	87¾
3 × 10	25	60	180	52½	157½	42½	127½	32½	97½
3 × 11	27½	66	198	57¾	173¼	46¾	140¼	35¾	107¼
3 × 12	30	72	216	63	189	51	153	39	117
3 × 13	32½	78	234	68¼	204¾	55¼	165¾	42⅛	126¾
3 × 14	35	84	252	73½	220½	59½	178½	45½	136½
3 × 15	37½	90	270	78¾	236¼	63¾	191¼	48¾	146¼
3 × 16	40	96	288	84	252	68	204	52	156
3 × 17	42½	102	306	89¼	267¾	72¼	216¾	55¼	165¾
3 × 18	45	108	324	94½	283½	76½	229½	58½	175½
3 × 19	47½	114	342	99¾	299¼	80¾	242¼	61¾	185¼
3 × 20	50	120	360	105	315	85	255	65	195

GURNEY-OXFORD TREMONT RADIATOR

Each Section is 9¾ inches wide.



Distance from floor to centre of tapping in centre opening . 4 inches
Distance from wall to centre of tapping in centre opening . 5 inches
Distance from wall to centre of tapping in twin opening . . 2¾ inches
Distance from floor to centre of tapping in centre opening 4 inches
Distance from centre to centre in twin openings . . . . . 4¼ inches
Distance from floor to centre of top opening—
39-inch Radiator . . . . . 37⅛ inches
33-inch Radiator . . . . . 31½ inches
27-inch Radiator . . . . . 25¼ inches
21-inch Radiator . . . . . 19¾ inches

CONTINUED ON NEXT PAGE

TABLE OF GURNEY-OXFORD QUARTET RADIATOR CAPACITIES

PLAIN OR ORNAMENTAL. STEAM OR HOT WATER.

Size of Radiator No. of Loops Long	Extreme Length of Radiator in Inches	List 48 Cents 42½ Inches High		List 48 Cents 38½ Inches High		List 52 Cents 32½ Inches High		List 56 Cents 26½ Inches High		List 62 Cents 20½ inches High	
		Feet of Heating Surface	Equivalent 1-inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe
4× 2	8½	19⅓	58	16	48	13⅓	40	10⅔	32	8	24
4× 3	12½	29	87	24	72	20	60	16	48	12	36
4× 4	16½	38⅔	116	32	96	26⅔	80	21⅓	64	16	48
4× 5	20¾	48⅓	145	40	120	33⅓	100	26⅔	80	20	60
4× 6	24¾	58	174	48	144	40	120	32	96	24	72
4× 7	28¾	67⅔	203	56	168	46⅔	140	37⅓	112	28	84
4× 8	32¾	77⅓	232	64	192	53⅓	160	42⅔	128	32	96
4× 9	37	87	261	72	216	60	180	48	144	36	108
4×10	41	96⅔	290	80	240	66⅔	200	53⅓	160	40	120
4×11	45	106⅓	319	88	264	73⅓	220	58⅔	176	44	132
4×12	49	116	348	96	288	80	240	64	192	48	144
4×13	53	125⅔	377	104	312	86⅔	260	69⅓	208	52	156
4×14	57½	135⅓	406	112	336	93⅓	280	74⅔	224	56	168
4×15	61½	145	435	120	360	100	300	80	240	60	180
4×16	65½	154⅔	464	128	384	106⅔	320	85⅓	256	64	192
4×17	69½	164⅓	493	136	408	113⅓	340	90⅔	272	68	204
4×18	73¾	174	522	144	432	120	360	96	288	72	216
4×19	77¾	183⅔	551	152	456	126⅔	380	101⅓	304	76	228
4×20	82	193⅓	580	160	480	133⅓	400	106⅔	320	80	240

Width of Radiator, 8½ inches.

GURNEY-OXFORD QUARTET RADIATOR

Each Section is 8½ inches wide.

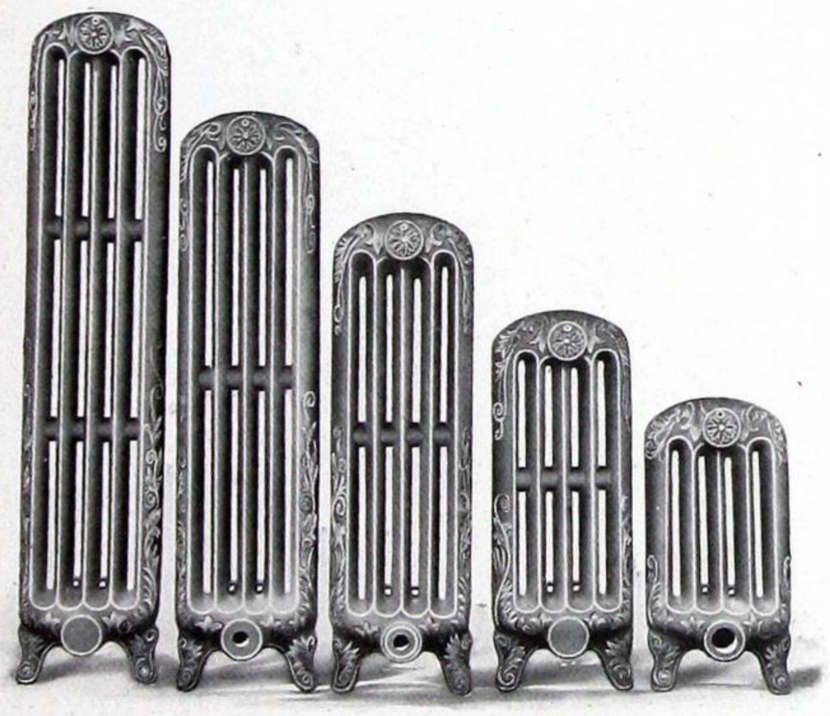


Distance from floor to centre of tapping in centre opening . 4 inches
Distance from wall to centre of tapping in centre opening . 4⅜ inches
Distance from wall to centre of tapping in twin opening . . . 2½ inches
Distance from floor to centre of tapping in twin openings . 4 inches
Distance from centre to centre in twin opening . . . . . 3⅜ inches
Distance from floor to centre of top opening—

42½-inch Radiator . . . . . 40¾ inches
38½-inch Radiator . . . . . 36¾ inches
32½-inch Radiator . . . . . 30½ inches
26½-inch Radiator . . . . . 24¾ inches
20½-inch Radiator . . . . . 18¾ inches

GURNEY-OXFORD QUINTET RADIATOR

Each Section is 9¾ inches wide.



Distance from floor to centre of tapping in centre opening . 3¾ inches
Distance from wall to centre of tapping in centre opening . 5 inches
Distance from wall to centre of tapping in twin opening . . . 2⅝ inches
Distance from floor to centre of tapping in twin opening . . 3¾ inches
Distance from centre to centre in twin openings . . . . . 4¾ inches
Distance from floor to centre of top opening—

47-inch Radiator . . . . . 44½ inches
40-inch Radiator . . . . . 37¾ inches
33 inch Radiator . . . . . 31 inches
26-inch Radiator . . . . . 24 inches
20-inch Radiator . . . . . 17¾ inches

TABLE OF GURNEY-OXFORD QUINTET RADIATOR CAPACITIES

ORNAMENTAL ONLY. STEAM OR HOT WATER.

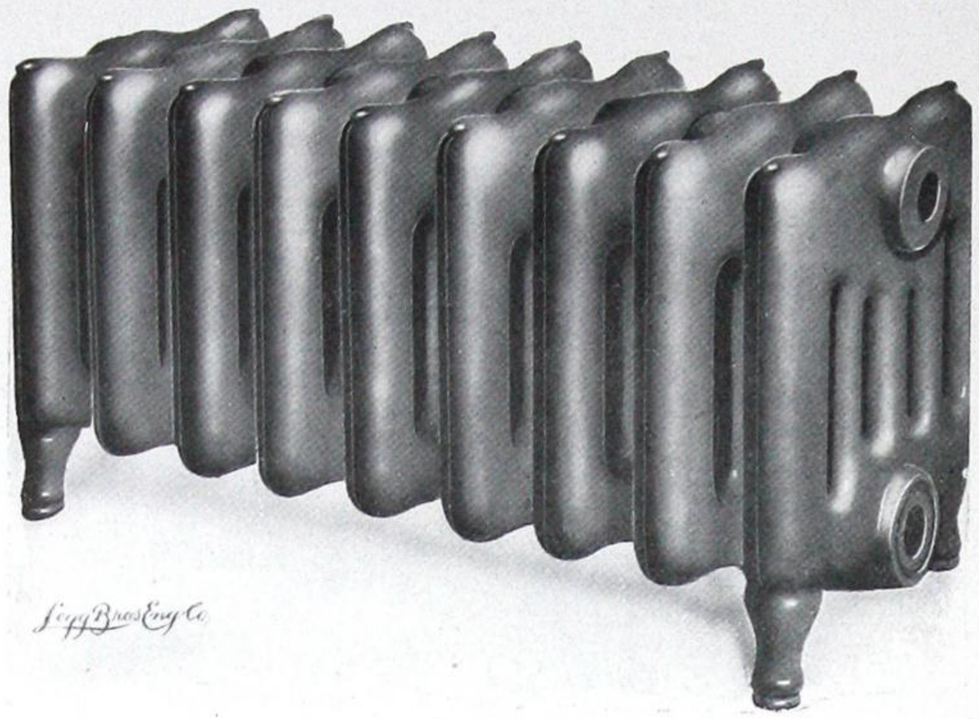
Size of Radiator No. of Loops Long	Extreme Length of Radiator, Inches	List 48 Cents 47 Inches High		List 48 Cents 40 Inches High		List 52 Cents 33 Inches High		List 56 Cents 26 Inches High		List 62 Cents 20 Inches High	
		Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe
5× 2	8¾	26	78	22	66	18	54	14	42	10	30
5× 3	12¾	39	117	33	99	27	81	21	63	15	45
5× 4	16¾	52	156	44	132	36	108	28	84	20	60
5× 5	20¾	65	195	55	165	45	135	35	105	25	75
5× 6	25	78	234	66	198	54	162	42	126	30	90
5× 7	29	91	273	77	231	63	189	49	147	35	105
5× 8	33	104	312	88	264	72	216	56	168	40	120
5× 9	37	117	351	99	297	81	243	63	189	45	135
5×10	41¼	130	390	110	330	90	270	70	210	50	150
5×11	45¼	143	429	121	363	99	297	77	231	55	165
5×12	49¼	156	468	132	396	108	324	84	252	60	180
5×13	53¼	169	507	143	429	117	351	91	273	65	195
5×14	57½	182	546	154	462	126	378	98	294	70	210
5×15	61½	195	585	165	495	135	405	105	315	75	225
5×16	65½	208	624	176	528	144	432	112	336	80	240
5×17	69½	221	663	187	561	153	459	119	357	85	255
5×18	73¾	234	702	198	594	162	486	126	378	90	270
5×19	77¾	247	741	209	627	171	513	133	399	95	285
5×20	81¾	260	780	220	660	180	540	140	420	100	300

Width of Radiator, 9¾ inches.

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GURNEY-OXFORD WINDOW RADIATOR.

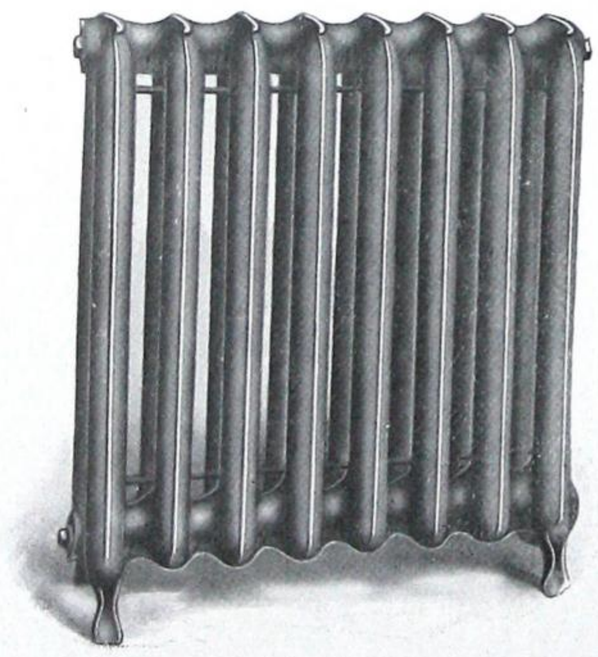
STEAM OR WATER.



Size of Radiator Number of Loops Long	Extreme Length of Radiator in Inches	List 74 Cents — 13½ Inches High		List 68 Cents — 16½ Inches High	
		Feet Heating Surface	Equivalent in 1-inch Pipe	Feet Heating Surface	Equivalent in 1-inch Pipe
5 x 2	6	8	24	10	30
5 x 3	9	12	36	15	45
5 x 4	12	16	48	20	60
5 x 5	15	20	60	25	75
5 x 6	18	24	72	30	90
5 x 7	21	28	84	35	105
5 x 8	24	32	96	40	120
5 x 9	27	36	108	45	135
5 x 10	30	40	120	50	150
5 x 11	33	44	132	55	165
5 x 12	36	48	144	60	180
5 x 13	39	52	156	65	195
5 x 14	42	56	168	70	210
5 x 15	45	60	180	75	225
5 x 16	48	64	192	80	240
5 x 17	51	68	204	85	255
5 x 18	54	72	216	90	270
5 x 19	57	76	228	95	285
5 x 20	60	80	240	100	300

Width of Radiator, 11½ inches. Distance from floor to centre of opening, 3 inches; distance between openings, twin connections, 3¼ inches.

GURNEY-OXFORD HOSPITAL RADIATOR.



Made in Duet and Tremont styles all heights. Add 1 inch per section to the length of Radiator in figuring.

This Radiator represents most advanced practice in hospital equipment, being so designed that any lodgment of dust is readily cleaned away, and germs have little or no opportunity to multiply.

SCHOOL PIN INDIRECT RADIATORS.

STEAM SECTION.



Each section contains 20 square feet of heating surface.

Length, 36 inches; height, 13⅞ inches; width each section occupies in stack, 4¼ inches; height at connecting point, 15 inches.

Sections will be shipped separately unless specified in stacks. When ordered assembled, they will be shipped in stacks of not more than six sections each.

School Pin Indirect Sections are connected with 2-inch right and left hexagon nipples.

GURNEY-OXFORD VENTILATING RADIATOR ATTACHMENT

CONVERTING DIRECT RADIATORS TO VENTILATING TYPE.



This new adjustable box base is constructed so that it will take a supply of air either through the floor or the wall. The base dampers are fitted so that when the front damper is open, the base or back damper is closed, and vice versa. This insures a continuous circulation.

This base can be furnished with floor damper instead of back inlet. Where floor inlet dampers are required, same should be specially stated when ordering, otherwise back inlet dampers will be supplied.

CONTINUED ON NEXT P



GURNEY-OXFORD PRIMA RADIATOR

Each Section is $4\frac{3}{4}$ inches wide.

Distance from floor to centre of tapping in centre opening..... 4 inches
Distance from floor to centre of tapping in twin opening..... $4\frac{1}{4}$ inches
Distance from wall to centre of tapping in centre opening..... $2\frac{1}{2}$ inches
Distance from wall to centre of tapping in twin opening..... $1\frac{1}{2}$ inches
Distance from centre to centre in twin openings..... $3\frac{1}{4}$ inches
Distance from floor to centre of top opening—
39-inch Radiator.....$37\frac{1}{2}$ inches
34-inch Radiator.....$31\frac{1}{2}$ inches
27-inch Radiator.....$25\frac{1}{4}$ inches

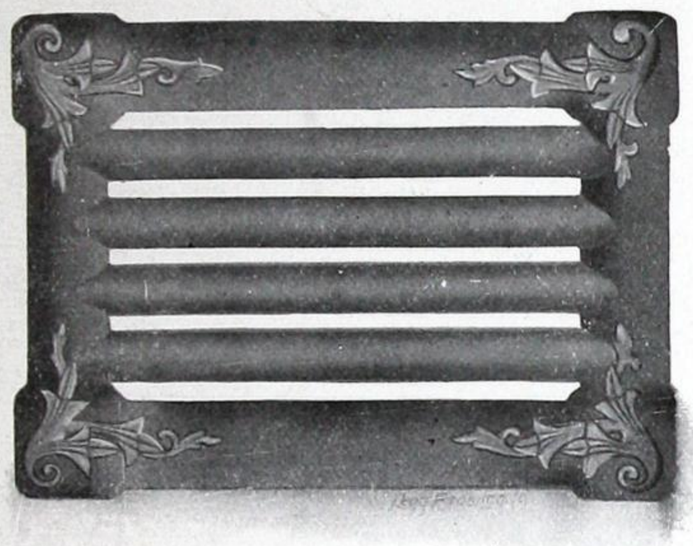


GURNEY-OXFORD PRIMA RADIATOR CAPACITIES

PLAIN OR ORNAMENTAL. STEAM OR WATER.

Size of Radiator No. of Loops Long	Extreme Length of Radiator in Inches	List 48 Cents 39 Inches High		List 52 Cents 34 Inches High		List 56 Cents 27 Inches High	
		Feet of Heating Surface	Equivalent 1-inch Pipe	Feet of Heating Surface	Equivalent 1-inch Pipe	Feet of Heating Surface	Equivalent 1-inch Pipe
2 x 2	8	8	24	$6\frac{2}{3}$	20	$5\frac{1}{3}$	16
2 x 3	$11\frac{1}{2}$	12	36	10	30	8	24
2 x 4	15	16	48	$13\frac{1}{3}$	40	$10\frac{2}{3}$	32
2 x 5	$18\frac{1}{2}$	20	60	$16\frac{2}{3}$	50	$13\frac{1}{3}$	40
2 x 6	22	24	72	20	60	16	48
2 x 7	$25\frac{1}{2}$	28	84	$23\frac{1}{3}$	70	$18\frac{2}{3}$	56
2 x 8	29	32	96	$26\frac{2}{3}$	80	$21\frac{1}{3}$	64
2 x 9	$32\frac{1}{2}$	36	108	30	90	24	72
2 x 10	36	40	120	$33\frac{1}{3}$	100	$26\frac{2}{3}$	80
2 x 11	$39\frac{1}{2}$	44	132	$36\frac{2}{3}$	110	$29\frac{1}{3}$	88
2 x 12	43	48	144	40	120	32	96
2 x 13	$46\frac{1}{2}$	52	156	$43\frac{1}{3}$	130	$34\frac{2}{3}$	104
2 x 14	50	56	168	$46\frac{2}{3}$	140	$37\frac{1}{3}$	112
2 x 15	$53\frac{1}{2}$	60	180	50	150	40	120
2 x 16	57	64	192	$53\frac{1}{3}$	160	$42\frac{2}{3}$	128
2 x 17	$60\frac{1}{2}$	68	204	$56\frac{2}{3}$	170	$45\frac{1}{3}$	136
2 x 18	64	72	216	60	180	48	144
2 x 19	$67\frac{1}{2}$	76	228	$63\frac{1}{3}$	190	$50\frac{2}{3}$	152
2 x 20	71	80	240	$66\frac{2}{3}$	200	$53\frac{1}{3}$	160

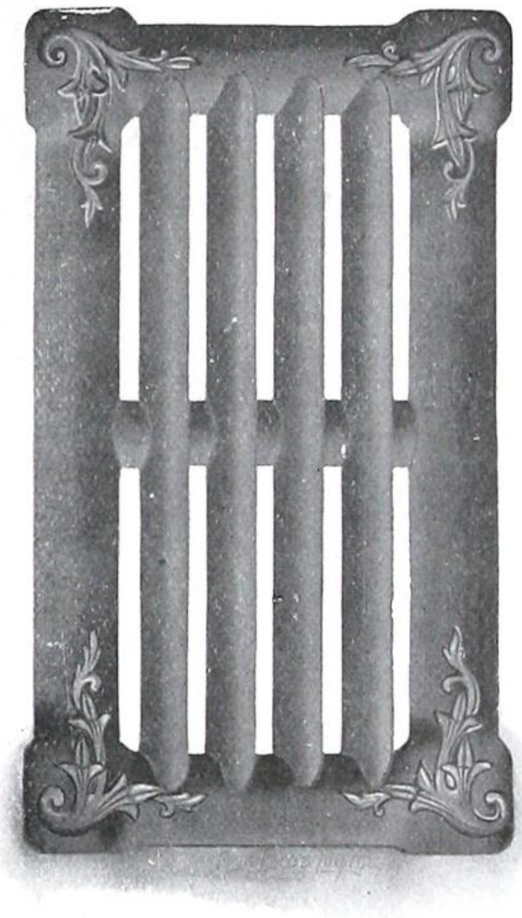
Width of Radiator, $4\frac{3}{4}$ in.



GURNEY-OXFORD NARRO WALL RADIATOR

TAPPINGS FROM CENTRE TO CENTRE.

5 ft. section.....$10\frac{1}{16}$ inches
7 ft. section, horizontal.....$10\frac{15}{16}$ inches
7 ft. section, vertical.....16 inches
9 ft. section, horizontal.....$10\frac{15}{16}$ inches
9 ft. section, vertical.....21 inches



THE NINE FOOT LOOP.

HORIZONTALLY CONNECTED.

3 inches wide. List Price, 48c. per foot. Price does not include brackets.

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in 1-inch Pipe
1	14	$24\frac{1}{8}$	9	27
2	14	$48\frac{1}{4}$	18	54
3	14	$72\frac{3}{8}$	27	81
4	14	$96\frac{1}{2}$	36	108
5	14	$120\frac{5}{8}$	45	135
6	14	$144\frac{3}{4}$	54	162

THE NINE FOOT LOOP.

VERTICALLY CONNECTED.

3 inches wide. List Price, 48c. per foot. Price does not include brackets.

No. of Sections.	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in 1-inch Pipe
1	$24\frac{1}{8}$	14	9	27
2	$24\frac{1}{8}$	28	18	54
3	$24\frac{1}{8}$	42	27	81
4	$24\frac{1}{8}$	56	36	108
5	$24\frac{1}{8}$	70	45	135
6	$24\frac{1}{8}$	84	54	162
7	$24\frac{1}{8}$	98	63	189
8	$24\frac{1}{8}$	112	72	216

TAPPINGS FROM CENTRE TO CENTRE.

5 ft. section.....$10\frac{15}{16}$ inches
7 ft. section, horizontal.....$10\frac{15}{16}$ inches
7 ft. section, vertical.....16 inches
9 ft. section, horizontal.....$10\frac{15}{16}$ inches
9 ft. section, vertical.....21 inches

For building wall radiators in stacks we make an extra charge, as follows:

No. Sections Thick	1 and 2 Sections Long	3 and 4 Sections Long	5 and 6 Sections Long
2	$ 4.00	$ 4.50	$ 5.00
3	6.00	6.50	7.00
4	8.00	8.50	9.00
5	10.00	10.50	11.00
6	12.00	12.50	13.00

For each additional thickness, an extra charge of $2.00 to above list prices.
In ordering, specify style required.

THE FIVE FOOT LOOP.

DIMENSIONS, CAPACITIES, ETC.

3 inches wide. List Price, 52c. per foot. Price does not include brackets.

No. of Sections.	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in 1-inch Pipe
1	14	$13\frac{1}{2}$	5	15
2	14	27	10	30
3	14	$40\frac{1}{2}$	15	45
4	14	54	20	60
5	14	$67\frac{1}{2}$	25	75
6	14	81	30	90
7	14	$94\frac{1}{2}$	35	105
8	14	108	40	120
9	14	$121\frac{1}{2}$	45	135
10	14	135	50	150

THE SEVEN FOOT LOOP.

HORIZONTALLY CONNECTED.

3 inches wide. List Price, 50c. per foot. Price does not include brackets.

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in 1-inch Pipe
1	14	$19\frac{1}{8}$	7	21
2	14	$38\frac{1}{4}$	14	42
3	14	$57\frac{3}{8}$	21	63
4	14	$76\frac{1}{2}$	28	84
5	14	$95\frac{5}{8}$	35	105
6	14	$114\frac{3}{4}$	42	126
7	14	$133\frac{7}{8}$	49	147

THE SEVEN FOOT LOOP.

VERTICALLY CONNECTED.

3 inches wide. List Price, 50c. per foot. Price does not include brackets.

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in 1-inch Pipe
1	$19\frac{1}{8}$	14	7	21
2	$19\frac{1}{8}$	28	14	42
3	$19\frac{1}{8}$	42	21	63
4	$19\frac{1}{8}$	56	28	84
5	$19\frac{1}{8}$	70	35	105
6	$19\frac{1}{8}$	84	42	126
7	$19\frac{1}{8}$	98	49	147

TAYLOR-FORBES COMPANY, LIMITED

GENERAL OFFICE AND WORKS:

GUELPH, ONTARIO.

SOVEREIGN RADIATORS

WITH SCREWED NIPPLE CONNECTIONS
SUITABLE FOR ANY KNOWN SYSTEM OF HEATING
THE ONLY RANGE OF RADIATORS MADE OF UNIFORM DESIGN

BRANCHES:

TORONTO, MONTREAL,
VANCOUVER,
HAMILTON.

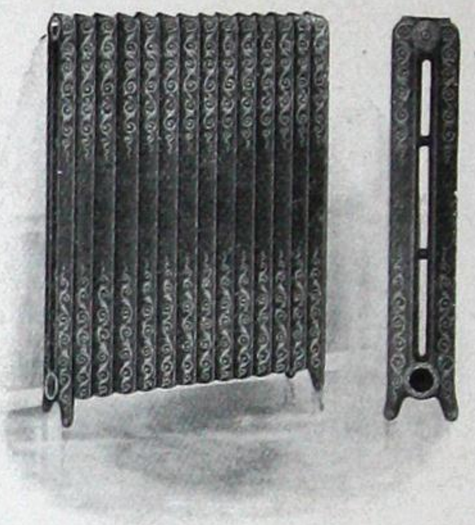
AGENTS:

VULCAN IRONWORKS, WINNIPEG.
P. D. MCLAREN, LTD., CALGARY.
MECHANICS SUPPLY CO., QUEBEC.
W. H. CAMPBELL, ST. JOHN.

MONARCH TWO LOOP

LIST OF SIZES AND CAPACITIES
TWO LOOPS—6½ INCHES WIDE.

Number of Sections	Square Feet of Heating Surface					
	Length in Inches Over All	38½ in. 4 ft. per Section	32½ in. 3⅓ ft. per Section	26½ in. 2⅔ ft. per Section	20½ in. 2 ft. per Section	16½ in. 1½ ft. per Section
2	8	8	6.8	5.4	4	3.
3	11½	12	10.	8.	6	4.6
4	15	16	13.4	10.8	8	6.
5	18½	20	16.8	13.4	10	7.6
6	22	24	20.	16.	12	9.
7	25½	28	23.4	18.8	14	10.6
8	29	32	26.8	21.4	16	12.
9	32½	36	30.	24.	18	13.6
10	36	40	33.4	26.8	20	15.
11	39½	44	36.8	29.4	22	16.6
12	43	48	40.	32.	24	18.
13	46½	52	43.4	34.8	26	19.6
14	50	56	46.8	37.4	28	21.
15	53½	60	50.	40.	30	22.6
16	57	64	53.4	42.8	32	24.
17	60½	68	56.8	45.4	34	25.6
18	64	72	60.	48.	36	27.
19	67½	76	63.4	50.8	38	28.6
20	71	80	66.8	53.4	40	30.

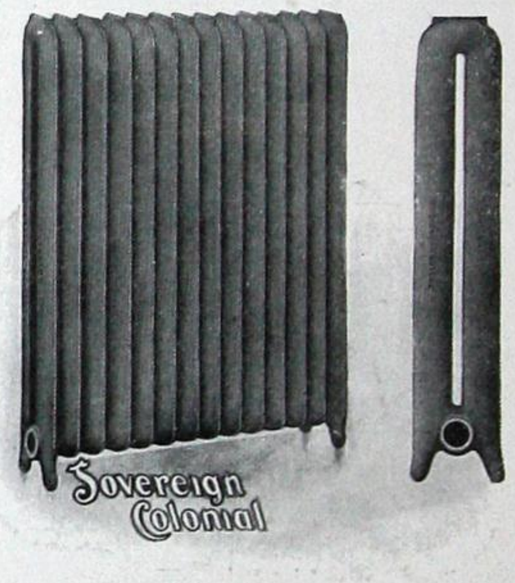


MONARCH—ORNAMENTAL OR PLAIN. For Water only.

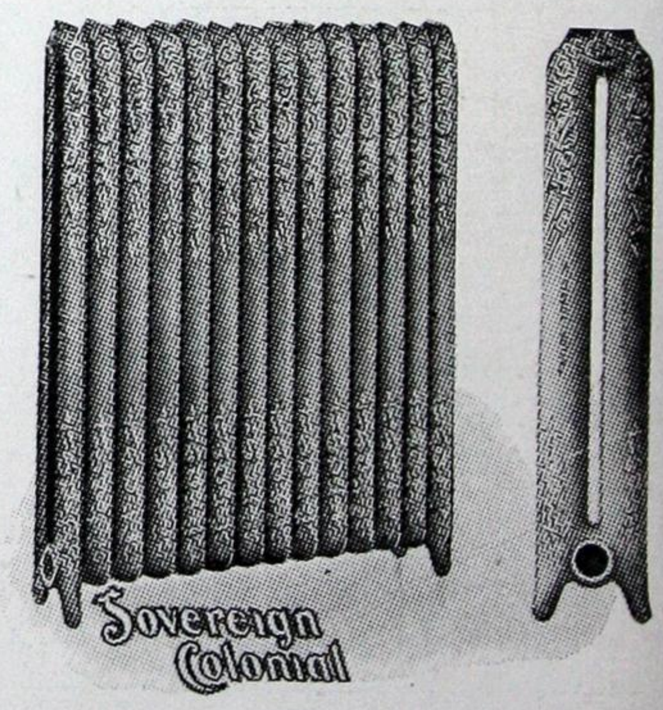
COLONIAL PATTERN TWO LOOP

LIST OF SIZES "COLONIAL" FOR STEAM AND HOT WATER.
EACH LOOP IS 7½ INCHES WIDE AND 2½ INCHES THICK ACROSS HUBS.

Number of Sections	Square Feet of Heating Surface							
	Length in Inches Over All	45 in. 5 ft. per Section	38½ in. 4 ft. per Section	32½ in. 3⅓ ft. per Section	30 in. 3 ft. per Section	26½ in. 2⅔ ft. per Section	23 in. 2⅓ ft. per Section	20½ in. 2 ft. per Section
2	5	10	8	6⅔	6	5⅓	4⅔	4
3	7½	15	12	10	9	8	7	6
4	10	20	16	13⅓	12	10⅔	9⅓	8
5	12½	25	20	16⅔	15	13⅓	11⅔	10
6	15	30	24	20	18	16	14	12
7	17½	35	28	23⅓	21	18⅔	16⅓	14
8	20	40	32	26⅔	24	21⅓	18⅔	16
9	22½	45	36	30	27	24	21	18
10	25	50	40	33⅓	30	26⅔	23⅓	20
11	27½	55	44	36⅔	33	29⅓	25⅔	22
12	30	60	48	40	36	32	28	24
13	32½	65	52	43⅓	39	34⅔	30⅓	26
14	35	70	56	46⅔	42	37⅓	32⅔	28
15	37½	75	60	50	45	40	35	30
16	40	80	64	53⅓	48	42⅔	37⅓	32
17	42½	85	68	56⅔	51	45⅓	39⅔	34
18	45	90	72	60	54	48	42	36
19	47½	95	76	63⅓	57	50⅔	44⅓	38
20	50	100	80	66⅔	60	53⅓	46⅔	40
21	52½	105	84	70	63	56	49	42
22	55	110	88	73⅓	66	58⅔	51⅓	44
23	57½	115	92	76⅔	69	61⅓	53⅔	46
24	60	120	96	80	72	64	56	48
25	62½	125	100	83⅓	75	66⅔	58⅓	50
26	65	130	104	86⅔	78	69⅓	60⅔	52
27	67½	135	108	90	81	72	63	54
28	70	140	112	93⅓	84	74⅔	65⅓	56
29	72½	145	116	96⅔	87	77⅓	67⅔	58
30	75	150	120	100	90	80	70	60
31	77½	155	124	103⅓	93	82⅔	72⅓	62
32	80	160	128	106⅔	96	85⅓	74⅔	64
33	82½	...	132	110	..	88	...	66
34	85	...	136	113⅓	..	90⅔	...	68
35	87½	...	140	116⅔	..	93⅓	...	70
36	90	...	144	120	..	96	...	72



COLONIAL—PLAIN. Water or Steam.

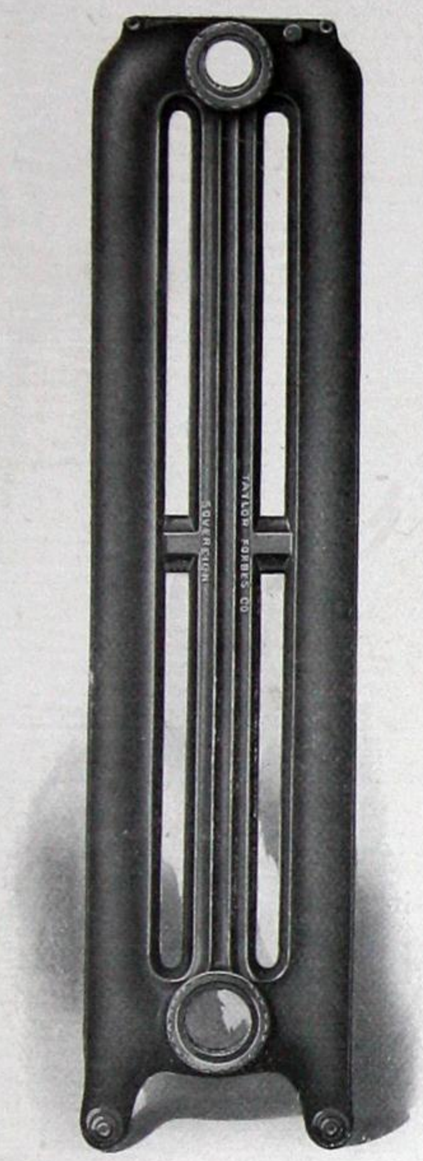


COLONIAL—ORNAMENTAL. Water or Steam.

CONTINUED ON NEXT PAG

SOVEREIGN RADIATORS.

EMPIRE PATTERN—THREE LOOP.



EMPIRE—PLAIN.
Water or Steam.

LIST OF SIZES AND CAPACITIES.

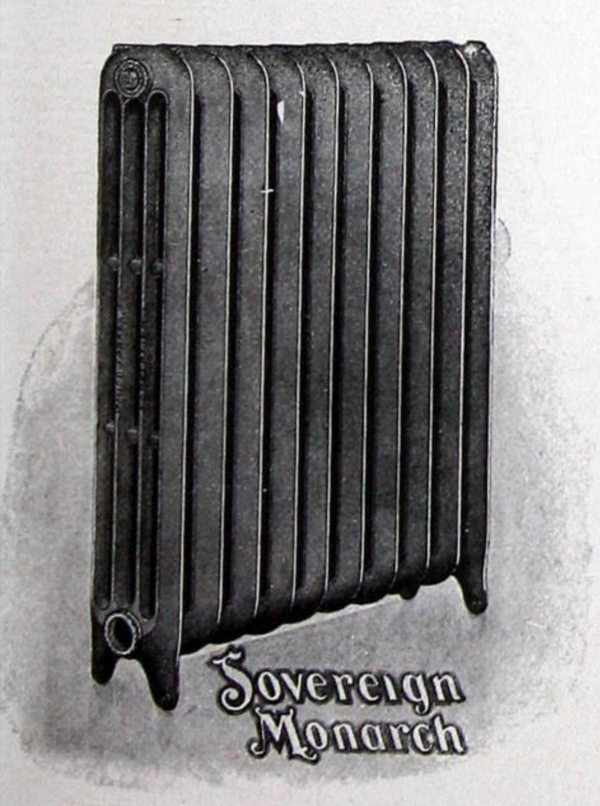
THREE LOOPS—9½ INCHES WIDE.

Number of Sections	Square Feet of Heating Surface				
	Length in Inches Over All	38½ in. 5 ft. per Section	32½ in. 4½ ft. per Section	26½ in. 3¾ ft. per Section	22 in. 3 ft. per Section
2	6	10	9.	7.6	6
3	8½	15	13.6	12.3	9
4	11	20	18.	15.	12
5	13½	25	22.6	18.9	15
6	16	30	27.	22.6	18
7	18½	35	31.6	26.3	21
8	21	40	36.	30.	24
9	23½	45	40.6	33.9	27
10	26	50	45.	37.6	30
11	28½	55	49.6	41.3	33
12	31	60	54.	45.	36
13	33½	65	58.6	48.9	39
14	36	70	63.	52.6	42
15	38½	75	67.6	56.3	45
16	41	80	72.	60.	48
17	43½	85	76.6	63.9	51
18	46	90	81.	67.6	54
19	48½	95	85.6	71.3	57
20	51	100	90.	75.	60
21	53½	105	94.6	78.9	63
22	56	110	99.	82.6	66
23	58½	115	103.6	86.3	69
24	61	120	108.	90.	72



EMPIRE—ORNAMENTAL.
Water or Steam.

MONARCH PATTERN—FOUR LOOP.



Water or Steam. Round or Square Top.

LIST OF SIZES AND CAPACITIES.

FOUR LOOPS—8½ INCHES WIDE.

Number of Sections	Square Feet of Heating Surface						
	Length in Inches Over All	42½ in. 9⅔ ft. per Section	38½ in. 8 ft. per Section	32½ in. 6⅔ ft. per Section	26½ in. 5⅓ ft. per Section	20½ in. 4 ft. per Section	16½ in. 2½ ft. per Section
2	9	19.4	16	13.4	10.8	8	5.
3	13	29.	24	20.	16.	12	7.6
4	17	38.8	32	26.8	21.4	16	10.
5	21	48.4	40	33.4	26.8	20	12.6
6	25	58.	48	40.	32.	24	15.
7	29	67.8	56	46.8	37.4	28	17.6
8	33	77.4	64	53.4	42.8	32	20.
9	37	87.	72	60.	48.	36	22.6
10	41	96.8	80	66.8	53.4	40	25.
11	45	106.4	88	73.4	58.8	44	27.6
12	49	116.	96	80.	64.	48	30.
13	53	125.8	104	86.8	69.4	52	32.6
14	57	135.4	112	93.4	74.8	56	35.
15	61	145.	120	100.	80.	60	37.6
16	65	154.8	128	106.8	85.4	64	40.
17	69	164.4	136	113.4	90.8	68	42.6
18	73	174.	144	120.	96.	72	45.
19	77	183.8	152	126.8	101.4	76	47.6
20	81	193.4	160	133.4	106.8	80	50.
21	85	203.	168	140.	112.	84	52.6
22	89	212.8	176	146.8	117.4	88	55.
23	93	222.4	184	153.4	122.8	92	57.6



Water or Steam. Round or Square Top.

CONTINUED ON NEXT PAGE

SOVEREIGN RADIATORS.

Colonial Hospital Radiator.

PLAIN PATTERN ONLY.



Fig. 71.

MADE FOR WATER AND STEAM.
TO ORDER ONLY.

These Radiators are made with special wide hubs, making the distance from C to C of loops 3½ inches.

Surface Contents same as "Colonial" standard patterns.

Carpet Foot.

MADE IN 2 LOOP ONLY.

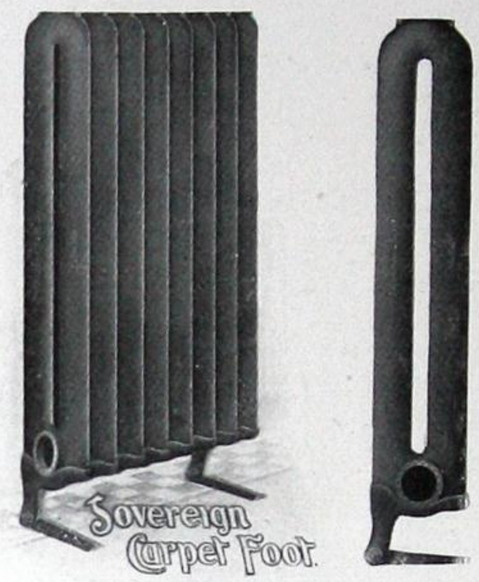


Fig. 10.

Extra High Legs.

MADE IN 2 OR 4 LOOP.

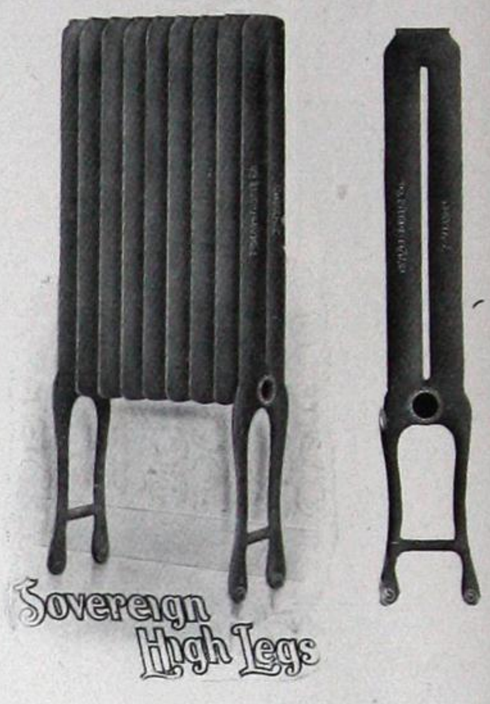


Fig. 11.

Monarch Pattern.

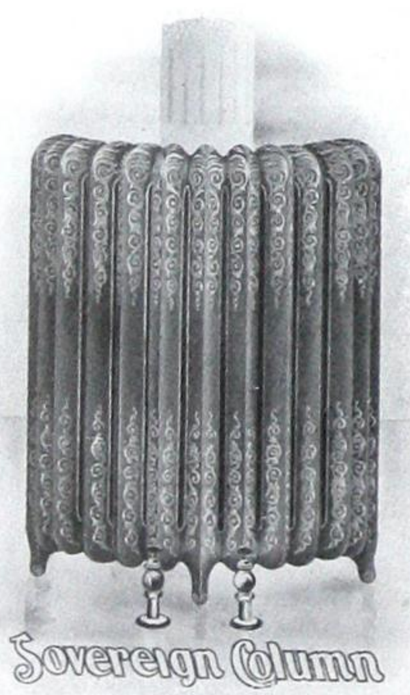


Fig. 12.

Colonial Pattern.

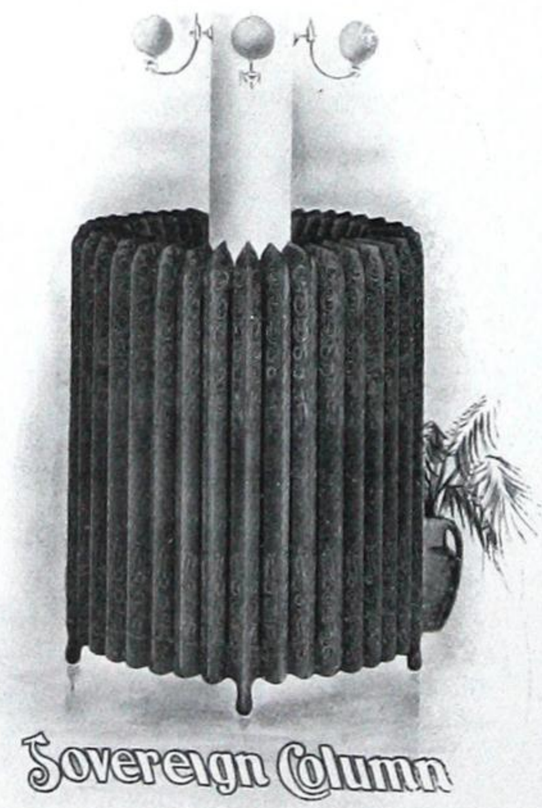


Fig. 13.

All Radiators illustrated on this page made to order only.

Special data furnished on application.

Semi-Circular Window Radiator.

PLAIN OR ORNAMENTAL.

Always send templets covering exact measurements.

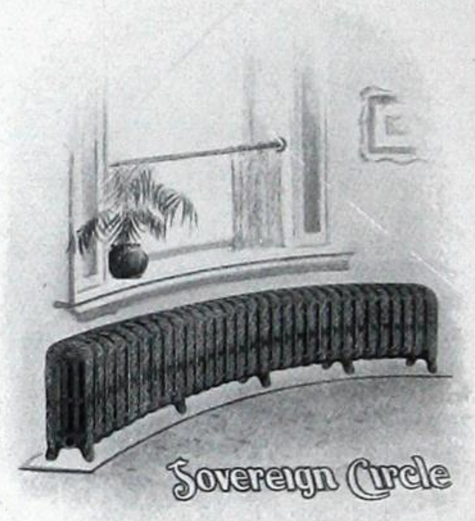


Fig. 18.

Style A.

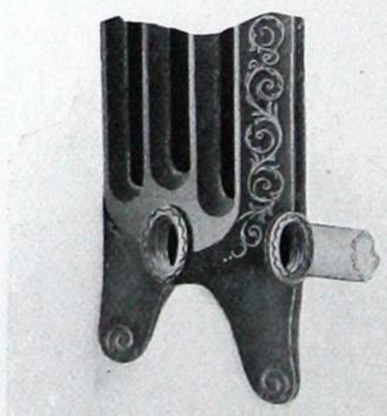


Fig. 29.

Showing Supply Pipe on Side of Loop.

Style B.



Fig. 30.

Showing Supply Pipe on Bottom of Loop.

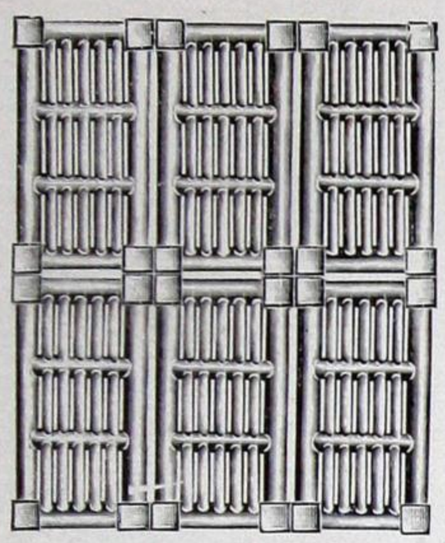
OTHER METHODS OF CONNECTING:—

C—Single Connections at Opposite Ends.
D—Twin Connections at Same Ends.
E—Top Supply and Bottom Return at Opposite Ends.
F—Top Supply and Bottom Return at Same Ends.
G—One Pipe Connections on One End only for Steam.
A and B put anywhere on Sections to Order.

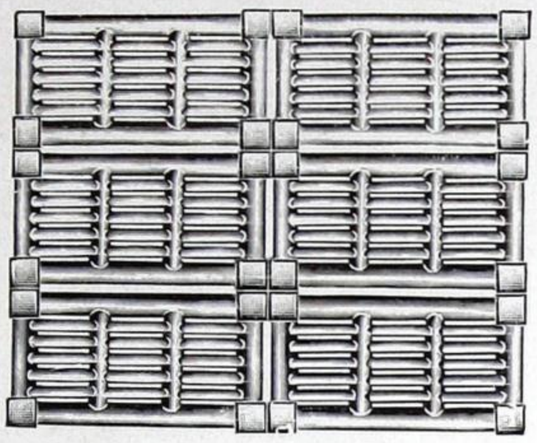
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SOVEREIGN RADIATORS.

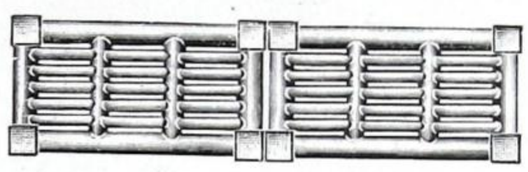
WALL RADIATORS—"TAYLOR-FORBES PATTERNS."



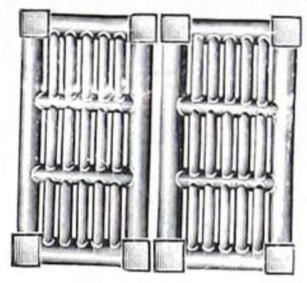
STYLE A
VERTICAL—CONNECTED



STYLE B
HORIZONTAL—CONNECTED WALL RADS



STYLE C
HORIZONTAL—CONNECTED



STYLE D
VERTICAL—CONNECTED

Illustrations show various forms of assembling. The Taylor-Forbes Wall Sections can be built to any number of sections to secure heating capacity desired.

SOVEREIGN VENTILATING RADIATORS.

DIRECT-INDIRECT RADIATORS.

FOR STEAM ONLY.

PLAIN PATTERN.

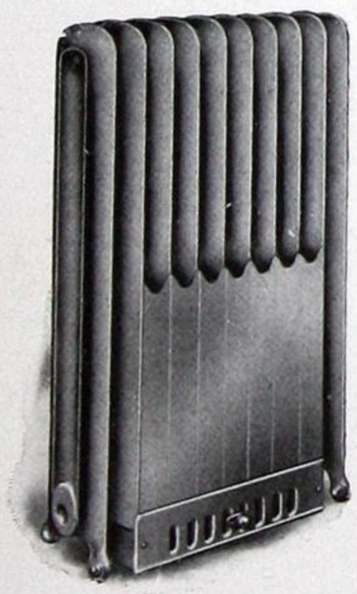
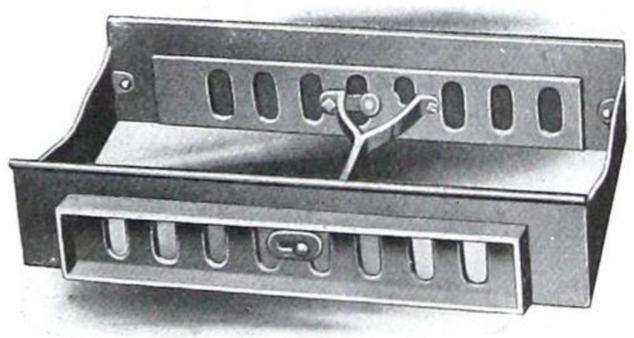


FIG. 7

This new style with panel sides has been adopted because of its sanitary construction, and is fitted with loose box bases.

ADJUSTABLE BOX BASE.



BACK VIEW—FIG. 70

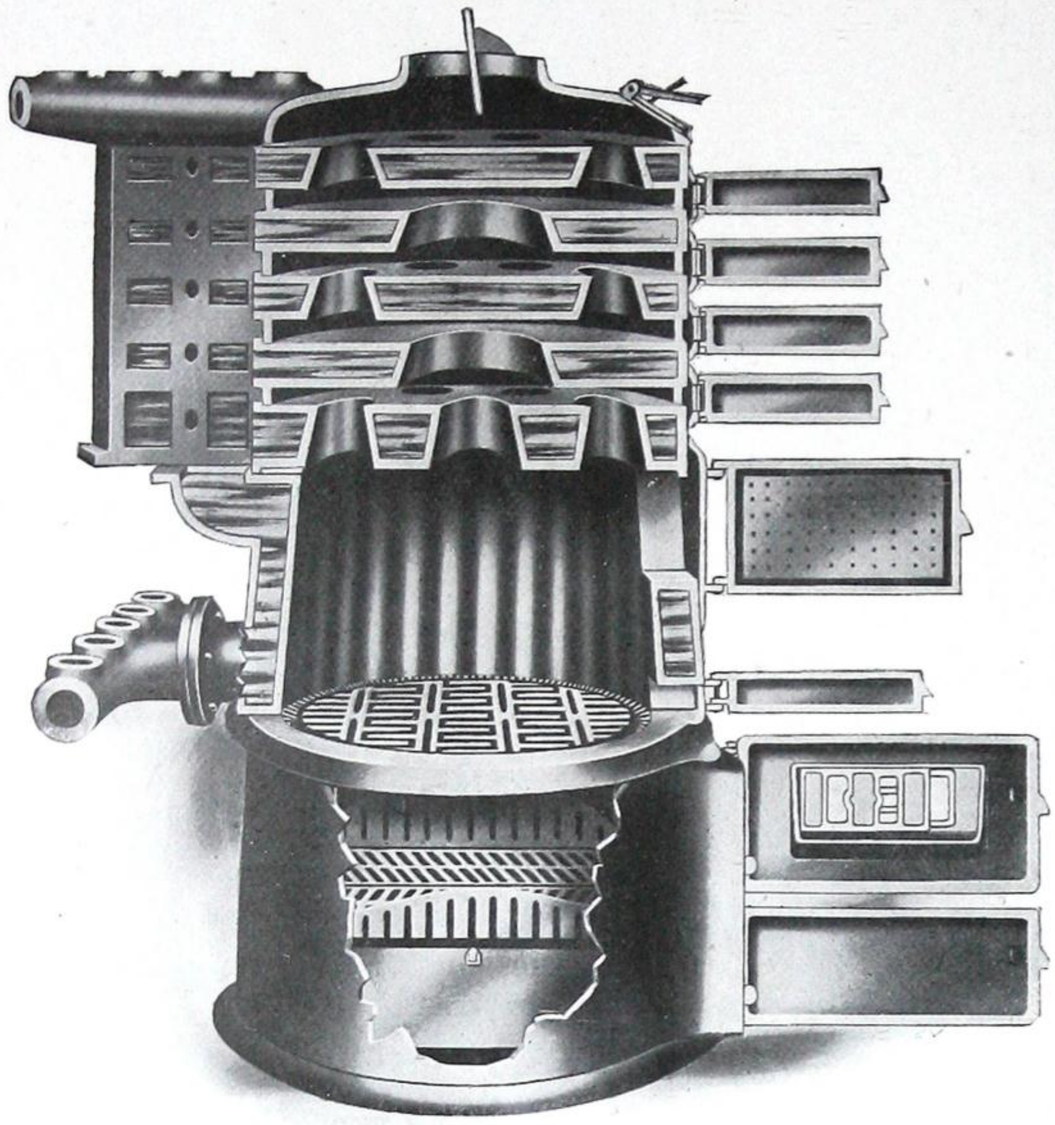
As will be seen by above illustration, the dampers provided with this box base are arranged so that when the back air inlet is opened, the damper slide in the front of base is automatically closed, and vice versa. Where required, we can supply these bases with floor inlet dampers arranged to operate in the same manner.

TWO AND THREE COLUMN BASES			FOUR COLUMN BASES		
No. of Base Sections	Size of Collar for Back Air Inlet Inches	Size of Floor Inlet Damper Inches	No. of Base Sections	Size of Collar for Back Air Inlet Inches	Size of Floor Inlet Damper Inches
5	2¾ x 5	5½ x 6½	5	2¾ x 9	5½ x 6½
6	2¾ x 9	5½ x 6½	6	2¾ x 14	5½ x 11
7	2¾ x 9	5½ x 11	7	2¾ x 14	5½ x 11
8	2¾ x 9	5½ x 11	8	2¾ x 14	5½ x 18
9	2¾ x 9	5½ x 11	9	2¾ x 14	5½ x 18
10	2¾ x 14	5½ x 11	10	2¾ x 19	5½ x 28½
11	2¾ x 14	5½ x 18	11	2¾ x 19	5½ x 28½
12	2¾ x 14	5½ x 18	12	2¾ x 19	5½ x 36½
13	2¾ x 14	5½ x 18	13	2¾ x 19	5½ x 36½
14	2¾ x 14	5½ x 18	14	2¾ x 19	5½ x 44¾
15	2¾ x 19	5½ x 28½	15	2¾ x 23	5½ x 44¾

NOTE.—Where Floor Inlet Dampers are required, it should be specially stated when ordering. Back Inlet Dampers will be furnished unless otherwise specified.

CONTINUED ON NEXT PAGE

SOVEREIGN WATER BOILER.



SHOWING INTERNAL CONSTRUCTION.
10 SIZES—HIGH OR LOW BASE.

SPECIAL FEATURES:

Large Deep Fire Pot.
Large First Section.
Separate Clean-out Doors.
Large Water Post.
Flared Sections.

FOR SOFT OR HARD COAL.

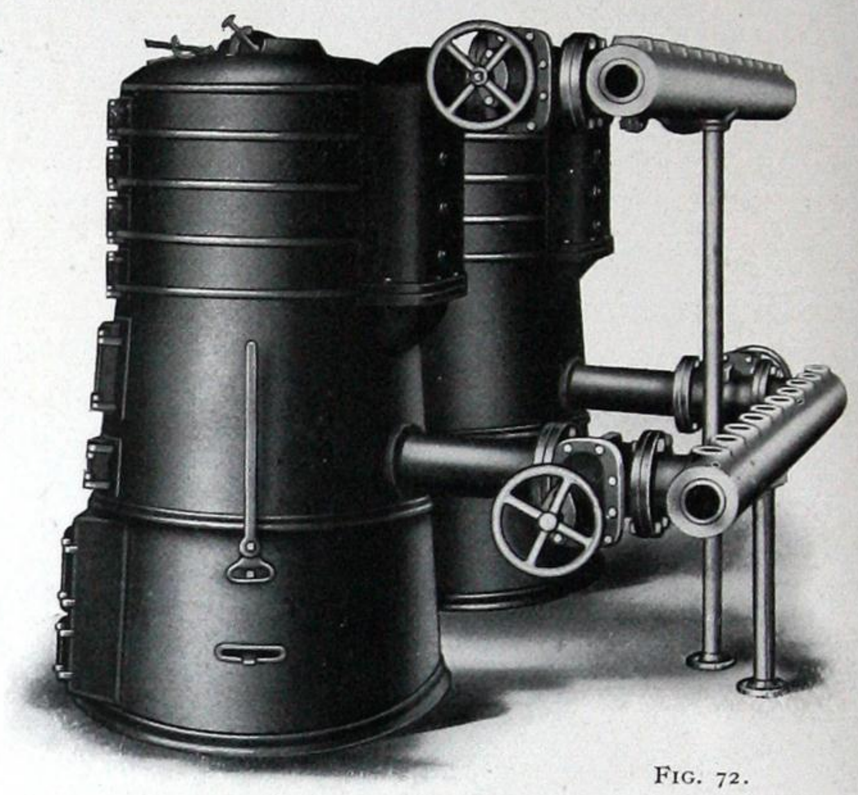


FIG. 72.

SHOWING ARRANGEMENT OF TWIN, TRIPLE AND QUADRUPLE HEADERS FOR SOVEREIGN BOILERS.

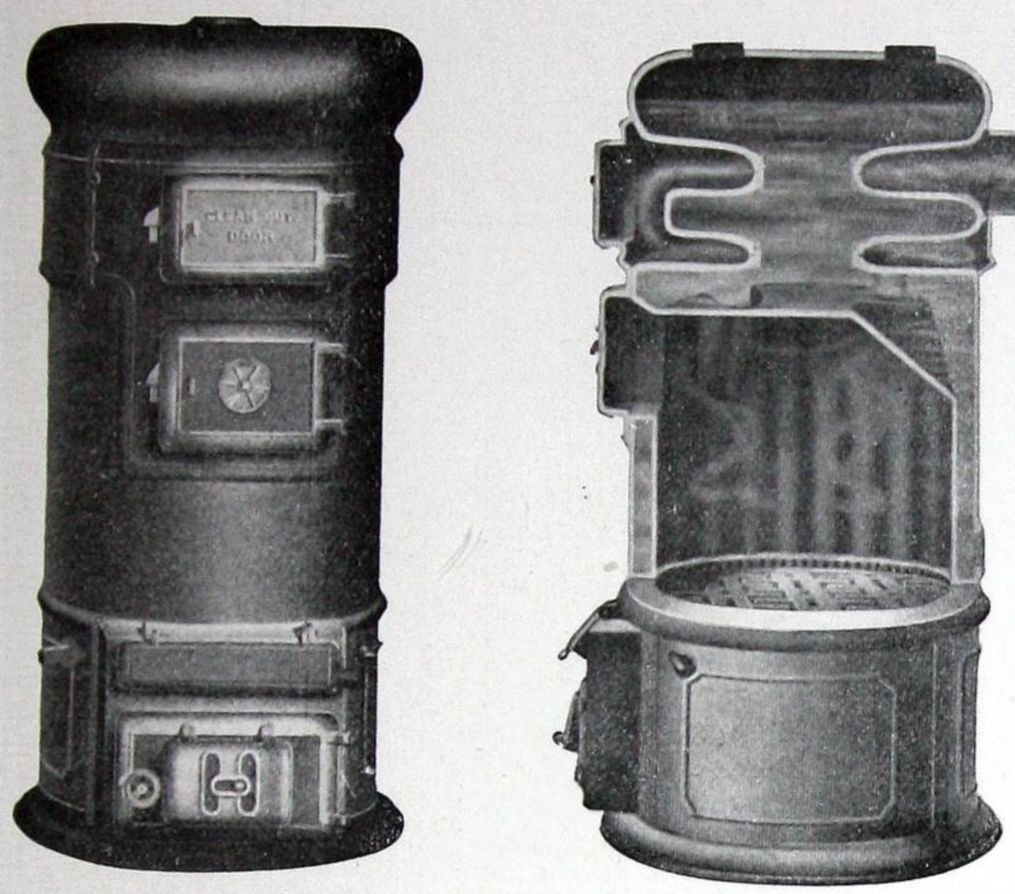
LIST PRICES AND CAPACITIES.

SIZE OR NUMBER.	Capacity of Radiation Sq. Feet, not including Mains.	Capacity of Inch Pipe, not including Mains.	List Price. Low Base.	List Price. High Base.	Height of Boiler. Low Base. Inches.	Height of Boiler. High Base. Inches.	OUTSIDE DIAM. BOILER. Inches.	DIAM. AT BASE RING. Inches.	Inside Diam. of Fire Pot. Inches.	Depth of Fire Pot, Inside. Inches.	Area of Grate. Inches.	DIAM-ETERS OF SMOKE PIPE. Inches.	Tapped Regular Openings.		Tapped Single Openings.	
													Flow. Inches.	Return. Inches.	Flow. Inches.	Return. Inches.
0	170	500	$ 88.00	$ 94.00	45	50	20	24	16½	17¾	213	7	3-2	4-2	3½	3½
1	233	700	105.00	111.00	54	60½	20	24	16½	17¾	213	7	3-2	4-2	3½	3½
2	335	1000	140.00	147.00	56	62½	22½	26½	19½	18¼	298	7	4-2	5-2	4	4
3	500	1500	160.00	170.00	57½	64	24½	29	21½	18¾	363	8	4-2	5-2	4	4
4	667	2000	200.00	215.00	59½	66	27½	31½	24½	19¼	471	8	6-2	7-2	5	5
5	833	2500	240.00	260.00	60½	67½	30	34	26½	19¾	551	10	6-2	7-2	5	5
6	1000	3000	270.00	290.00	62	69	32	36½	28½	20¼	638	10	8-2	9-2	6	6
6½	1250	3750	335.00	360.00	63½	70½	34	40	30½	20¾	730	10	8-2	9-2	6	6
7	1500	4500	392.00	420.00	65	72	36	43	32½	21¼	829	12	9-2	10-2	6	6
8	2000	6000	475.00	505.00	65	72	41	45	36	21¼	1018	12	12-2	13-2	6	6

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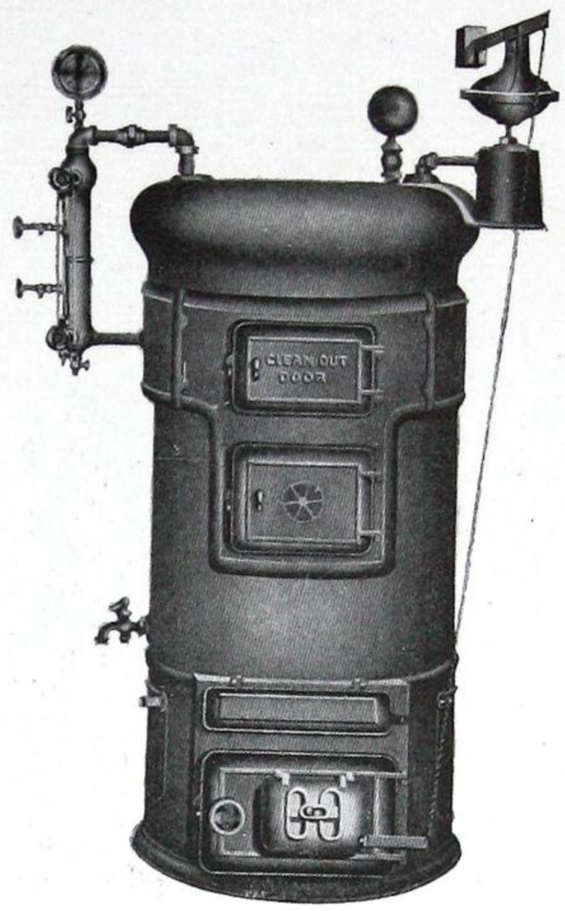
WESTERN JUNIOR BOILERS.

WESTERN JUNIOR HOT WATER BOILER.



OUTSIDE AND INSIDE VIEW OF WATER.

WESTERN JUNIOR STEAM BOILER.



OUTSIDE VIEW OF STEAM—OTHERWISE SAME AS WATER.

RATINGS FOR WESTERN JUNIOR WATER BOILER.

No. of Boiler.	Capacity of Sq. Feet of Radiation, not including Mains.	Height of Boiler to Top of Inlet. Inches.	Outside Diam. Inches.	Inside Diam. of Fire Pot. Inches.	Tappings. Regular. Flow. Inches.	Tappings. Regular. Return. Inches.	Diam. of Smoke Pipe. Inches.	List Price.
1	210	45½	24¼	16	2-2	2-2	8	$105.00
2	310	48½	27	19	2-2½	2-2½	8	140.00
3	460	52	28½	20½	2-3	2-3	9	160.00
4	600	57	33	24	2-3	2-3	9	180.00
4½	700	57	33	26	2-3	2-3	9	200.00
5	840	58	36½	28	2-4	2-4	10	240.00
6	1100	58	39½	30½	2-4	2-4	10	300.00

RATINGS FOR WESTERN JUNIOR STEAM BOILER.

No. of Boiler.	Capacity of Radiation, Sq. Feet, not including Mains.	Height of Boiler to Top of Outlet. Inches.	Outside Diam. Inches.	Inside Diam. of Fire Pot. Inches.	Tappings. Regular. Flow. Inches.	Tappings. Regular. Return. Inches.	Diam. of Smoke Pipe. Inches.	List Price.
1	225	45½	24¼	16	2-2	2-2	8	$185.00
2	300	48½	27	19	2-2½	2-2½	8	205.00
3	400	52	28½	20½	2-3	2-3	9	235.00
4	500	57	33	24	2-3	2-3	9	275.00
4½	600	57	33	26	2-3	2-3	9	312.50
5	700	58	36½	28	2-4	2-4	10	337.50
6	950	58	39½	30½	2-4	2-4	10	412.50

RATINGS.

The foregoing steam boiler ratings are based on a standard of two (2) pounds pressure at the boiler, and the water ratings are based on a standard of water at a temperature of 180 F. as it leaves the boiler.

All our ratings are direct radiation, and, further, provide that, in estimating the size of boiler required, all piping (mains and risers, flow and return) shall be figured as radiating surface, in addition to the cast iron direct radiation to be used.

The surface in mains, if not properly covered, requires more boiler capacity than the same amount of direct radiation.

It is good practice to use a boiler with reserve capacity, and the surface in mains, as well as the radiators, should be figured on above basis, or due allowance made for other temperatures and pressure as well as loss of heat in the mains in determining required capacity.

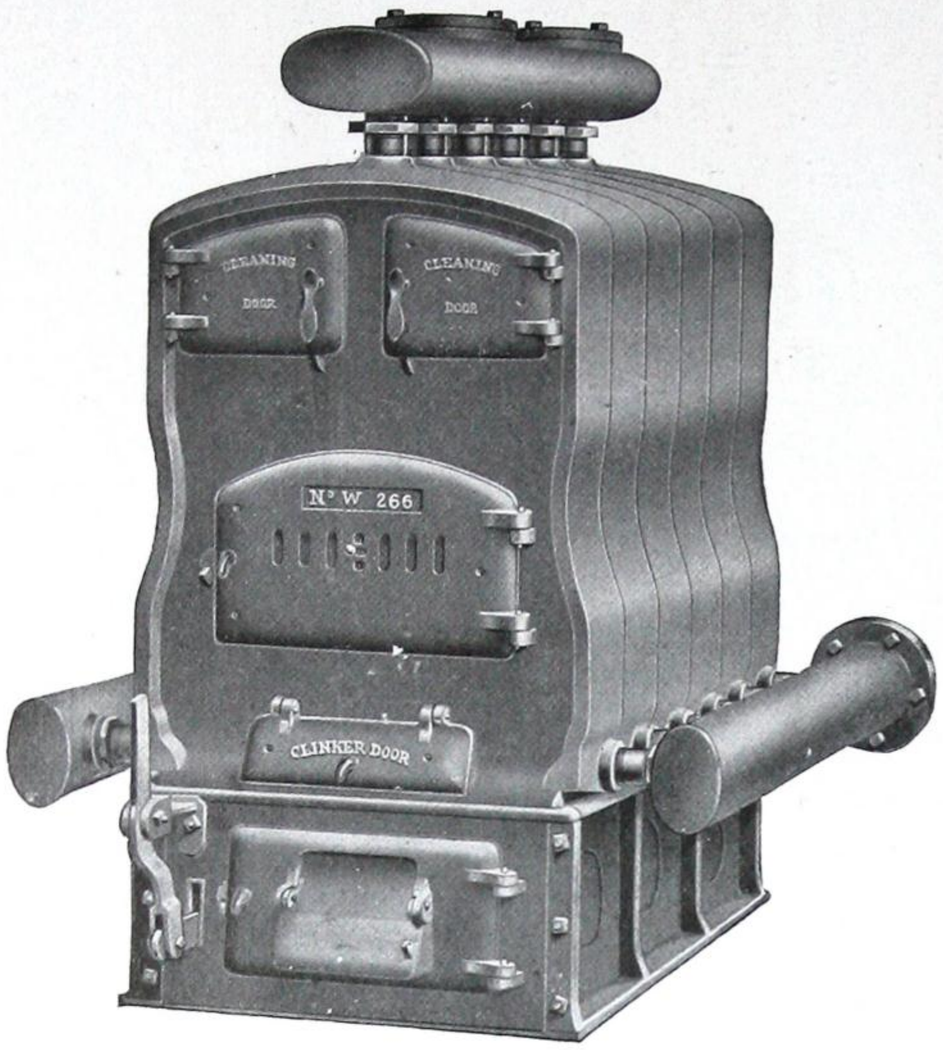
When a pipe coil or cast-iron section is introduced into the fire-pot, or a steam coil placed in a tank for the purpose of heating water for domestic use, additional capacity should be provided for in estimating size steam or water boiler required at the rate of 1¼ square feet of direct radiation for steam and 2 square feet of direct radiation for water for each gallon of water to be thus heated per hour.

Our ratings are based on the assumption that hard coal is to be used for fuel, and that boilers without a jacket shall be covered with a non-conducting material.

CONTINUED ON NEXT PAGE

CANADIAN WATER AND STEAM BOILERS.

Canadian Water Boiler.



CANADIAN WATER BOILER—WITH HEADERS.

DIMENSIONS AND TAPPINGS.

No. of Boiler.	No. of Sections.	Size of Fire Chamber. Inches.	Area of Grates. Inches.	Height Waterline. Inches.	Height of Boiler. Inches.	Length of Boiler. Inches.	Width of Boiler. Inches.	Size of Smoke Pipe. Inches.	Tappings. Regular. Flow. Inches.	Tappings. Regular. Return Inches.	Capacity of Radiation, sq. feet, not including Mains.	List.
W-215	5	23 x 31	652	41	60	55	45	10	2-3	2-3	1325	$ 350.00
W-216	6	23 x 39	815	41	60	63	45	10	2-3	2-3	1650	400.00
W-217	7	23 x 47	978	41	60	71	45	10	2-3	2-3	2000	450.00
W-265	5	29 x 31	800	47	65	55	53	10	2-3	2-3	1750	437.50
W-266	6	29 x 39	1000	47	65	63	53	12	2-4	2-4	2250	487.50
W-267	7	29 x 47	1200	47	65	71	53	12	2-4	2-4	2700	562.50
W-268	8	29 x 55	1400	47	65	79	53	12	2-4	2-4	3150	625.00
W-325	5	36 x 31	992	49	68	55	61	14	2-4	2-4	2325	500.00
W-326	6	36 x 39	1240	49	68	63	61	14	2-4	2-4	2900	600.00
W-327	7	36 x 47	1488	49	68	71	61	14	2-5	2-5	3475	687.50
W-328	8	36 x 55	1736	49	68	79	61	14	2-5	2-5	4050	762.50
W-329	9	36 x 63	1984	49	68	87	61	14	2-5	2-5	4625	837.50
W-3210	10	36 x 71	2232	49	68	95	61	14	2-5	2-5	5200	925.00
W-405	5	43 x 31	1248	49	71	55	69	14	2-5	2-5	3150	625.00
W-406	6	43 x 39	1560	49	71	63	69	14	2-5	2-5	3975	775.00
W-407	7	43 x 47	1872	49	71	71	69	14	2-5	2-5	4800	862.50
W-408	8	43 x 55	2184	49	71	79	69	14	2-5	2-5	5625	1,037.50
W-409	9	43 x 63	2496	49	71	87	69	16	2-6	2-6	6450	1,150.00
W-4010	10	43 x 71	2808	49	71	95	69	16	2-6	2-6	7275	1,212.50
W-4011	11	43 x 79	3120	49	71	103	69	16	2-6	2-6	8100	1,350.00
W-466	6	53 x 40	1840	55	82	60	84	16	2-5	2-5	5200	925.00
W-467	7	53 x 48	2208	55	82	68	84	18	2-6	2-6	6275	1,087.50
W-468	8	53 x 56	2500	55	82	76	84	18	2-6	2-6	7350	1,250.00
W-469	9	53 x 64	2944	55	82	84	84	18	2-6	2-6	8425	1,462.50
W-4610	10	53 x 72	3312	55	82	92	84	20	2-8	2-8	9500	1,575.00
W-4611	11	53 x 80	3680	55	82	100	84	20	2-8	2-8	10575	1,775.00
W-4612	12	53 x 88	4048	55	82	108	84	20	2-8	2-8	11650	1,925.00
W-4613	13	53 x 96	4416	55	82	116	84	20	2-8	2-8	12725	2,037.50

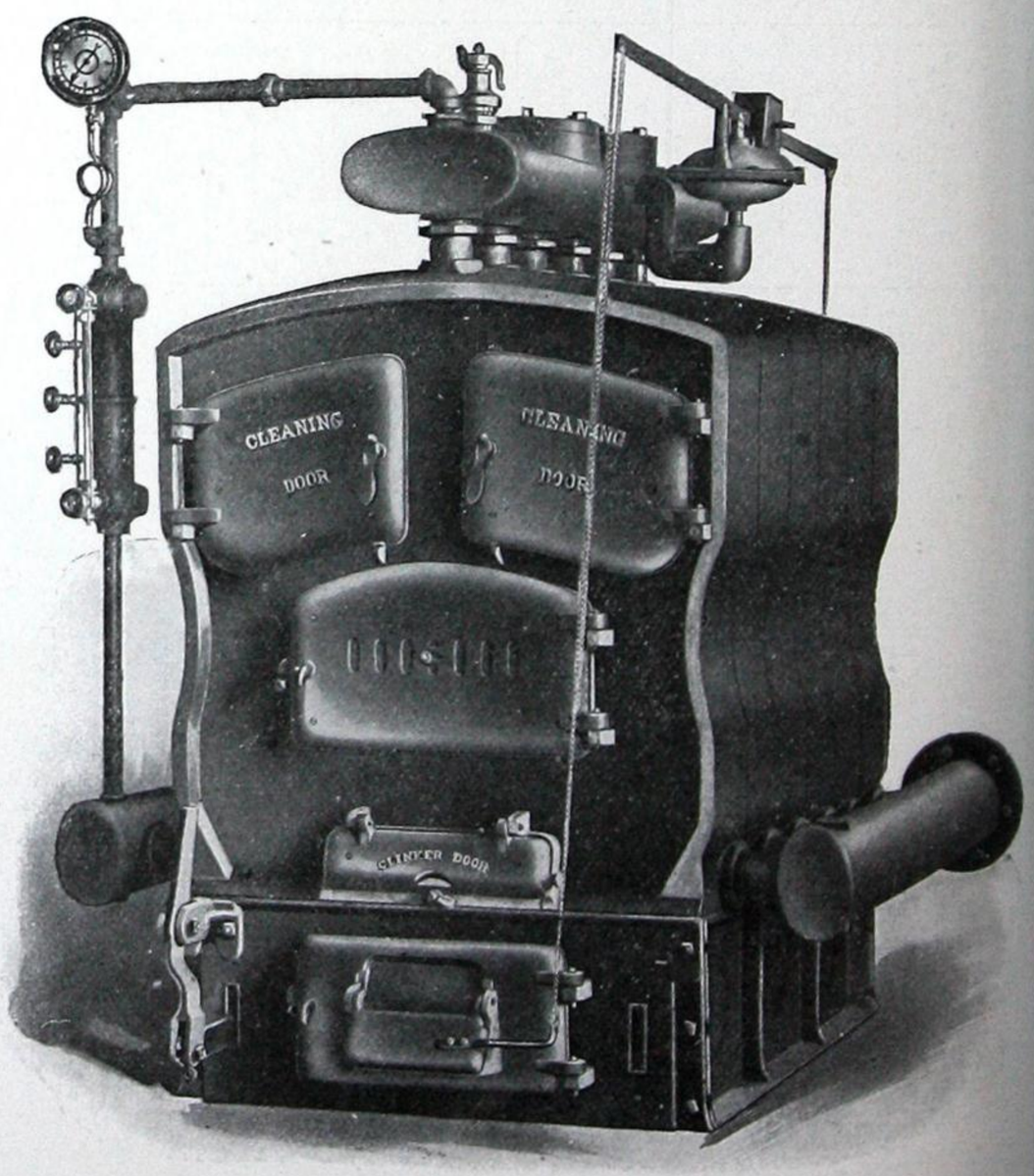
This is the only type of Boiler on the market that can be repaired without disconnecting or taking down the whole boiler.

Canadian Steam Boiler.

CANADIAN STEAM BOILER—WITH HEADERS.

DIMENSIONS AND TAPPINGS.

No. of Boiler.	No. of Sections.	Size of Fire Chamber. Inches.	Area of Grates. Inches.	Height Waterline. Inches.	Height of Boiler. Inches.	Length of Boiler. Inches.	Width of Boiler. Inches.	Size of Smoke Pipe. Inches.	Tappings. Regular. Flow. Inches.	Tappings. Regular. Return. Inches.	Capacity of Radiation, sq. feet, not including Mains.	List.
S-215	5	23 5/8 x 31 3/8	652	41	60	55	45	10	2-2 1/2	2-2 1/2	800	$ 375.00
S-216	6	23 5/8 x 39 3/8	815	41	60	63	45	10	2-2 1/2	2-2 1/2	1000	425.00
S-217	7	23 5/8 x 47 3/8	978	41	60	71	45	10	2-2 1/2	2-2 1/2	1200	475.00
S-265	5	29 3/8 x 31 3/8	800	47	65 1/2	55	53	10	2-2 1/2	2-2 1/2	1150	462.50
S-266	6	29 3/8 x 39 3/8	1000	47	65 1/2	63	53	12	2-3	2-2 1/2	1350	512.50
S-267	7	29 3/8 x 47 3/8	1200	47	65 1/2	71	53	12	2-3	2-2 1/2	1625	587.50
S-268	8	29 3/8 x 55 3/8	1400	47	65 1/2	79	53	12	2-3	2-2 1/2	1900	650.00
S-325	5	36 x 31 3/8	992	49	68 1/2	55	61	14	2-3	2-2 1/2	1400	525.00
S-326	6	36 x 39 3/8	1240	49	68 1/2	63	61	14	2-3	2-2 1/2	1800	625.00
S-327	7	36 x 47 3/8	1488	49	68 1/2	71	61	14	2-4	2-3	2150	712.50
S-328	8	36 x 55 3/8	1736	49	68 1/2	79	61	14	2-4	2-3	2450	787.50
S-329	9	36 x 63 3/8	1984	49	68 1/2	87	61	14	2-4	2-3	2800	875.00
S-3210	10	36 x 71 3/8	2232	49	68 1/2	95	61	14	2-4	2-3	3200	975.00
S-405	5	43 3/4 x 31 3/8	1248	49 1/2	71	55	69	14	2-4	2-3	1900	650.00
S-406	6	43 3/4 x 39 3/8	1560	49 1/2	71	63	69	14	2-4	2-3	2550	812.50
S-407	7	43 3/4 x 47 3/8	1872	49 1/2	71	71	69	14	2-4	2-3	2900	900.00
S-408	8	43 3/4 x 55 3/8	2184	49 1/2	71	79	69	14	2-4	2-3	3600	1,075.00
S-409	9	43 3/4 x 63 3/8	2496	49 1/2	71	87	69	16	2-5	2-4	4050	1,187.50
S-4010	10	43 3/4 x 71 3/8	2808	49 1/2	71	95	69	16	2-5	2-4	4500	1,300.00
S-4011	11	43 3/4 x 79 3/8	3120	49 1/2	71	103	69	16	2-5	2-4	4950	1,412.50
S-466	6	53 x 40	1840	55	82	60	84	16	2-4	2-3	3250	987.50
S-467	7	53 x 48	2208	55	82	68	84	18	2-5	2-4	3800	1,125.00
S-468	8	53 x 56	2500	55	82	76	84	18	2-5	2-4	4450	1,287.50
S-469	9	53 x 64	2944	55	82	84	84	18	2-5	2-4	5400	1,525.00
S-4610	10	53 x 72	3312	55	82	92	84	20	2-6	2-4	5850	1,637.50
S-4611	11	53 x 80	3680	55	82	100	84	20	2-6	2-4	6650	1,837.50
S-4612	12	53 x 88	4048	55	82	108	84	20	2-6	2-4	7250	1,987.50
S-4613	13	53 x 96	4416	55	82	116	84	20	2-6	2-4	7700	2,100.00



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TANK HEATERS.

TAYLOR TANK HEATER.
FOR HOT WATER.

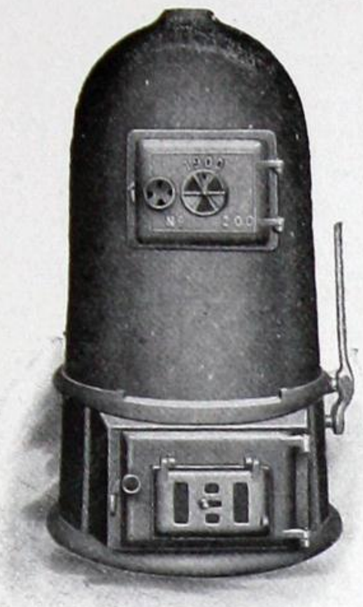


FIG. 64.

DIMENSIONS AND PRICE LIST.

No. of Boiler.	Heating Capacity.	Tank Capacity.	Height of Heater. Inches.	Outside Diam. Inches.	Size of Grate. Inches.	Tappings. Flow. Inches.	Tappings. Return. Inches.	Diam. of Smoke Pipe. Inches.	List Price.
				LOW BASE.					
210	450	675	45½	23	20	3	3	7	$100.00
				HIGH BASE.					
211	450	675	53¼	23	20	3	3	7	108.00

IMPROVED GIANT STEAM BOILER.
FOR ANY KIND OF FUEL.

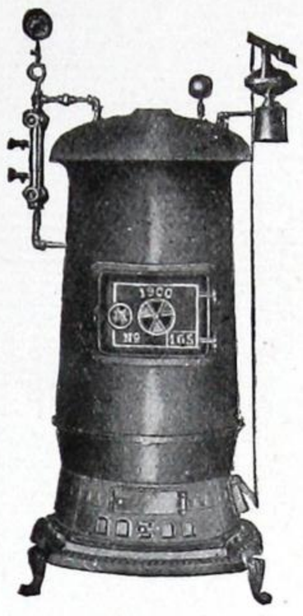


FIG. 14-61.

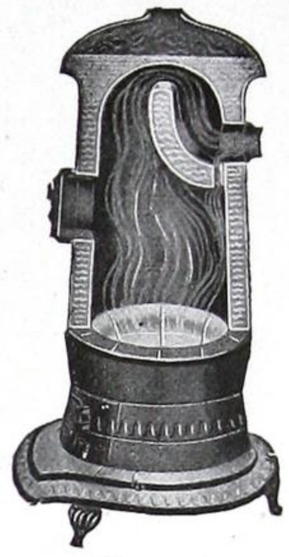
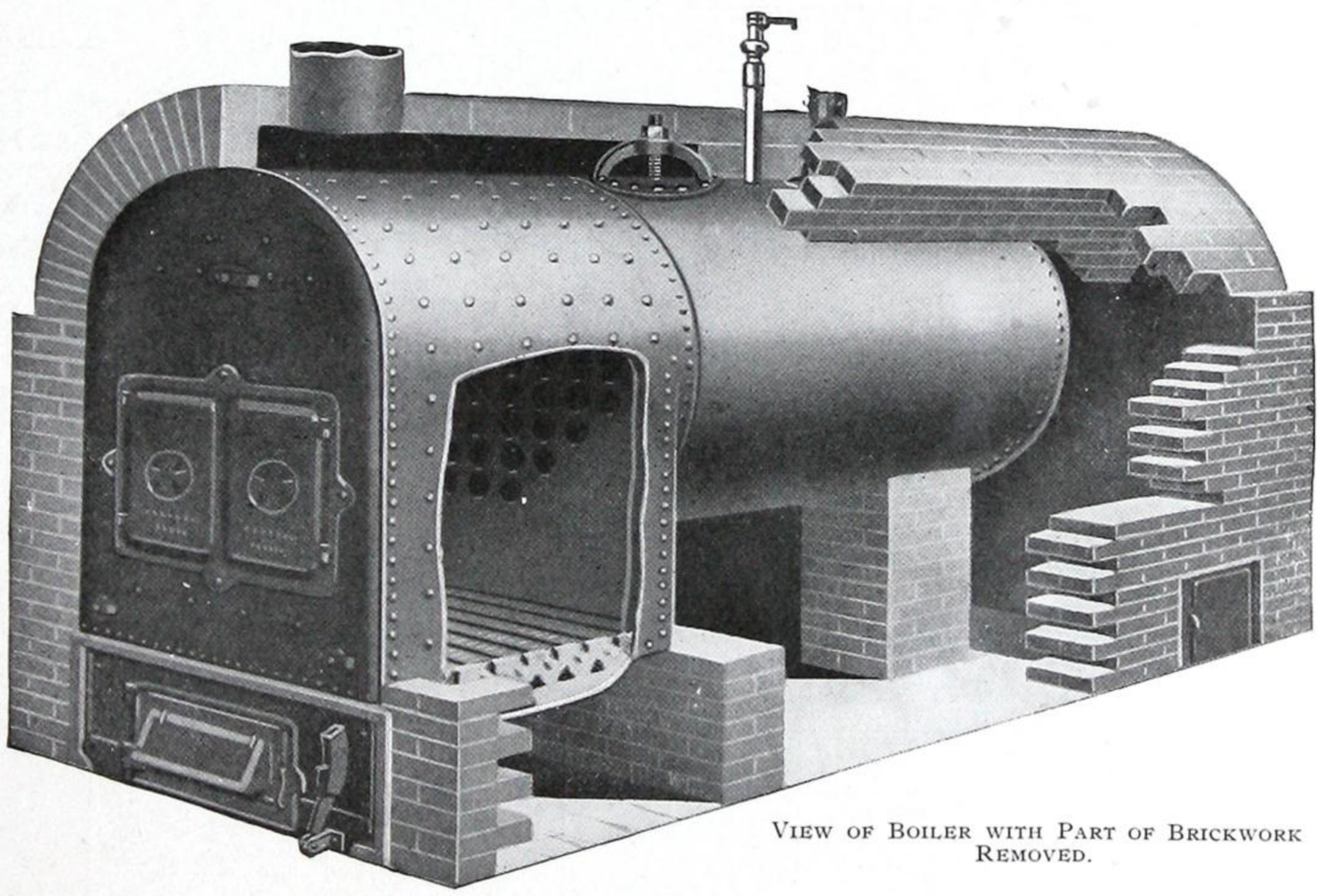


FIG. 15-62.

DIMENSIONS AND PRICE LIST.

No. of Boiler.	Heating Capacity.	Height of Boiler. Inches.	Outside Diam. Inches.	Size of Grate. Inches.	Tappings. Flow. Inches.	Tappings. Return. Inches.	Diam. of Smoke Pipe. Inches.	List Price.
125	100	44½	15	12	2	2	6	$ 63.00
165	175	49½	19	16	2½	2½	6	110.00
205	275	52½	23	20	3	3	7	150.00

DETROIT FIREBOX BOILERS.



VIEW OF BOILER WITH PART OF BRICKWORK REMOVED.

SPECIFICATIONS OF DETROIT FIREBOX BOILERS

Number	00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Diameter Boiler....Inches	24	24	30	30	30	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length Boiler over all....Feet	5½	7½	6½	7½	8½	7½	9	10½	8½	10	11½	10½	12	13½	14	16½	15½	18	16	18	16	18
Width of Firebox....Inches	19	19	24	24	24	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Firebox....Inches	20	26	26	32	38	32	38	44	38	44	50	44	50	56	56	62	62	68	62	68	68	74
Height of Firebox....Inches	30	30	35	35	35	41	41	41	43	43	43	47	47	47	49	49	54	54	59	59	64	64
Heating Surface....Square Feet	74	98	116	131	145	190	224	260	257	299	344	390	442	495	585	700	733	862	971	1097	1167	1325
Square Feet of Steam Capacity as rated for each square foot of heating surface....	6.8	7.1	7.7	7.6	8.2	7.3	7.6	7.7	8.5	8.3	8.7	8.9	9.0	9.0	8.9	8.8	9.5	9.8	9.8	9.5	9.8	9.8
Area of Grate....Square Feet	2.6	3.4	4.3	5.3	6.3	6.7	8.0	9.2	9.5	11.0	12.5	12.8	14.6	16.3	18.7	20.6	22.8	25.0	25.4	28.0	30.7	33.4
Square Feet of Heating Surface for each square foot of grate..	28	29	27	25	23	28	28	28	27	27	28	30	30	30	31	34	32	34	38	39	38	40
Diameter of Breeching....Inches	10	10	12	14	16	16	18	18	20	20	22	22	24	24	28	28	32	32	32	32	36	36
Diameter of Stack....Inches	10	10	12	12	14	14	16	16	18	18	20	20	22	22	26	26	30	30	30	30	34	34
Minimum Height of Stack....Feet	40	40	40	40	40	40	40	45	45	45	45	45	50	50	50	50	55	55	60	60	60	60
Diameter of Stack for Two Boilers....Inches	..	..	..	..	..	..	..	..	24	26	28	28	30	32	34	34	36	36	36	38	40	42
Minimum Height of Stack for Two Boilers....Feet	..	..	..	..	..	..	..	..	50	50	50	50	50	50	55	60	60	70	70	70	70	70
Size of Steam Opening (One)....Inches	2½	2½	3	3	4	4	4	4	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Size of Return (One)....Inches	2	2	2½	2½	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve....Inches	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water..In.	1-4	1-4	1-6	1-6	1-6	1-6	1-6	1-6	2-5	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10
Height of Water Line....Inches	48	48	53	53	53	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80	85	85
Height from floor to top of brick work....Inches	64	64	70	70	70	77	77	77	83	83	83	90	90	90	96	96	108	108	114	114	120	120

CLARE BROS. & CO., LIMITED

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A. WELCH & SON,
304 Queen Street West, TORONTO, ONT.

MECHANICS' SUPPLY CO.,
QUEBEC, QUE.

PRODUCTS. We manufacture "HECLA" AND "HILBORN" WARM AIR FURNACES, COMBINATION WARM AIR AND HOT WATER HEATING EQUIPMENT, HOT WATER BOILERS, HOT WATER RADIATORS, WARM AIR REGISTERS AND VENTILATORS, and a complete line of "PENINSULAR" STOVES AND RANGES.

"HECLA" WARM AIR FURNACES. We desire to call the attention of architects and others to "HECLA" Warm Air Furnaces made in the following sizes:

No.	Dia. of Fire Pot.	Height.	Size of Smoke Pipe.	Capacity.
116	16″	44″	7″	10,000 cubic feet
119	19″	45″	8″	15,000 cubic feet
122	22″	47″	8″	22,000 cubic feet
125	25″	49″	8″	33,000 cubic feet
128	28″	52″	9″	55,000 cubic feet

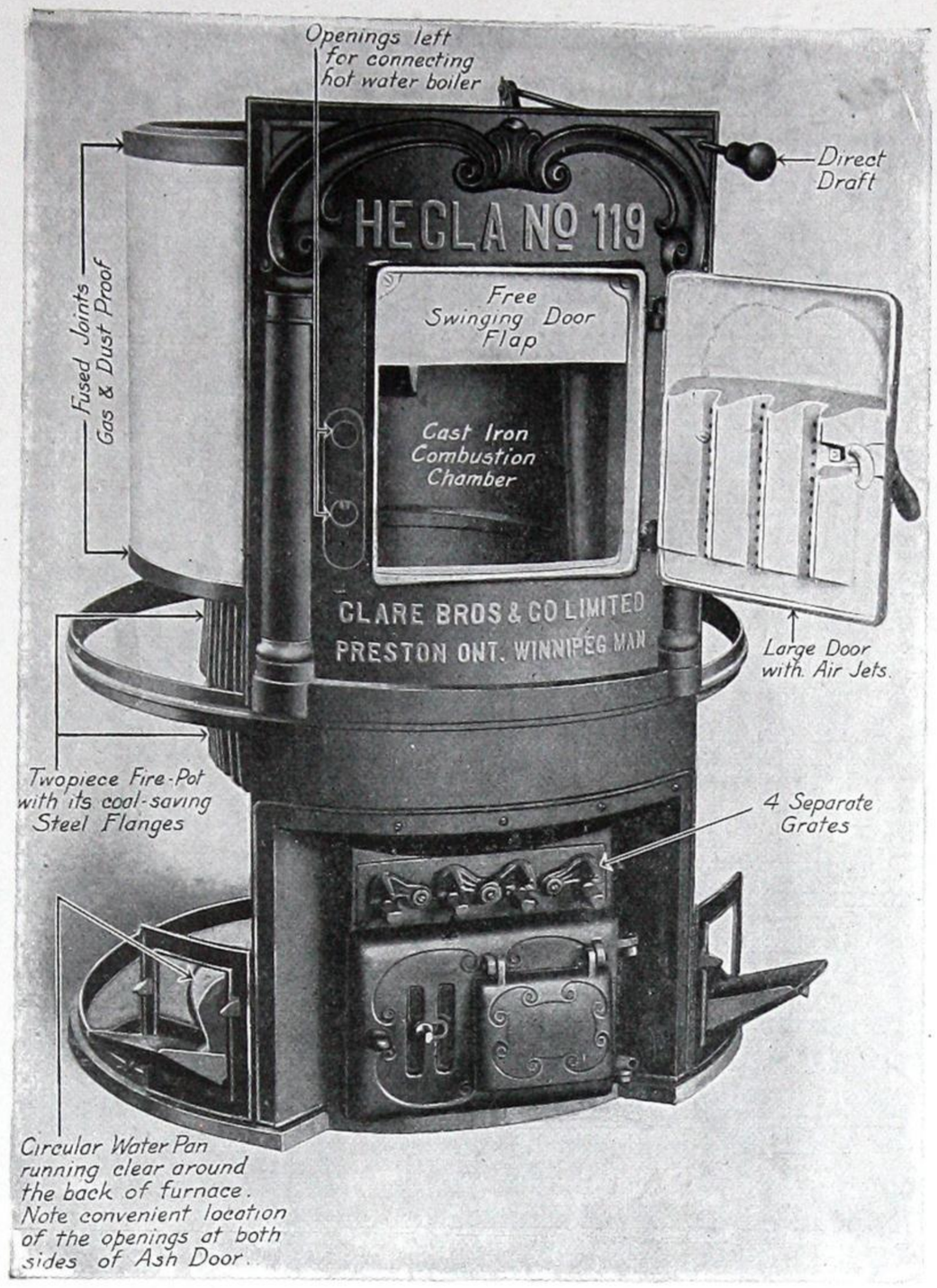
CAPACITY. The table given above is based on climatic conditions found in the cold parts of the country. Where a building occupies an exceptionally exposed position, it is advisable to use a size larger furnace.

SIZE OF PIPES. The following table may be used in determining the size of registers and pipes for heating rooms specified and is based on climatic conditions as found in the cold sections of the country.

Average Size of Rooms.	Cubic feet of air that can be heated in rooms one side exposed.	General Size of Reg. used.	Hot Air Capacity of Reg. Inches.	Hot Air Pipe to be used. Size, Inches.	Hot Air Pipe to be used . Cap. Inches.	If wall pipes are used, inside size of same to be
11 X 14 X 10	1,600	8 X 10	53	8	50	4 X 12
12 X 15 X 10	1,800	9 X 12	72	9	64	4 X 16
12 X 17 X 10	2,200	10 X 12	80	10	78	4 X 20
13 X 17 X 10	2,300	10 X 14	93	10	78	6 X 12
18 X 18 X 10	2,700	12 X 14	102	12	113	6 X 14
17 X 20 X 10	3,500	12 X 15	120	12	113	6 X 16
20 X 22 X 10	4,500	12 X 19	152	13	133	8 X 14
18 X 25 X 12	5,500	14 X 22	205	14	154	8 X 16
18 X 30 X 12	6,500	16 X 20	214	16	201	10 X 16
19 X 35 X 12	8,000	20 X 20	267	18	254	12 X 20

COLD AIR. The capacity of the cold air pipes should be at least 75 per cent. of the capacity of the warm air pipes, and best results are obtained by taking cold air pipes from the north and west when these sides of the building are exposed.

CONTINUED ON NEXT PAGE



THE "HECLA" WARM AIR FURNACE.

STEEL RIBBED FIRE POTS. The radiation of "HECLA" Furnaces is increased by the use of steel flanges or ribs fused to the firepots, as shown above. This steel-ribbed pot increases the radiating power of the firepot about 200 per cent. The quick radiation thus provided makes for economy of fuel, greater durability, and supplies warm, fresh air instead of super-heated air.

FUSED JOINTS. Fused joints are used in connecting the steel and cast iron parts that enter into the construction of "HECLA" Furnace domes. The iron and steel are fused together at a white heat, and the joint thus made is water-tight, air-tight, and cannot work loose as a cement or bolted joint will.

PURE WARM AIR. Pure warm air, free from gas, dust or smoke, is made possible by the above-mentioned features.

CAST IRON COMBUSTION CHAMBER. This improvement in construction over the combustion chamber of the steel type has to do with durability only. Instead of a sheet of steel from $\frac{1}{16}$ to $\frac{1}{8}$" in thickness, the cast iron combustion chamber presents a resistance of from $\frac{3}{8}$ to $\frac{1}{2}$ an inch against the action of the fire.

NO POKER. No poker is necessary with a "HECLA." Each grate bar can be shaken separately, and in this way only that part of the fire requiring it need be shaken down. The rest of the fire remains undisturbed.

FUEL. Hard coal, lignite, coke and wood, give excellent results in "HECLA" Furnaces.

AGENTS. Tinsmiths in almost every town, city and village handle the "HECLA" Furnace. If you want to communicate direct, write the nearest Branch House or communicate direct with our Head Office at Preston.

CATALOGUES. Catalogues covering "HECLA" Furnaces, "HILBORN" Furnaces, "IMPERIAL" Hot Water Boilers, and "PENINSULAR" Stoves and Ranges will be sent upon request.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

PIPE AND BOILER COVERINGS.

PRODUCTS.

PIPE AND BOILER COVERINGS; J-M ASBESTO-SPONGE FELTED, J-M ASBESTOCEL, J-M WIRE-STITCHED ANTI-SWEAT.

Also, J-M 85% MAGNESIA, J-M ASBESTOS FIRE-FELT, J-M VITRIBESTOS, J-M AIR CELL, J-M ZERO, J-M KEYSTONE PLUMBING, J-M BRINE AND AMMONIA, J-M SHEETS AND BLOCKS for Boilers, Heaters, etc., J-M ASBESTOS AND MAGNESIA INSULATING CEMENTS, J-M SECTIONAL UNDERGROUND CONDUIT.

For complete list of J-M Building Materials, see our Catalogue in Roofing Section.

J-M ASBESTO-SPONGE FELTED PIPE COVERING.

J-M Asbesto-Sponge Felted Pipe Covering, for insulating high-pressure and superheated steam pipes, is made of layers of thin felt composed of pure, long-fibred asbestos and granulated sponge. Furnished in 3-foot sections, in thicknesses of ½ to 3 inches, to fit all standard sizes of pipe. The sections are cut through one side only to facilitate application.

Advantages.—J-M Asbesto-Sponge Felted Pipe Covering, like sponge, is full of air cells, which are thoroughly sealed by reason of the laminated construction. The enormous amount of dead air (the greatest non-conductor) thus confined makes this the most efficient high-pressure pipe covering. This covering can be removed and replaced as often as desired, without injury. It materially reduces the temperature of engine rooms, adding to comfort and efficiency of operatives.

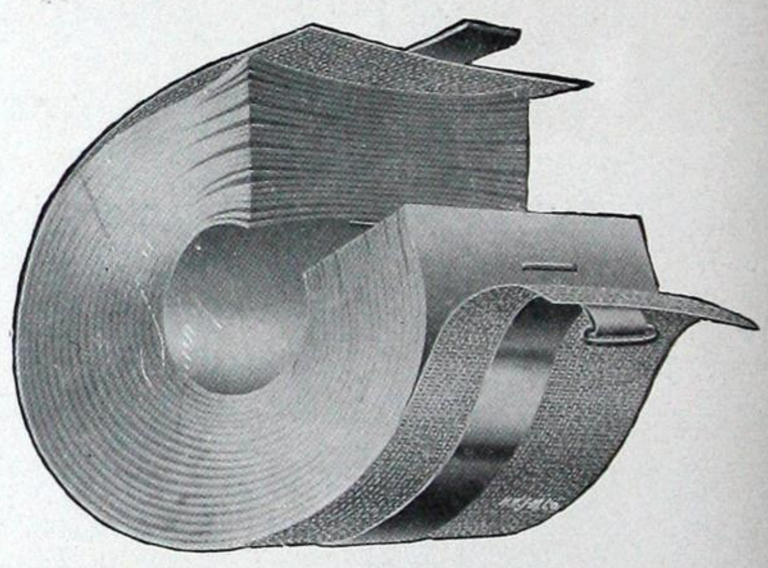
Durability.—Being made of many layers of strong felt, vibration or rough usage will not crack, break nor cause J-M Asbesto-Sponge Felted Covering to crumble or lose its insulating efficiency. It has been found in perfect condition after more than fifteen years' service on underground pipes.

Efficiency.—The high insulating efficiency of J-M Asbesto-Sponge Felted Pipe Covering is proven by the following results of a test made by Mr. George M. Barrus, and published in the official publication of the American Society of Mechanical Engineers:

100 POUNDS PRESSURE AND UP.

COAL CONSUMPTION FOR 10,000 SQ. FEET OF SURFACE HEATED 365 DAYS PER YEAR, 24 HOURS PER DAY.

Kind of Covering.	Tons of Coal Consumed.	Cost of Coal at $3.00 per Ton.	Cost of Covering Applied.
Bare Pipe.....	4,000	$12,000.00	
Ordinary Covering..	791	2,373.00	$1,320.00
J-M High-Pressure Covering.....	585	1,755.00	1,980.00



J-M ASBESTO-SPONGE FELTED PIPE COVERING.

These tests proved that J-M Asbesto-Sponge Felted Covering saves *26 per cent. more coal than ordinary coverings.* It will, therefore, be seen that by re-covering with J-M Asbesto-Sponge Felted Covering pipes now insulated with ordinary coverings, a saving of $780.00 can be made in every 1,000 tons of coal burned, figuring the cost of coal at $3.00 per ton.

Specifications.—On connections from boilers to main steam header, and on main steam header, apply J-M Asbesto-Sponge Felted Sectional Covering in two layers, each 1 inch thick, in such a manner that all joints will be "staggered" or "broken."

Cover fittings in connection with these pipes with J-M Asbesto-Sponge Cement Felting, to a thickness corresponding to adjoining pipe covering. Over all this covering apply an additional protection of 8-ounce canvas neatly sewed on.

On flanges of these pipes, apply J-M Asbesto-Sponge Felted Sectional Covering in such a manner that same can be removed and replaced without injury to covering, and finish same with 8-ounce canvas neatly pasted on.

On all other pipes of the High-Pressure System apply J-M Asbesto-Sponge Felted Sectional Covering 1 inch thick, with its usual canvas finish and bands complete, covering fittings with J-M Asbesto-Sponge Cement Felting to a thickness corresponding to adjoining covering, and finished with canvas neatly pasted on. Lacquered metal bands are to be applied at at least 18-inch intervals on this covering.

Cover tops of boilers and boiler drum-ends with J-M Asbesto-Sponge Felted Sheets, 1½ inches thick, secured in place with galvanized wire cables and hexagonal wire netting, and finish same hard and smooth with J-M Asbestos Cement, No. 302, ½ inch thick.

Cover smoke breeching and connections from boilers to vertical smoke-stack with 1½ inch thick J-M Asbesto-Sponge Felted Sheets, thoroughly secured with galvanized wire cables and hexagonal wire netting with air space 1 inch deep, formed with wire netting, with suitable offsets. Finish over sheets with J-M Asbestos Cement, No. 302, ½ inch thick, trowelled hard and smooth.

Cover blow-off tank, return tank, pump governor, steam separators, high-pressure drip traps and tank in same manner as breeching, but omit air space.

On all covering exposed to weather apply two coats of lead and oil paint, of colours selected by architect. On other coverings apply two coats J-M Asbestos Fireproof Paint.

CONTINUED ON NEXT PAGE

J-M ASBESTOCEL SECTIONAL PIPE COVERING.

J-M Asbestocel Pipe Covering, for hot-water heating pipes and low and medium pressure steam pipes, is built of successive layers of plain and corrugated asbestos paper on the arch principle, the channels running *around* the pipe. Made in thicknesses of ½ to 3 inc es, o fit standard pipes ½ to 16 inches in diameter.

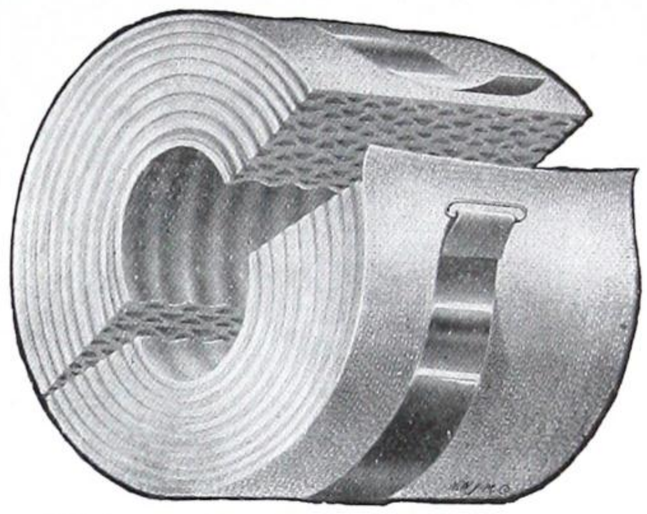
Advantages.—J-M Asbestocel is the most efficient low-pressure covering, because it confines the greatest amount of dead air. It is the only low-pressure covering which confines air—and lots of it—in an absolutely *dead* state. The air cells run *around* the pipe—each cell entirely separate; thus the spaces are so small that the air has no chance to circulate. J-M Asbestocel Covering is built on the arch principle, and is, therefore, far *stronger* than other low-pressure coverings—doesn't crush down under weight—*lasts longer* than any other. It is absolutely fireproof, and prevents the rusting of pipes by protecting them from moisture.

Efficiency.—The insulating efficiency of J-M Asbestocel Pipe Covering is proven by results of following tests in Vol. 23 of the Transactions of the American Society of Mechanical Engineers. Tests were made on 100 lineal feet of 2-inch pipe, carrying steam at 80 pounds pressure. Calculations of savings are based on plant working 300 days, of 10 hours each, with temperature of room about 65 deg. Fahr.

EFFICIENCY TEST DATA.

Name of Pipe Covering.	Condensation per Hour.	Net Tons of Coal Consumed per Year.	Net Tons of Coal Saved by Use of Covering.	Cost of Coal per Net Ton.	Net Saving in Cost of Coal per Annum by Use of Covering.	Approx. Cost of Covering.
Bare Pipe.....	59.16	7.76*		$4.00	$31.04 loss	
J-M Asbestocel.....	13.47	1.83	5.93	4.00	23.72 saving	$16.20

* Standard coal as per 1899 code of boiler tests; that is, one pound of coal evaporating about 11 pounds of water.



J-M Asbestocel Sectional Pipe Covering.

As there are about 64 square feet of pipe surface in 100 lineal feet of 2-inch bare pipe, the annual saving by the use of J-M Asbestocel Covering amounts to about 35 cents per square foot of heated surface. Thus, the first year's saving will pay for the cost of covering and show a large interest return in addition. After the first year, the entire annual saving by the use of this covering is *clear profit.*

Specifications.—On low-pressure steam and hot-water heating pipes, and on hot-water supply pipes, together with returns and drips from former and circulation lines of latter, apply J-M Asbestocel Sectional Covering, 1 inch thick, with regular canvas finish and lacquered metal bands on pipes, and J-M Asbestos Cement, No. 302, to a corresponding thickness on all fittings, traps, etc., in connection with these pipes, the cement to be finally jacketed with canvas pasted on to correspond with adjoining pipe covering.

Where covering is exposed to view, apply over same an additional protection of 8-ounce canvas neatly sewed on, and, where exposed to weather, a further protection of two coats of lead and oil paint. In all other places covering to be finished with two coats of J-M Asbestos Fireproof Paint.

Cover hot-water heater with J-M Asbestos Cement, No. 302, 2 inches thick, secured with galvanized hexagonal wire netting and finished hard and smooth on exterior. Cover hot-water tank with 1 inch thick J-M Asbestocel Sheets, secured with galvanized hexagonal wire netting and finished hard and smooth with ½ inch thick J-M Asbestos Cement, No. 302.

Cover casings with heating stacks and connecting ducts from same to vertical flues in walls with J-M Asbestocel Sheets, 1 inch thick, joints "pointed up" with Asbestos Cement, and finally finished with 8-ounce canvas neatly sewed on.

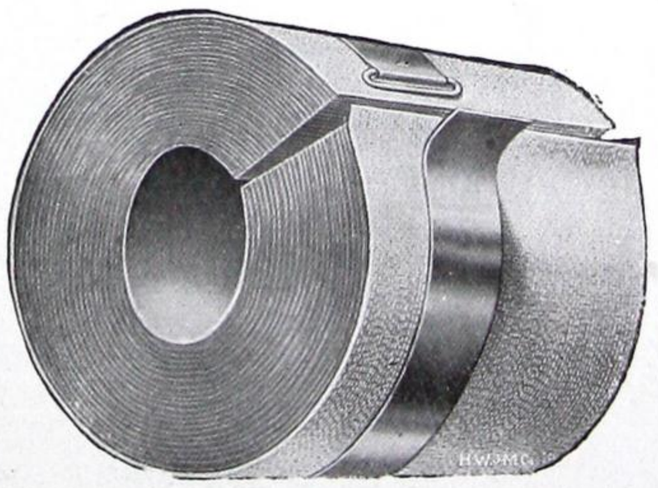
Paint heater, tank, and stack and duct coverings to correspond with pipe covering.

J-M WIRE-STITCHED ANTI-SWEAT SECTIONAL PIPE COVERING.

J-M Wire-Stitched Anti-Sweat Sectional Pipe Covering, for insulating cold-water pipes, is made of alternate layers of waterproof insulating paper and wool-felt paper, securely stitched together so that the covering does not depend upon paste or glue to hold it in shape. It is finished with a canvas jacket and has metal bands for fastening.

Made in 3-foot sections in thicknesses of ½, ¾ and 1 inch, to fit all standard sizes of pipe. One inch thickness is recommended where pipes run through rooms at a temperature of 80 deg. Fahr. and upwards.

Advantages.—When pipes pass through atmospheres of higher temperature than the water inside them, condensation takes place on the surface of the pipes, which results in dripping. J-M Anti-Sweat Covering prevents this dripping by insulating the cold pipe from the warm atmosphere, thus preventing considerable damage to plaster, furnishings, etc. It is especially advantageous for insulating cold-water drinking systems in office buildings, apartment houses, hotels and similar buildings.



J-M Wire-Stitched Anti-Sweat Sectional Pipe Covering.

THE JAMES SMART MFG. CO., LIMITED

HEAD OFFICE AND FACTORY:
BROCKVILLE, ONT.

WESTERN OFFICE: WINNIPEG, MAN.

PRODUCT. THE KELSEY WARM AIR GENERATOR.

FOR PUBLIC BUILDINGS, Churches, Schools, etc., and for large residences, where a combined Heating and Ventilating System is required, the Kelsey Warm Air Generator has proven its worth.

FEATURES. The feature of the Kelsey System of Warm Heating is the battery of Zig-Zag Cast Iron Heat Tubes that surround the fire-grate.

The fresh air from the under-draft is thoroughly heated as it turns and twists up through these heat tubes into the circulating pipes.

LARGE RADIATING SURFACE. Making these tubes Zig-Zag increases their radiating surface.

A Kelsey has 61 square feet of radiating surface for one square foot of grate.

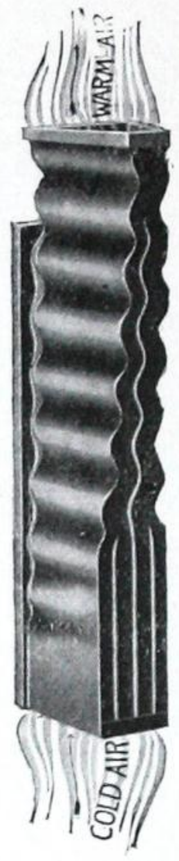
CAPACITY TO RETAIN HEAT. All the heat from the fuel is concentrated in these heavy tubes, which form the combustion chamber. From their immense weight they store up the heat and radiate it gradually.

20 TO 30% SAVING IN COAL. The large radiating surface of these tubes and their capacity to retain heat effect a saving of 20 to 30% in coal bills.

SPECIALLY ADAPTED FOR USE WITH POWER FAN. The capacity of the Kelsey to heat air under high velocity makes it especially well adapted for a combined heating and ventilating system, used in connection with a power fan or blower.

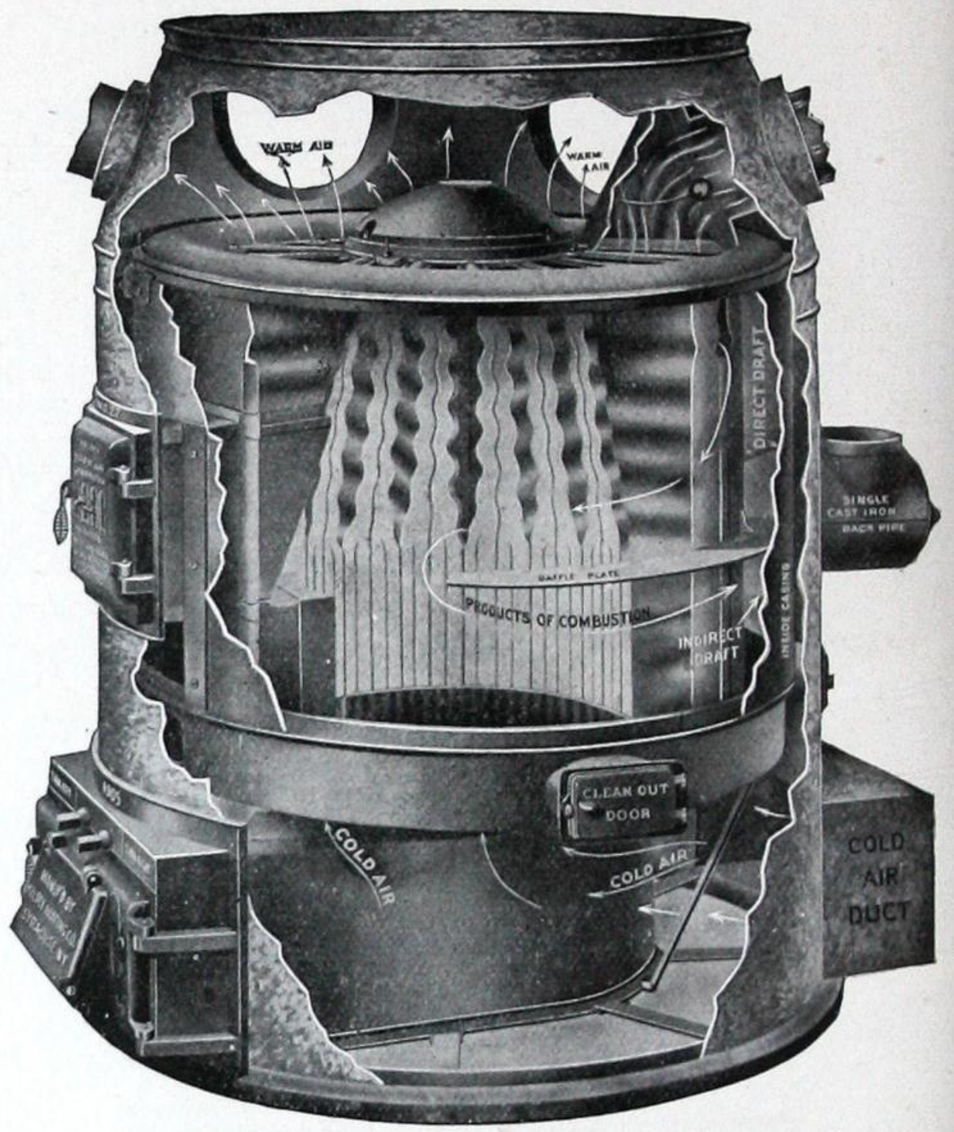
It is this feature that especially recommends the Kelsey for heating large residences, hotels, churches, schools, etc.

THE BATTERY SYSTEM FOR LARGE BUILDINGS. Kelsey Generators in Battery form, installed in connection with the Kelsey Mechanical Fan, provide a combined heating and ventilating system that for large buildings is incomparable.



THE KELSEY ZIG-ZAG HEAT TUBE.

The weight of each of these tubes is about 70 lbs. There are from 8 to 16 of these tubes in each Kelsey Generator.



SECTIONAL VIEW OF KELSEY GENERATOR, SHOWING POSITION OF ZIG-ZAG CAST IRON HEAT TUBES THAT FORM THE COMBUSTION CHAMBER.

Two or more Kelsey Generators are installed under a single dome casing. During the fall or spring seasons one generator will often be found sufficient for all requirements, and a big economy in fuel can be effected.

INFORMATION. Write for information regarding our lower-priced furnaces.

TESTIMONIAL.

ST. THOMAS, ONT., Feb. 1st, 1913.

THE JAMES SMART MFG. CO.,
Prockville, Ont.

Gentlemen,—The St. Thomas Board of Education have had sufficient experience in the use of the Kelsey Warm Air Generator to warrant me in expressing the unqualified satisfaction the use of these furnaces has given.

Beginning in 1908, the system then in use in the Balaclave Street School, burning soft coal, was discarded, and, after careful investigation by a special committee appointed to enquire into the merits of various systems for heating and ventilation, the Kelsey was adopted. This is a 12-room school, 3 stories high.

That the Board made no mistake in accepting the recommendation of the special committee upon this important matter is best shown by the action of the Board in 1910. That Board unanimously approved of the recommendation of the Building and Grounds Committee to replace the system in use in Wellington Street School, also a 12-room building, with the Kelsey system.

Having eight furnaces in use in 1911, Scott Street School was enlarged, and again the Kelsey was the choice of the Board.

There are now three large schools being satisfactorily heated and ventilated by the Kelsey system. I think this is the very best evidence of satisfaction we can expect. After being tried and tested, the system has won approval upon merit alone.

I am, yours sincerely,

(Signed) H. W. TALLMAN, Sec.-Treas.,
St. Thomas Board of Education

SIZES, WEIGHTS AND CAPACITIES OF KELSEY WARM AIR GENERATORS

Number.	Diameter of Grate.	Diameter of Fire Pot.	Diameter of Base.	Diameter of Casing.	Height of Castings.	Height Cased.	Smoke Pipe.	Weight of Castings.	Heating Capacity.
	In.	In.	In.	In.	In.	In.	In.		Cubic Feet.
14	14	14	38	36	47	58	7	1100	5,000 to 8,000
16	16	16	42	40	48	62	7	1275	8,000 to 15,000
18	18	18	46	43	54	68	7	1700	12,000 to 20,000
21	21	21	53	51	55	69	9	2050	15,000 to 35,000
24	24	24	56	53	55	69	9	2350	24,000 to 45,000
30	30	30	64	60	60	75	9	3300	45,000 to 90,000

These capacities are only approximate, as everything depends upon the building in which the heater is to be installed.

The minimum capacities apply more to houses or buildings where a number of pipes are used, and the maximum to churches or buildings where one large pipe from the top of the heater is all that is required.

Some houses are more easily heated than others, and, among many things to be considered, are good construction, wall and glass exposure and elevation of pipes in basement.

SHELDONS LIMITED

HEAD OFFICE AND WORKS: GALT, ONT.

TORONTO OFFICE: 609 KENT BUILDING,

TORONTO, ONT.

AGENTS:
MESSRS. ROSS & GREIG,
412 ST. JAMES ST., MONTREAL, QUE.

MESSRS. GORMAN, CLANCEY & GRINDLEY, LTD.,
CALGARY AND EDMONTON, ALTA.

AGENTS:
MESSRS. WALKER'S LTD.,
259 STANLEY ST., WINNIPEG, MAN.

MESSRS. ROBERT HAMILTON & CO., LTD.,
BANK OF OTTAWA BLDG., VANCOUVER, B.C.

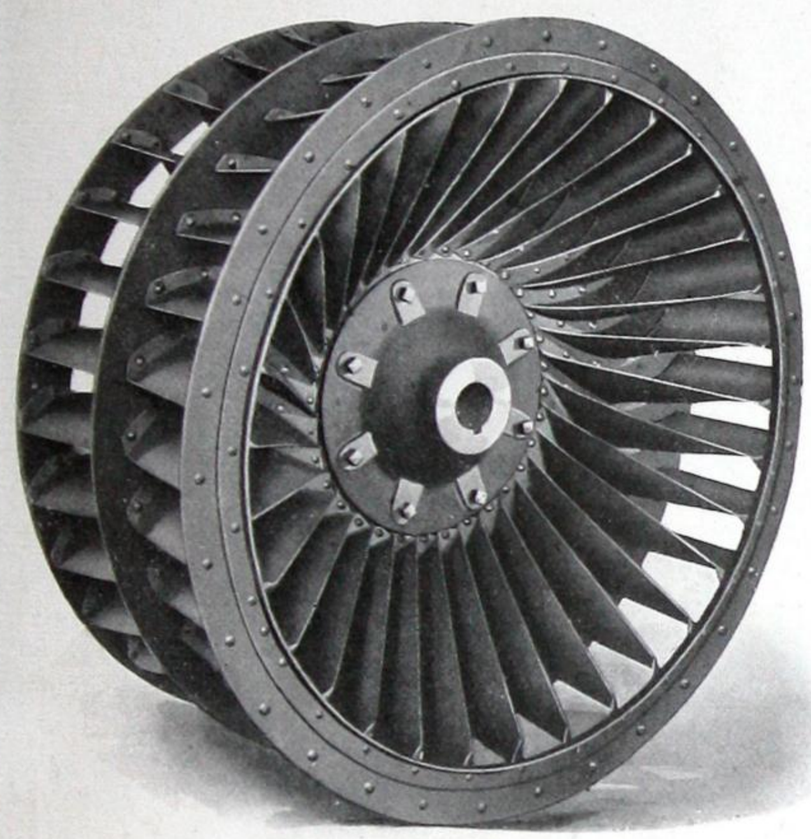


FIG. 292.—DOUBLE WIDTH KEITH WHEEL.

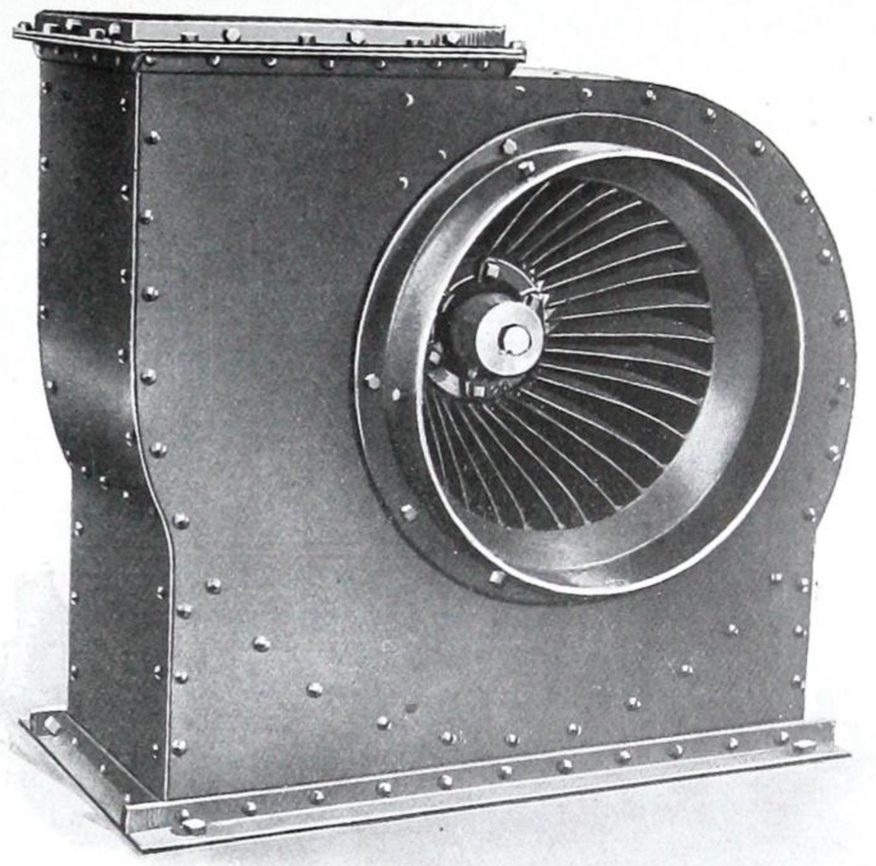


FIG. 299.—INLET SIDE OF SINGLE WIDTH KEITH FAN.

KEITH FAN.

Fig. Nos. 299 and 292 show the Keith Fan complete and the wheel separate. This fan is a product of Messrs. Keith & Blackman Co., of London, England, and was only brought to its present perfect design after years of study and experimental work. We secured the Canadian rights for this fan in 1912, and the great success we have had with it in this short time substantiates the claims made for it by Messrs. Keith & Blackman in its extended use in the British Islands and over the continent of Europe generally.

It has been adopted by the British and German Naval Departments in preference to other makes of fans, and to a certain extent by the American Navy. The Cunard S.S. Line, in 1912, installed the Keith Fan for the ventilation and cooling of the central turbine engine-room in the S.S. Lusitania, and the great engine-rooms of the S.S. Aquitania, of the same line, are being equipped with these fans to supply over 16,000,000 cubic feet of air per hour.

As further evidence of superiority, we might cite the case of the Singer Building in New York City. The Keith Fan was installed in the engine-room or power-house of this building to replace another make of fan. To properly ventilate and cool this great engine-room, 7,200,000 cubic feet of air per hour was supplied at an expenditure of 22-horse power only. The installation is a complete success, the temperature never being more than 7 deg. Fahrenheit above the exterior temperature.

The points on which we claim superiority for the Keith Fan are: Large volumes of air at low speeds, noiseless operation and highest efficiency.

VENTILATING SYSTEMS.

As many installations present new problems, the figures and particulars given herein must be considered as general. However, the following information, if used with good judgment, will give entire satisfaction in the ordinary installation. We wish to advise engineers and architects that we have a qualified engineering staff ready to give advice at any time, and that we are prepared to make drawings and specifications of heating and ventilating systems free of charge.

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CALCULATIONS.

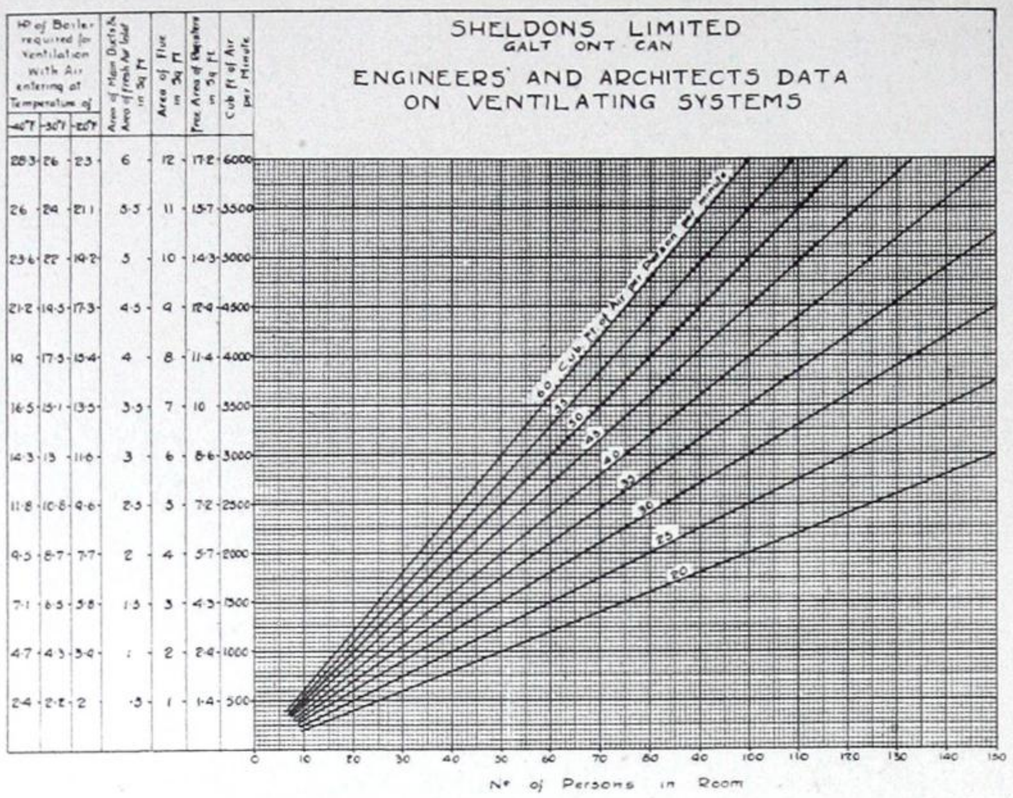


TABLE NO. 1.

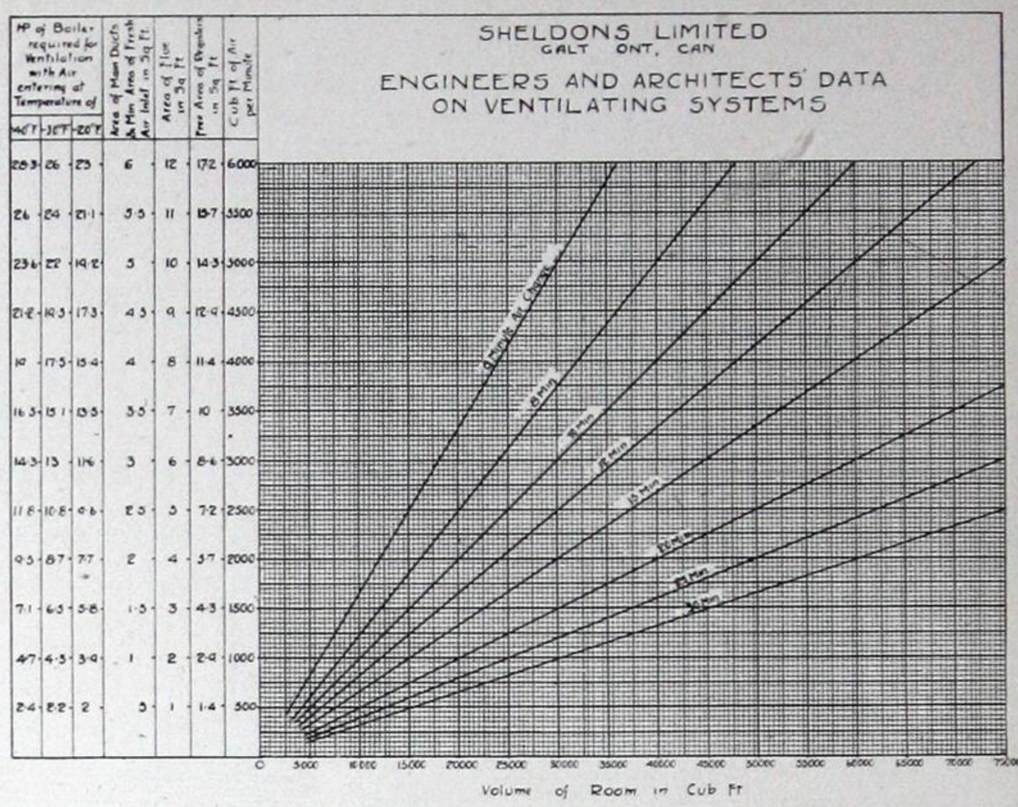


TABLE NO. 2.

Tables Nos. 1 and 2 give in graphical form the quantities of air, boiler horse-powers, and areas of registers, flues ducts and fresh air inlets required for ventilation in office buildings, schools, churches, etc.

Table No. 1 is applicable where the ventilation is based on a definite quantity of air per person per minute; while Table No. 2 is based on a time air change in a room or building.

EXAMPLE.

Consider a school containing 10 class-rooms and 2 lunch or play rooms, each class-room to contain 43 persons (42 pupils and teacher) and each lunch-room to be 25 feet long by 30 feet wide by 12 feet high. Allow 30 cubic feet per minute per person in the class-rooms and a 20-minute air change in the lunch-rooms. The temperature of the rooms to be 70 deg. Fahrenheit when the outside temperature is —20 deg.

On Table No. 1 follow out the line passing through the point of intersection of the lines representing 43 person and 30 cubic feet of air per minute per person, and read off from the vertical axis the following quantities and areas:—

Cubic feet of air per minute	=	1,290.
Free area of register	=	3.68 sq. ft.
Area of flue and branch duct	=	2.58 sq. ft.
Total amount of air for 10 class-rooms	=	1,290 x 10 = 12,900 cubic feet per minute.
The cubical contents of each lunch-room are		25 x 30 x 12 = 9,000 cubic feet.

On Table No. 2 follow out the line passing through the intersection of the lines representing 9,000 cubic feet in room and 20-minute air change, and read off from vertical axis:—

Cubic feet of air per minute	=	450.
Free area of register	=	1.26 sq. ft.
Area of branch duct (from flue area column)	=	.9 sq. ft.
Cubic feet of air required for 2 lunch-rooms	=	450 x 2 = 900.
Cubic feet of air required for 10 class-rooms and 2 lunch-rooms	=	12,900 + 900 = 13,800.

Add 10% to the above quantity of air for good measure—a total of 15,180 cubic feet of air for the entire school.

As Table No. 1 only reads to 6,000 cubic feet of air, divide 15,180 by 3, which gives 5,060 cubic feet. Read off the properties corresponding to 5,060 cubic feet of air, and obtain the following:—

Area of main duct	=	5.06 sq. ft.
Minimum area of fresh air inlet	=	5.06 sq. ft.
Boiler horse-power required	=	19.3.

Multiply the above by 3, which gives the totals for the entire school as follows:—

Cubic feet of air per minute	=	15,180.
Area of main duct	=	15.18 sq. ft.
Min. area of fresh air inlet	=	15.18 sq. ft.
Boiler horse-power required	=	57.9.

ARRANGEMENT OF APPARATUS.

Fig. No. 3 shows an apparatus lay-out in plan. The spacing and arrangement of the different parts of the apparatus are such as to give the air a direct and uniform flow throughout and to allow free access to all the parts. The distances between the parts should not be decreased from those shown, but can be increased to advantage in many cases, particularly the distance from the fresh air inlet to the tempering coils and from the reheating coils to the fan.

Where it is at all possible, there should be a free space of 3 feet around the apparatus, to allow of attendance and free access to any part that might have to be repaired or replaced.

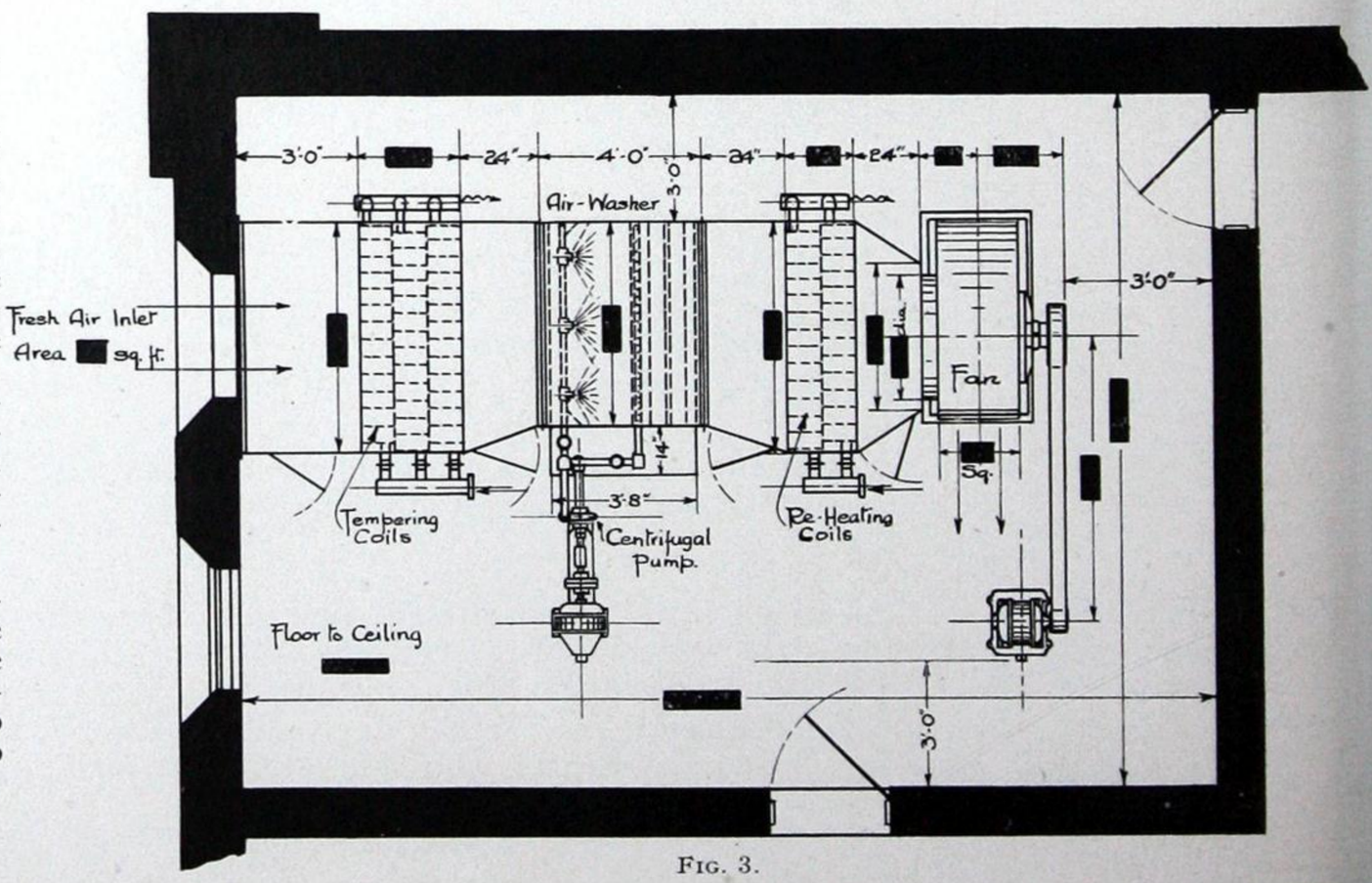


FIG. 3.

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SIZE OF ROOM FOR APPARATUS.

For apparatus arranged as shown and including the 3-foot space, and also for apparatus with fan direct driven, the room sizes given in Table No. 3 will be found suitable in most cases.

TABLE NO. 3.

CUBIC FEET OF AIR PER MINUTE.	APPARATUS WITH FAN BELT DRIVEN.			APPARATUS WITH FAN DIRECT DRIVEN.		
	Length. Ft.	Width. Ft.	Height. Ft.	Length. Ft.	Width. Ft.	Height. Ft.
Up to 10,000	24	17	9	25	13	9
10,000 to 15,000	26	18	10	26	14	10
15,000 to 20,000	27	19	10	28	15	10
20,000 to 25,000	28	19	11	29	16	11
25,000 to 30,000	29	20	11	30	17	11
30,000 to 40,000	30	21	12	31	18	12

For apparatus having the inlet side of the fan at right angles to the face of the re-heater coils, add 1 foot to the width of the rooms given in the table for apparatus with fan direct driven.

The above measurements are for standard installations, *i.e.*, arranged to give highest efficiency, and in cases where the conditions make it necessary to change the design, the sizes of the rooms may vary. Where the installation does not include an air washer, approximately 8 feet may be cut off the length of the room.

FAN HEATING INSTALLATIONS.

TABLE NO. 4.

TABLE OF COEFFICIENTS OF TRANSMISSION, PER DEGREE DIFFERENCE OF TEMPERATURE, IN B.T.U. PER SQ. FT. OF SURFACE PER HOUR.

SURFACE.	THICKNESS.	CO-EFFICIENT.		SURFACE.	CO-EFFICIENT.
Solid Brick Wall	9″	.46	FLOORS:	Wood	.07
" " "	13″	.32		Fireproof	.124
" " "	17″	.26		Plank on Earth	.16
" " "	22″	.23		Plank on Concrete	.20
" " "	26″	.20		Earth Floor	.23
" " "	30″	.174		Cement and Concrete on Cinders	.30
Solid Stone Wall	12″	.45	ROOF:	Wood under Slate	.30
" " "	16″	.39		Wood under Iron	.17
" " "	20″	.35		Monitor	.150
" " "	24″	.32		Tar—Felt and Gravel	.130
" " "	28″	.29	CEILINGS:	Wood	.10
" " "	32″	.26		Fireproof	.145
" " "	36″	.24	WINDOWS:	Single	1.00
Frame Wall	...	.22		Double	.50
Corrugated Iron Wall	...	.84	SKYLIGHTS:	Single	1.11
				Double	.62
			DOORS		1.00

On factory heating, losses from transmission of heat can be calculated with the aid of Table No. 4. Experience shows that the required air change varies anywhere from 30 minutes to 15 minutes, according to the type and size of building and the material of which it is constructed. Space here will not permit us to give a detailed explanation of the calculations for fan heating jobs. We, therefore, again offer to make plans and specifications for any who have not had experience in this class of work.

IMPORTANT POINTS IN FAN INSTALLATION.

If fan is driven by electric motor, the motor should have a surplus power of 25%, as the characteristic performance of a fan is such that the fan will overload if the resistance against which it is working is less than that calculated on.

Do not allow a fan equipment to be crowded into a small room and be erected in a haphazard manner. It is always an important installation, and you expect good results from it. Put it in, therefore, as you would an engine or steam turbine in a power-house.

SELECTION OF HEATER.

To determine the size of heater required, after having decided on the size and capacity of the fan, reference to Table No. 5 will give the number of feet of inch pipe in a fan coil necessary to heat 1,000 cubic feet of air per minute to any desired temperature. This table gives from zero to various temperatures, and also gives the raise in temperature obtainable from a starting point of 30°, which is used when the air is to be re-circulated in the heating system. In factory heating systems the air is, as a rule, re-circulated except in special installations. In all public building work it is recommended that fresh air be taken from the outside. In this case the air will be figured as entering at zero. If the building is situated in an extremely cold locality, such as 30° below zero, then the amount of pipe can be determined from Table No. 5, with the exception that, instead of the final temperature being as given, it will be 30° lower; that is, instead of raising from zero to, say, 90°, it will raise from 30° below zero to 60°. This, of course, is approximate only, but will be near enough for preliminary calculation. In Table No. 6 are given curves, showing the temperature of air obtained when passing through the coils of various depths at different velocities. In Table No. 7 are given the temperatures obtained when the air is passed through coils of various depths, the coils being furnished with steam at different pressures. From these last two tables can be determined the depth of heaters or number of sections required to obtain correct results.

TABLE NO. 5.

HEATING SURFACE IN LINEAL FEET CAPACITY. TO HEAT 1000 CUBIC FEET OF AIR AT VELOCITY OF 1500 FEET PER MINUTE THROUGH COILS.

STEAM PRESSURE, 2 LBS.				STEAM PRESSURE, 70 LBS.			
FRESH AIR		RECIRCULATED AIR		FRESH AIR		RECIRCULATED AIR	
Temp. Raised	Lineal Feet	Temp. Raised	Lineal Feet	Temp. Raised	Lineal Feet	Temp. Raised	Lineal Feet
0- 60	101	30- 60	55	0- 60	70	30- 60	36
0- 65	109	30- 65	64	0- 65	75	30- 65	42
0- 70	117	30- 70	73	0- 70	81	30- 70	48
0- 75	126	30- 75	82	0- 75	87	30- 75	54
0- 80	134	30- 80	91	0- 80	93	30- 80	60
0- 85	142	30- 85	100	0- 85	98	30- 85	66
0- 90	151	30- 90	109	0- 90	104	30- 90	72
0-100	168	30-100	128	0-100	116	30-100	84
0-110	185	30-110	145	0-110	127	30-110	96
0-120	201	30-120	165	0-120	139	30-120	108
0-140	237	30-140	174	0-140	162	30-140	131
0-160	270	30-160	204	0-160	185	30-160	155
0-180	303	30-180	237	0-180	209	30-180	179
0-200	336	30-200	267	0-200	232	30-200	203
0-250	420	30-250	345	0-250	289	30-250	260

CONTINUED ON NEXT PAGE

TABLE NO. 6

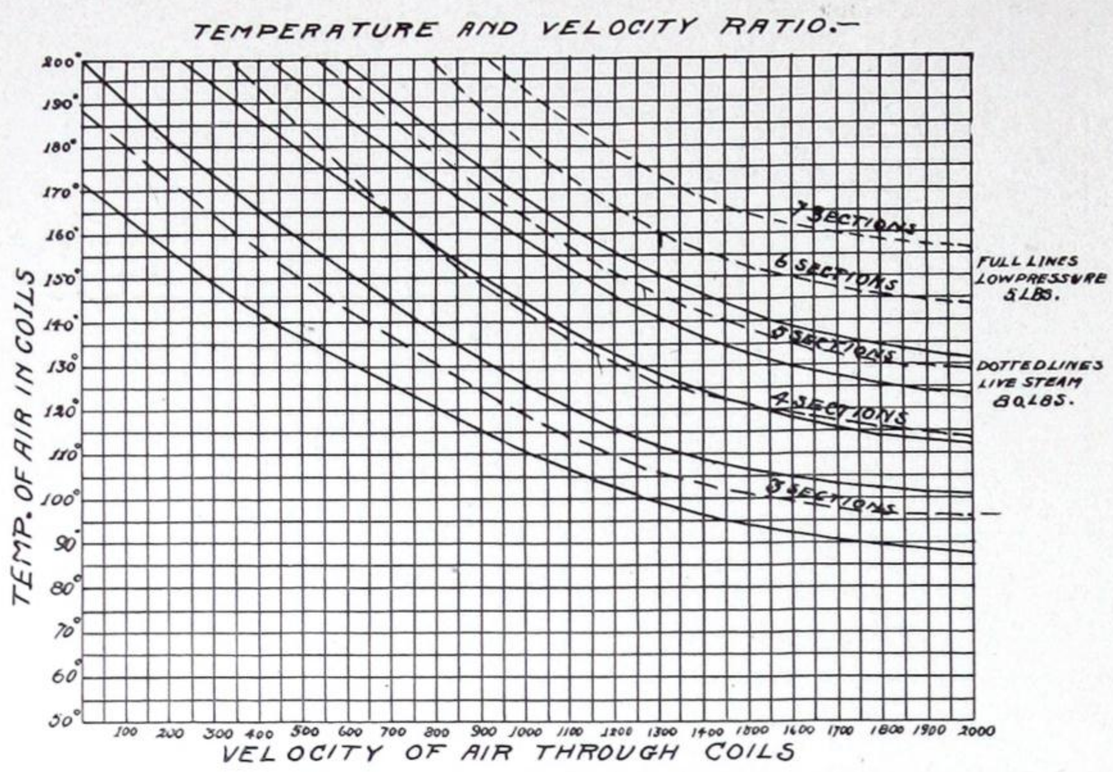
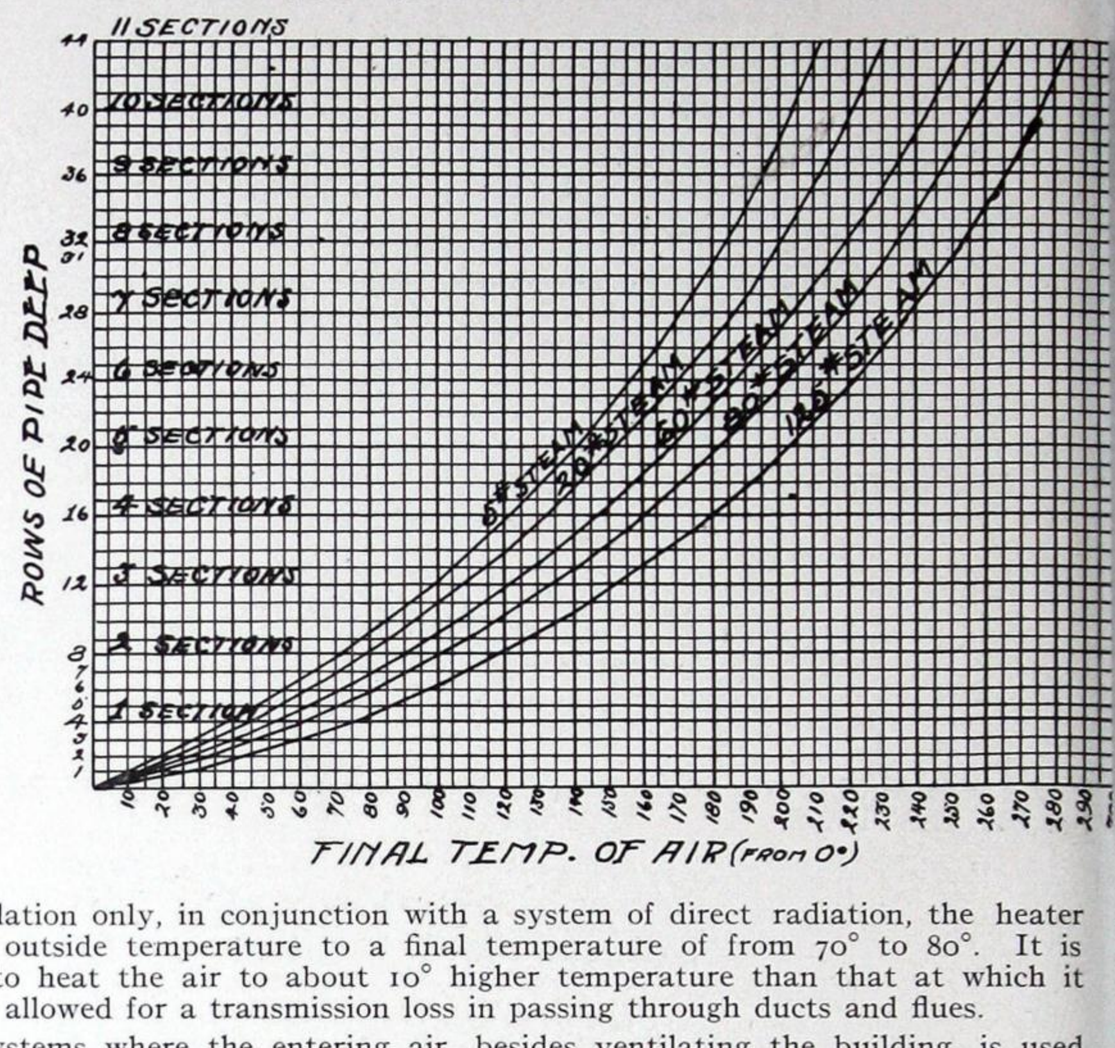


TABLE NO. 7.



TEMPERING COIL. Where a fan and heater is used for ventilation only, in conjunction with a system of direct radiation, the heater coil is furnished only to raise the air from the outside temperature to a final temperature of from 70° to 80°. It is customary to have the coils sufficiently large to heat the air to about 10° higher temperature than that at which it will be delivered into the rooms. This 10° is allowed for a transmission loss in passing through ducts and flues.

FOR FACTORIES. For factory heating systems, or in such systems where the entering air, besides ventilating the building, is used to heat it as well, the final temperature of the air is generally about 130° or 140° at the fan outlet, and in calculating the pipe, if it is figured at a final temperature of 140°, it will be sufficient in most cases. Where very large volumes of air are delivered into rooms, a lower temperature, such as 120°, is sufficient, as the excess of air delivered more than makes up for the fall off in temperature.

DEPTH OF HEATERS. Heaters are usually made from 20 to 24 pipes deep, or, in other words, from 5 to 6 sections deep, each section being 4 pipes deep. A heater of standard construction is about 50% "free area," that is, the "free area" between the pipes is about 50% of the "over-all" area of a section.

VELOCITY THROUGH HEATERS. For public buildings the air generally passes through the coils at a velocity of from 800 to 1000 feet per minute, and for factories the velocity can be much higher, and it is generally from 1200 to 1600 feet per minute. In public building work a tempering coil is usually furnished to raise the outside air to a temperature of 60° or 70°. The air then passes through the fan and from the fan is delivered to the ducts or flues. If the air is to be used for heating, or is desired at a higher temperature than is accomplished by the use of the tempering coil, a re-heater is used of from 3 to 4 sections to raise the temperature from 70° to any desired temperature. The tempering coil is usually from 4 to 12 pipes deep or from 1 to 3 sections. A re-heater coil is generally from 8 to 16 pipes deep or from 2 to 4 sections.

TYPE OF HEATERS. For public building work the "draw-through" type heater is used only where space conditions make it necessary. It is customaryto use the "blow-through" type; that is, the fan discharges its air through the heater, and from the heater the air is conducted to the several rooms by the ducts or flues. In factory work the "draw-through" heater is used almost entirely on account of its occupying much less space. This means that the fan will exhaust its air or draw it through the heater, and the fan discharge will be connected directly to a system of ducts or distributing pipes.

SIZE OF HEATERS. Table No. 8 gives the sizes of heaters in lineal feet of 1-inch pipe, and also gives the number of square feet of heating surface contained in each one of these heaters. We give a table showing the heaters as specially constructed in 2, 3, 4, 5, 6, or 7 sections. The heights, lengths, or widths of these sections or space occupied is also given, together with the "free area" through the coils. The length of the heater is the dimension parallel to that in which the air flows, and besides this length a space of at least 18 inches must be furnished to insure a space for the free distribution of the air over the entire surface of the heater. If any larger heaters than this list are required, for instance, 10,000 ft. heater, we would advise the use of two 5,000 ft. heaters set back to back. This is the customary method, and these heaters can be arranged in 2, 3, or 4 group heaters, each group being as per the list as shown in Table No. 8.

TABLE NO. 8.

GENERAL DIMENSIONS OF HEATERS.

No. of Lineal Feet of 1 in. Pipe in Heater	No. of Square Feet of Heating Surface in Heater	FLOOR SPACE OCCUPIED—HEIGHT—AND FREE AREA THROUGH HEATERS. ALL DIMENSIONS IN FEET																			
		8 Pipes Deep or 2 Sections				12 Pipes Deep or 3 Sections				16 Pipes Deep or 4 Sections				20 Pipes Deep or 5 Sections				24 Pipes Deep or 6 Sections				28 Pipes Deep or 7 Sections			
		Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet
500	166.6	2.84	1.5	5.82	8.3	2.84	2.2	4.14	5.9												
750	250.0	2.84	1.5	6.51	9.25	2.84	2.2	6.02	8.6	2.84	3.0	4.65	6.6								
1000	333.3	4.43	1.5	7.01	15.6	4.03	2.2	5.33	10.8	3.64	3.0	4.63	8.45	3.17	3.7	4.14	6.6	2.84	4.5	4.14	5.9				
1500	500.0	5.22	1.5	8.2	21.2	4.43	2.2	7.01	15.6	4.03	3.0	5.62	11.4	3.64	3.7	5.43	9.8	2.84	4.5	6.03	8.6	3.17	5.2	4.24	6.7
2000	666.6	6.46	1.5	9.07	28.3	5.62	2.2	7.11	20.0	4.82	3.0	6.42	15.5	4.43	3.7	5.72	11.7	4.03	4.5	5.33	10.8	3.64	5.2	5.13	9.35
2500	833.3	7.22	1.5	9.88	36.0	6.05	2.2	7.9	24.0	5.22	3.0	7.21	19.1	4.43	3.7	7.01	15.6	4.43	4.5	5.82	12.9	4.03	5.2	5.62	11.4
3000	1000.0	7.93	1.5	10.27	50.5	6.46	2.2	9.09	28.3	5.22	3.0	8.2	21.2	5.22	3.7	6.71	17.6	4.43	4.5	7.01	15.6	4.43	5.2	6.02	13.4
3500	1166.6	....	....	.....	.....	7.62	2.2	8.49	32.3	6.46	3.0	7.7	24.8	5.62	3.7	7.21	20.3	5.22	4.5	6.51	17.2	4.43	5.2	7.01	15.6
4000	1333.3	....	....	.....	.....	7.93	2.2	9.48	37.5	6.46	3.0	9.09	28.3	6.05	3.7	7.6	23.0	5.62	4.5	7.11	20.0	5.22	5 2	6.42	16.8
4500	1500.0	....	....	.....	.....	8.41	2.2	9.78	41.2	7.22	3.0	8.67	31.4	6.46	3.7	8.0	25.8	5.22	4.5	8.2	21.2	5.22	5 2	7.11	18.7
5000	1666.6	....	....	.....	.....	....	....	.....	....	7.22	3.0	9.88	35.7	6.46	3.7	9.09	28.3	6.05	4.5	7.9	23.9	5.22	5.2	7.80	20.5
5500	1833.3	....	....	.....	.....	....	..	.....	....	8.41	3.0	9.29	38.2	7.22	3.7	8.59	31.0	6.46	4.5	8.00	25.8	6.05	5.2	7.5	22.8
6000	2000.2	....	....	.....	.....	....	....	.....	....	....	....	.....	.....	7.62	3.7	8.79	33.5	6.46	4.5	9.09	28.3	6.46	5.2	7.6	24.6
6500	2166.6	....	....	.....	.....	....	....	.....	....	....	....	.....	.....	7.93	3.7	8.99	35.5	7.22	4.5	8.39	30.3	6.82	5.2	7.70	26.4
7000	2333.3	....	....	.....	.....	....	....	.....	....	....	....	.....	.....	7.93	3.7	9.68	38.0	7.22	4.5	8.99	32.5	6.46	5.2	9.09	28.3
7500	2500.0	....	....	.....	.....	....	....	.....	....	....	....	.....	.....	7.93	3.7	10.27	41.6	7.22	4.5	9.88	35.7	7.22	5.2	8.59	30.7

THE CANADIAN RECTOR GAS HEATING CO., LIMITED

320-322 LISTER CHAMBERS,
HAMILTON, ONT.

TORONTO OFFICE: 26 ADELAIDE STREET WEST.

PRODUCTS. The RECTOR SYSTEM OF VACUUM AUTOMATIC GAS HEATING.

DESCRIPTION AND ADVANTAGES. The RECTOR SYSTEM burns ordinary gas, such as is now used to light homes and for cooking purposes in a gas range. Gas is infinitely more convenient than coal, oil or any other kind of fuel.

The RECTOR SYSTEM removes every objection heretofore connected with gas heating—the disagreeable odour, the unhealthful fumes and moisture, and the expense.

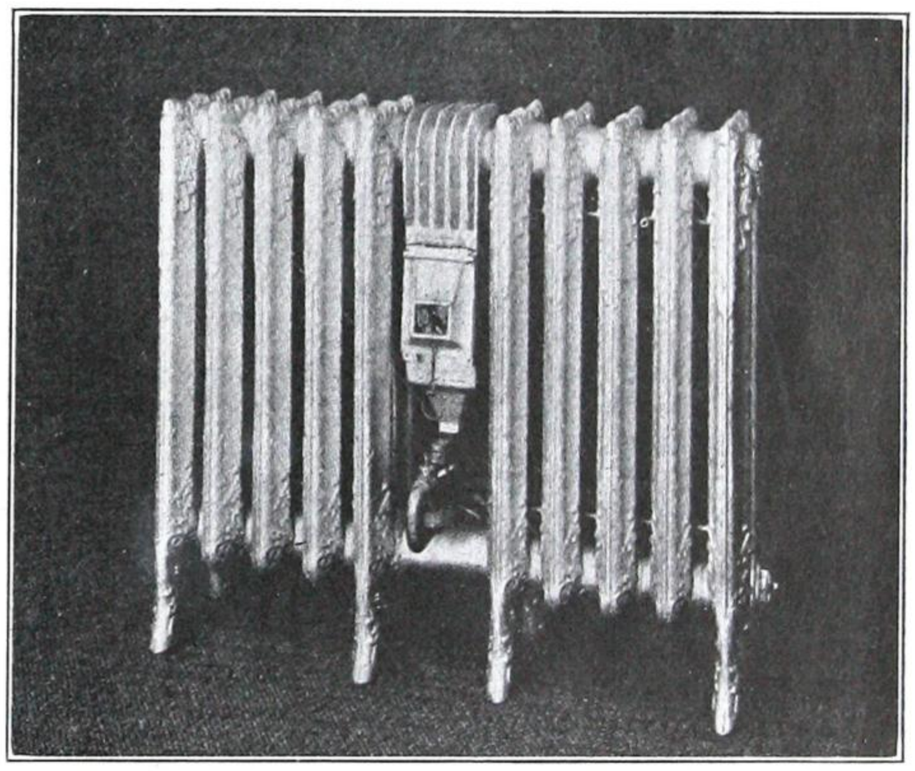
The RECTOR SYSTEM leaves all the heat from the gas in the room, yet takes all the "smell" from the gas out of the room.

The RECTOR SYSTEM gives exactly the amount of heat wanted when wanted; exactly the amount of heat desired in each individual room; an even temperature under perfect control, automatically adjusting itself to meet the changes of the weather —a large saving in gas fuel bills.

The RECTOR SYSTEM is absolutely reliable, giving the temperature called for—not within five degrees or two degrees, but exactly—never varying one-half a degree above or below what the thermostat is set for.

The RECTOR SYSTEM can be started or stopped at a moment's notice by merely pushing a button, the same as for electric lights, or controlled by a clock, which starts or stops it at any set time.

The RECTOR SYSTEM is perfectly automatic—the gas does not have to be turned on or off. The supply of gas does not need to be regulated for the different temperatures desired. The thermostat takes care of everything, allowing only the exact amount of gas to be burned to give the heat desired.



THE ONLY HEATING SYSTEM THAT RUNS ITSELF.

The RECTOR SYSTEM is sanitary and healthful. There is no odour, dust or dirt; no overheated or underheated room. There is constant and continuous ventilation. All this has resulted in better general health in homes where installed.

The RECTOR SYSTEM operates on the lowest gas pressure, even in the absence of pressure, drawing its own gas from the main.

ADAPTABILITY. The RECTOR SYSTEM has been used in all sorts of weather and all sorts of outside temperatures, below zero and above, in small homes, in large residences, in public halls, in school buildings, in churches, in public libraries, in large apartment houses, in banks, and in every case and under all circumstances the verdict is the same—a service so perfect, so ideal, as to meet every possible heating requirement.

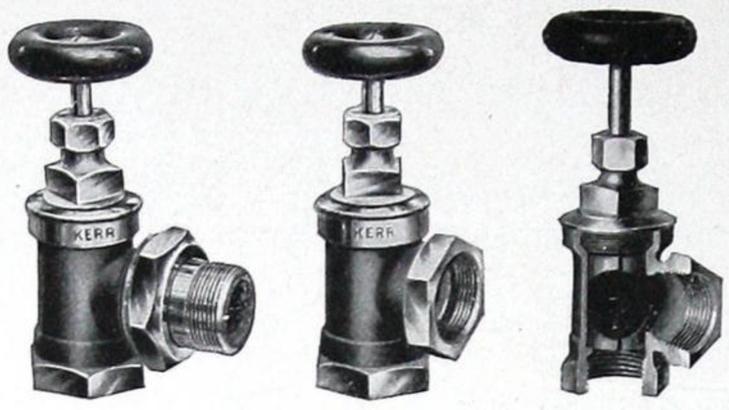
INFORMATION. Catalogues and full information furnished upon request.

THE KERR ENGINE COMPANY, LIMITED

HEAD OFFICE AND WORKS:
WALKERVILLE, - - ONTARIO.

PRODUCTS. We manufacture Composition Disc Globe and Angle Valves (Brass), Steam and Hot Water Radiator Valves, Brass Gate Valves, PACKLESS RADIATOR VALVES, Iron Body Gate and Swing Check Valves, Indicator Post Gate Valves, Fire Hydrants (Gate and Compression), Valve Boxes, Water Cranes, etc.

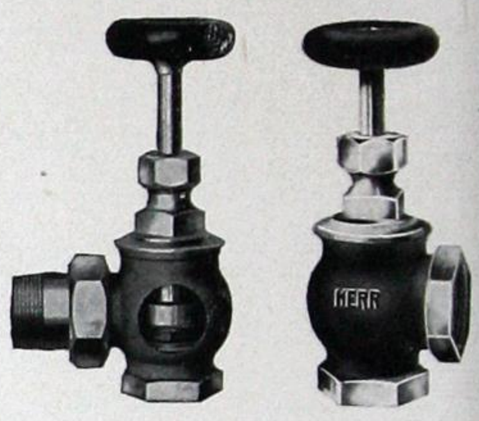
KERR QUICK OPENING HOT WATER RADIATOR VALVES.



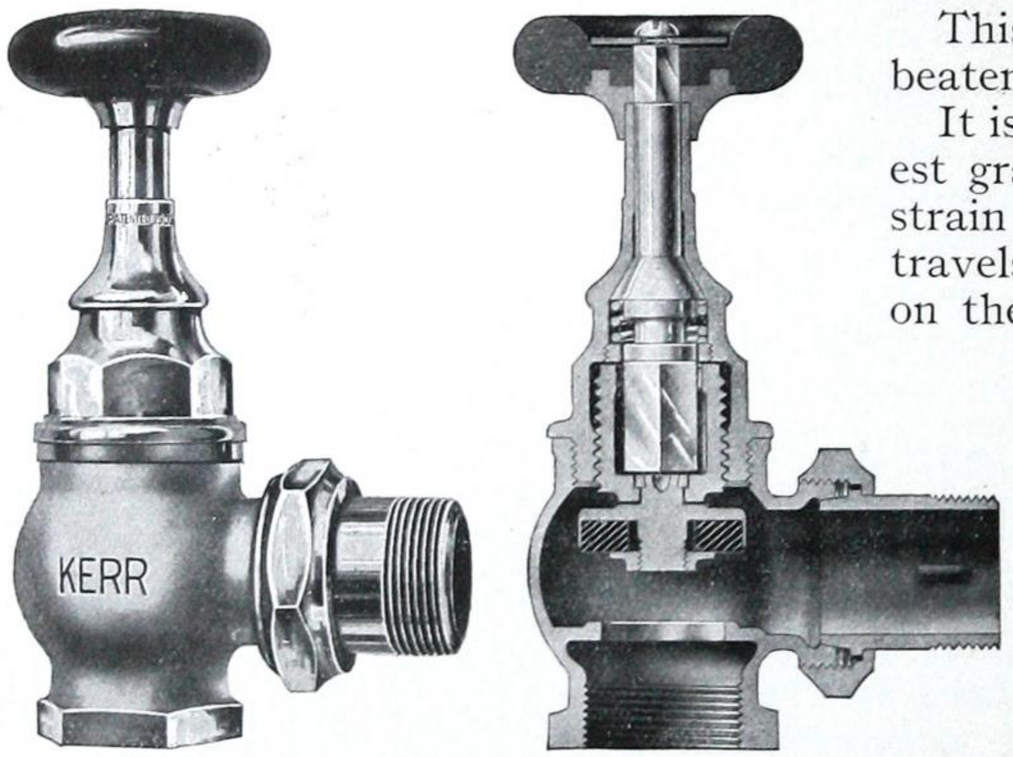
These are the hot water valves which have made this type of Radiator Valve so popular. The plugs are so made as to prevent sticking. Metal throughout is of good quality and workmanship is of the very first order. Handsome design, good material and accurate workmanship combine to make them the best and most serviceable valve of the kind procurable. Every valve tested.

BRASS DISC AND COMPOSITION DISC STEAM RADIATOR VALVES.

This is a good weight valve for domestic heating, made of good red metal and beautifully machined and plated. We stand back of our radiator and other valves and guarantee them to be free from bad castings, poor material or workmanship. Any valves found defective we gladly replace. These valves are so constructed that the bonnets will not freeze and the seat is so situated as to drain the valve completely through Radiator when the valve is closed.



THE KERR PACKLESS RADIATOR VALVE.



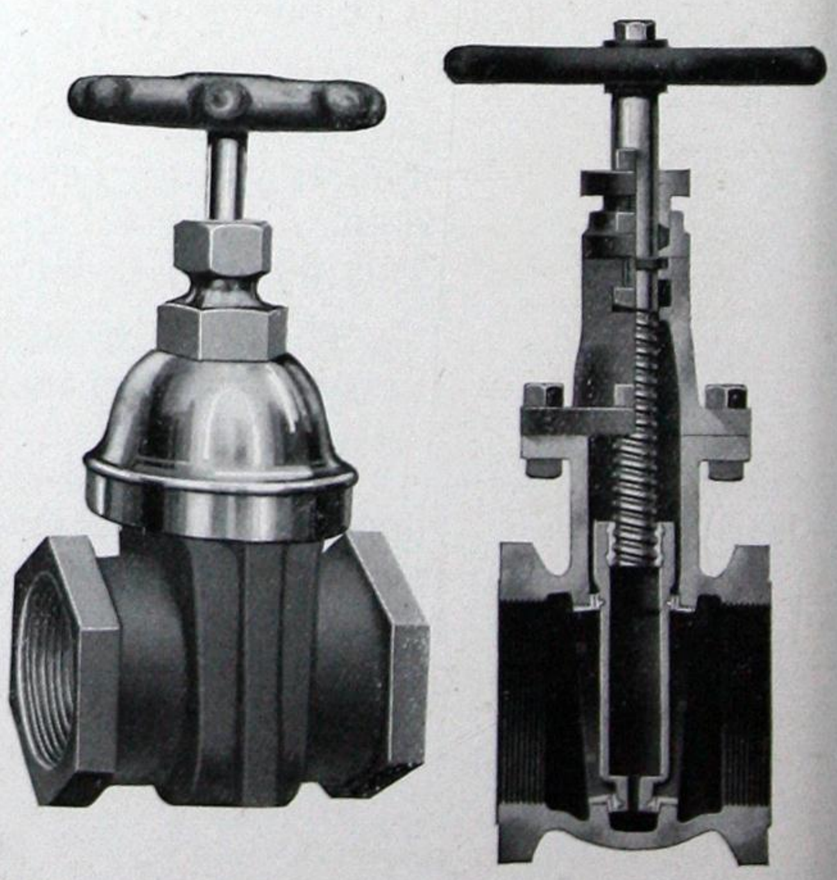
This is a decided departure from the well-beaten path of so-called "Packless" valves.

It is an all-metal valve, made of the highest grade material. There is no thrust or strain on the valve stem, as the disc holder travels on a thread in the bonnet instead of on the stem, the stem acting as a key to operate the travelling disc holder. The stem is made of special metal and has a ground joint held in place by heavy Phosphor Bronze spring, as shown in cut. This is a reliable packless valve and we will be pleased to forward circular matter and give further information concerning it on application. Give these valves a trial on the next small job you have and satisfy yourself as to their merits. We are certain of the results.

KERR BRASS AND IRON GATE VALVES, SCREWED, FLANGED AND HUBBED ENDS. STATIONARY STEM, OR OUTSIDE SCREW AND YOKE TYPES. SOLID WEDGE.

We have been manufacturing this line of valves for upwards of thirty years, and the high reputation gained for them is well known from Coast to Coast. These valves are of the most modern design, and are strong, well-made goods. Our Outside Screw and Yoke Valves are fitted with bronze bushed glands and stuffing boxes as required by the Fire Underwriters.

We expect in the next issue of "Specification Data" to be showing under "Fire Protection" our new and approved line of Valves, Indicator Posts, Check Valves and Hydrants.



THE CANADIAN FAIRBANKS-MORSE CO., LIMITED

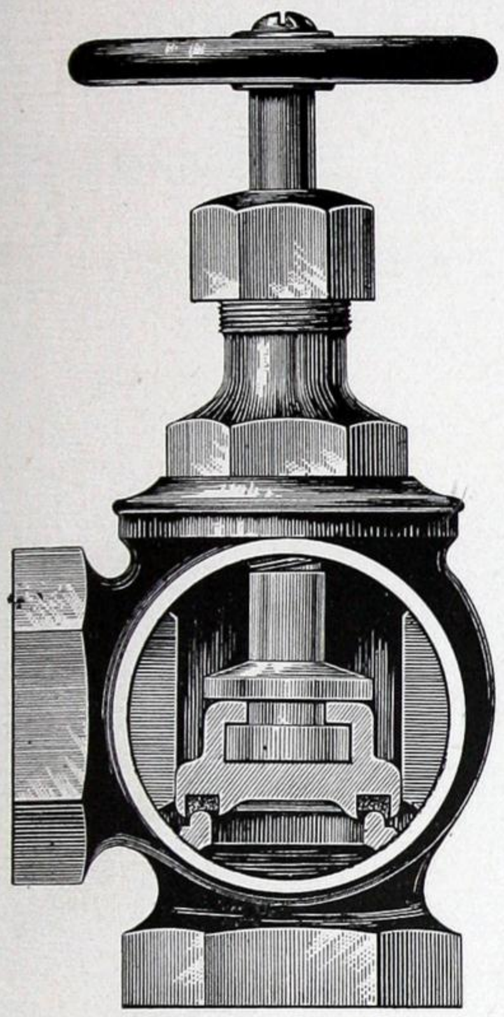
444 St. James Street,
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BRANCHES:
Ottawa, Toronto and St. John, N.B.

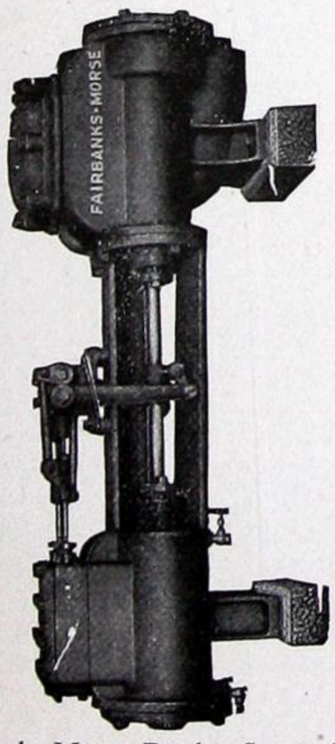
BRANCHES:
Winnipeg, Calgary, Saskatoon,
Victoria and Vancouver.

PRODUCTS. All SUPPLIES for MILLS, FACTORIES, POWER HOUSES, RAILWAYS, MINES, and CONTRACTORS.

FAIRBANKS

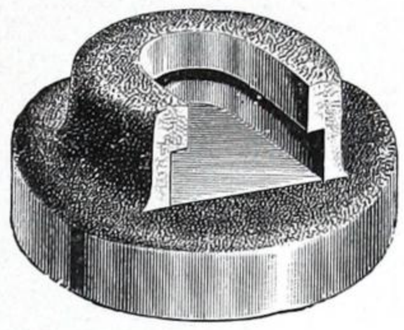


Use a Fairbanks Renewable Disc Angle Valve on Radiators and in Corners, and save an elbow and nipple.
Use a Fairbanks Renewable Disc Globe Valve for throttling purposes, as on Engines, Pumps, Hoisting Engines, etc.
Use a Fairbanks Renewable Seat Gate Valve, with Retaining Rings, the only Gate Valve that can be renewed on a line of pipe. These valves permit a free flow of steam or liquid.
Use a Fairbanks Swing Check Valve with Rotative Disc. They work freely and never stick. Used on boiler feed, and all connections to boiler below water line, except blowoff.
Use a P. & C. Asbestos Packed Cock for boiler blowoff. The best Blowoff Cock made.



Fairbanks-Morse Duplex Steam Pump for boiler, feed and other purposes.

RENEWABLE DISC



VALVES.

Advantages of the Renewable Disc:

It is much quicker and easier to simply unscrew the valve bonnet and slip a new disc on the spindle than to go to the time and trouble of regrinding the seat and disc. Regrinding requires considerable skill and experience, and takes a long time, which cannot always be spared.

With the disc fitting loosely on the spindle, it is enabled to always come to an even bearing on the seat, thus compensating for any wear, making the valve tight at all times. The disc is a turned brass casting in which is spun a composition ring as shown, thus doing away with the necessity of pins, washers, nuts, etc.

FAIRBANKS RENEWABLE DISC VALVES

are well and simply made, and have many excellent features. They are tight and remain tight under the most severe service. The valves are heavy and doubly strong owing to correct distribution of metal. Every valve that we sell for 125 lbs. working pressure has an individual test up to 300 lbs. hydraulic pressure. These points all count after the valve has been in service, and mean the difference between a common, leaky, wasteful valve, and a Fairbanks Economical Valve.

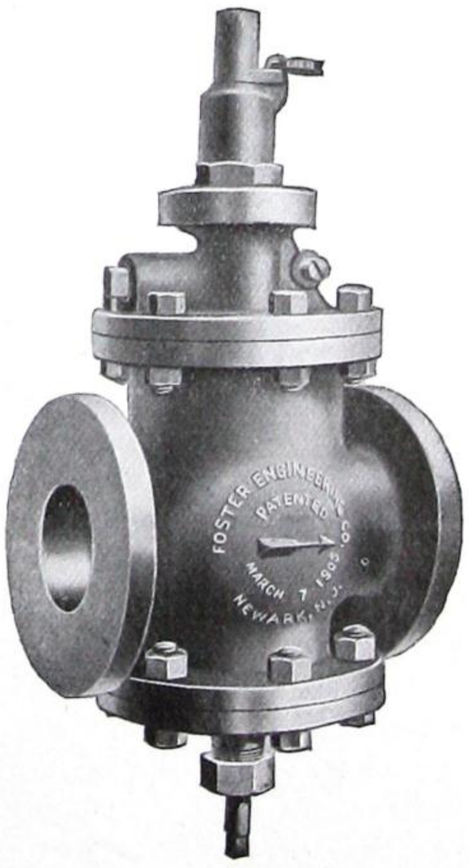
Globe, Angle, Gate, and Check Valves—all sizes for every requirement.

FOSTER PRESSURE-REDUCING VALVES.

These valves will deliver steam steadily at any reduced pressure that may be desired. They are especially valuable for use on heating systems, induced draft fans, etc., and provide a safe, reliable way to keep excessive pressure out of any piece of apparatus.

Class Q Regulator is used where delivery pressure does not exceed 15 lbs., Class G on any delivery pressure above 15 lbs.

Booklet No. 11 R tells all about these and many other Foster Specialties.



Class G Foster Regulator.

THE GOLDIE & McCULLOCH CO., LIMITED

GALT, ONTARIO, CANADA.

WESTERN BRANCH:
248 McDermott Ave.,
WINNIPEG, MAN.

TORONTO OFFICE:
1101-2 Traders Bank Building.

QUEBEC AGENTS:
ROSS & GREIG, 412 St. James St.,
MONTREAL, QUE.

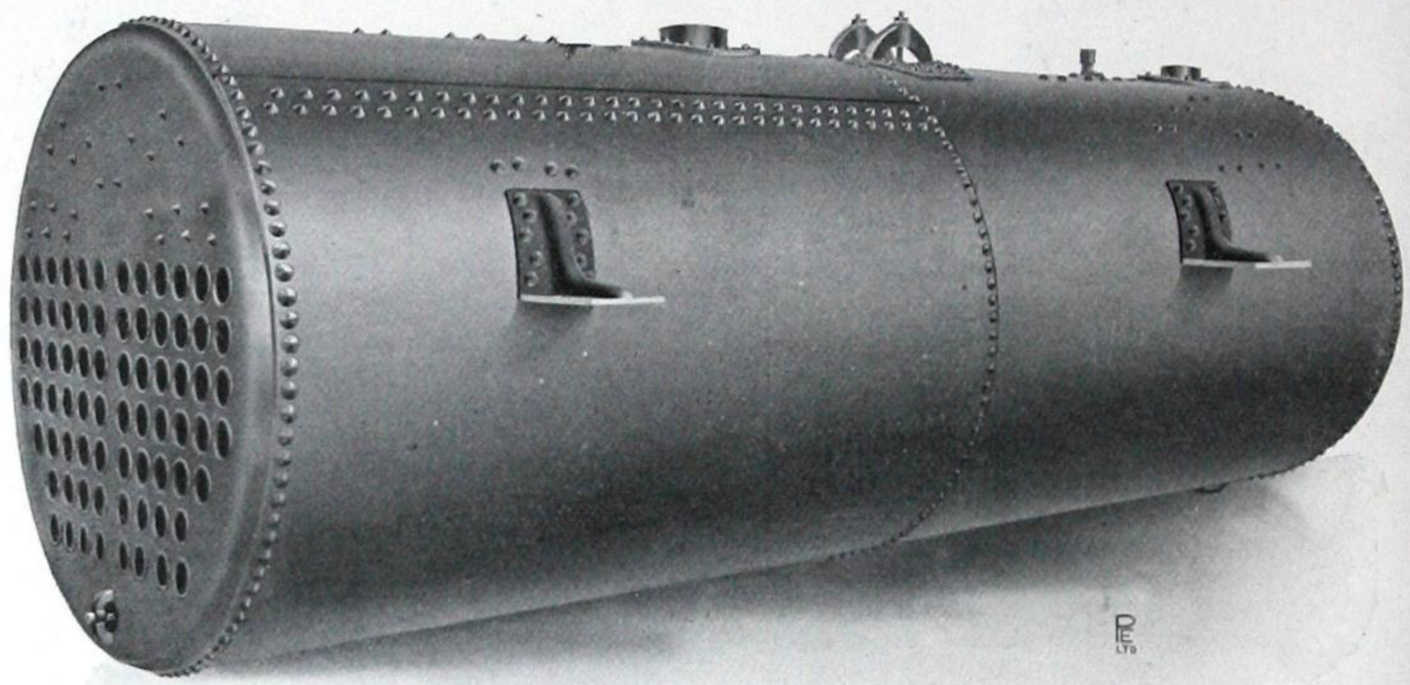
B.C. AGENTS: ROBT. HAMILTON & CO., VANCOUVER, B.C.

POWER EQUIPMENT, COMPLETE OR IN PART.
HEATING BOILERS.

MATERIAL.—The material used in the construction of our Boilers is the best quality of flange steel of standard make. The tubes are soft steel. The rivets are mild steel and the stays are the Huston solid pressed steel type.

FLANGING.—The head sheets are of the best quality of flange steel, and are formed in a hydraulic flanging machine with curves of large radii. Only one heat is taken on each head in turning the flange, thus relieving the head sheet from all strains likely to occur when flanging is done by hand.

RIVETTING.—The rivetting is principally done by a powerful hydraulic rivetter by which the plates are brought in such close contact that the strain on the rivets is greatly reduced.



CAULKING.—The seams are caulked with a pneumatic caulking machine, a blunt tool being used to prevent injury to lower plate. The edges of all plates are planed before being rolled.

STAYING.—Special attention is given to bracing and staying. All flat surfaces are well and properly stayed with solid steel stays.

BRACKETS.—Boilers are supported by two heavy brackets on each side.

FIXTURES AND FITTINGS.—With each boiler we include the following fixtures and fittings: Cast iron boiler front of new and neat design, dead plate, centre abutment to support the brick arches over the furnace doors, grate bars and supports, rear door and frame, cast angle and tee bars to support brick work at back end of boiler, uptake with damper over boiler front, bracket plates and rollers, anchor bolts for front and rear door frame, safety valve water column with gauge cocks, glass water gauge and steam gauge.

We also furnish with each boiler, when required, a blue print of brick work, with instructions as to material required.

TESTING.—Upon completion all boilers are tested to a hydrostatic pressure of 50 per cent. more than the working pressure, and inspected.

DIMENSIONS OF STEAM HEATING BOILERS—WITHOUT DOMES.

Tested for 100 lbs. Working Pressure. Canadian Standard.

Diameter Inches	Length Feet	Thickness of Shell	Thickness of Heads	Tubes No.	Tubes Diameter	Heating Surface	Commercial H.P. of 15 square feet	Shipping Weight about	Diameter of Stack	Will carry sq. ft. of Radiation
24	5	1/4	5/16	22	2	67	4 1/2	1620	13	360
24	6	1/4	5/16	22	2	80	5 1/2	1800	13	440
30	7	1/4	3/8	22	3	150	10	2600	13	800
30	8	1/4	3/8	22	3	178	12	2800	13	960
30	10	1/4	3/8	22	3	222	14	3300	13	1120
36	8	1/4	3/8	32	3	250	17	4050	16	1350
36	10	1/4	3/8	32	3	313	21	4550	16	1680
36	12	1/4	3/8	32	3	374	25	5050	16	2000
40	8	1/4	3/8	38	3	295	20	4650	18	1600
40	10	1/4	3/8	38	3	369	24	5200	18	1920
40	12	1/4	3/8	38	3	441	29	5750	18	2320
42	10	1/4	3/8	40	3	389	26	5700	18	2080
42	12	1/4	3/8	40	3	464	31	6300	18	2480
44	10	1/4	3/8	44	3	424	28	6050	22	2840
44	12	1/4	3/8	44	3	507	34	6700	22	2720
48	10	5/16	3/8	52	3	495	33	7400	22	2640
48	12	5/16	3/8	52	3	594	39	8150	22	3120
48	14	5/16	3/8	52	3	686	46	8950	22	3680
52	12	5/16	3/8	58	3	658	44	9100	24	3520
52	14	5/16	3/8	58	3	764	51	10000	24	4080
54	12	5/16	3/8	64	3	720	48	9600	26	3840
54	14	5/16	3/8	64	3	836	56	10650	26	4480
60	12	5/16	3/8	78	3	865	57	11400	26	4560
60	14	5/16	3/8	78	3	1005	67	12400	26	5360

CANADIAN ALLIS-CHALMERS, LIMITED

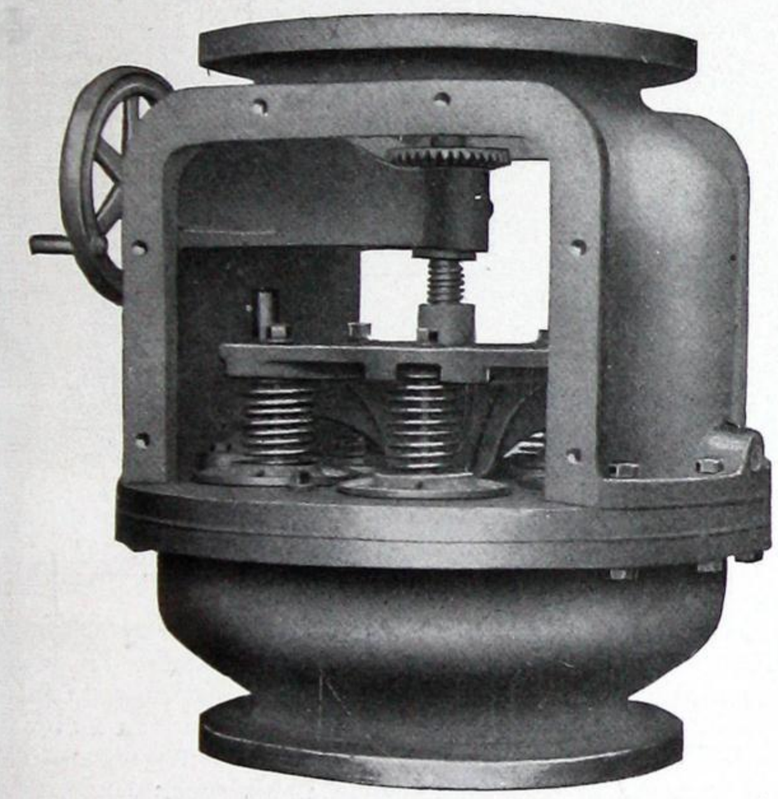
HEAD OFFICE: TORONTO.

DISTRICT SALES OFFICES:

MONTREAL.
HALIFAX.
COBALT.
OTTAWA.
PORCUPINE.
FORT WILLIAM.
WINNIPEG.
REGINA.
SASKATOON.
CALGARY.
EDMONTON.
NELSON.
VANCOUVER.
VICTORIA.
PRINCE RUPERT.

POWER PLANT EQUIPMENT.

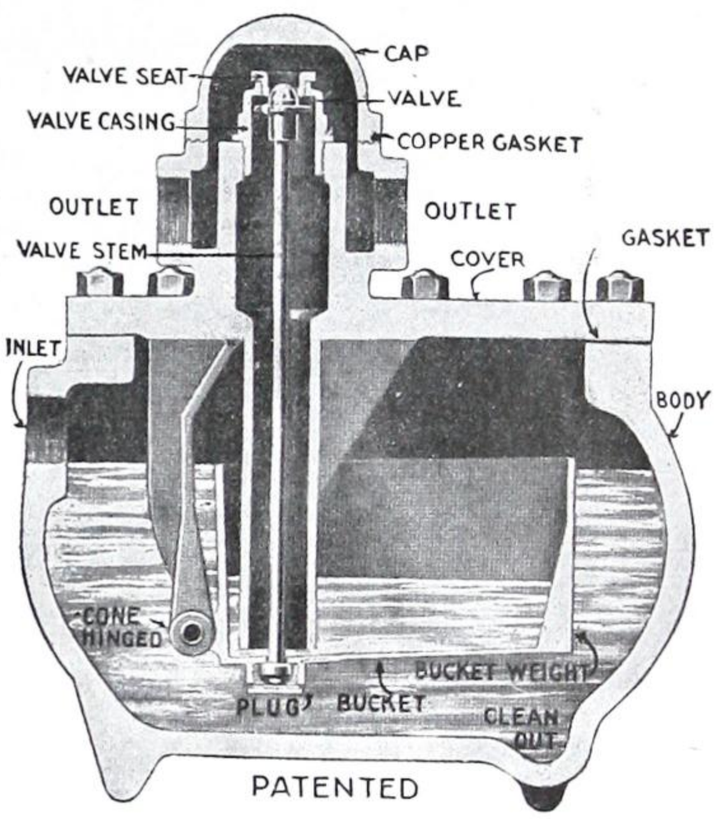
PRODUCTS. Manufacturers of AIR COMPRESSORS, AVERY AUTOMATIC SCALES, BOILERS, CEMENT MAKING MACHINERY, CONCRETE MIXERS, FLOUR MILL MACHINERY, GAS ENGINES, HOISTING ENGINES, HYDRAULIC MACHINERY, LIDGERWOOD ENGINES AND CABLES, LOCOMOTIVES, MINING AND CRUSHING MACHINERY, ORNAMENTAL METAL WORK, ROCK CRUSHERS, ROCK DRILLS, SAW MILL MACHINERY, STEAM PUMPS, STEAM SPECIALTIES, STEAM SHOVELS, STEAM TURBINES, STRUCTURAL STEEL, TRANSMISSION MACHINERY, TURBINE PUMPS, WATER PIPE, WATER WHEELS.



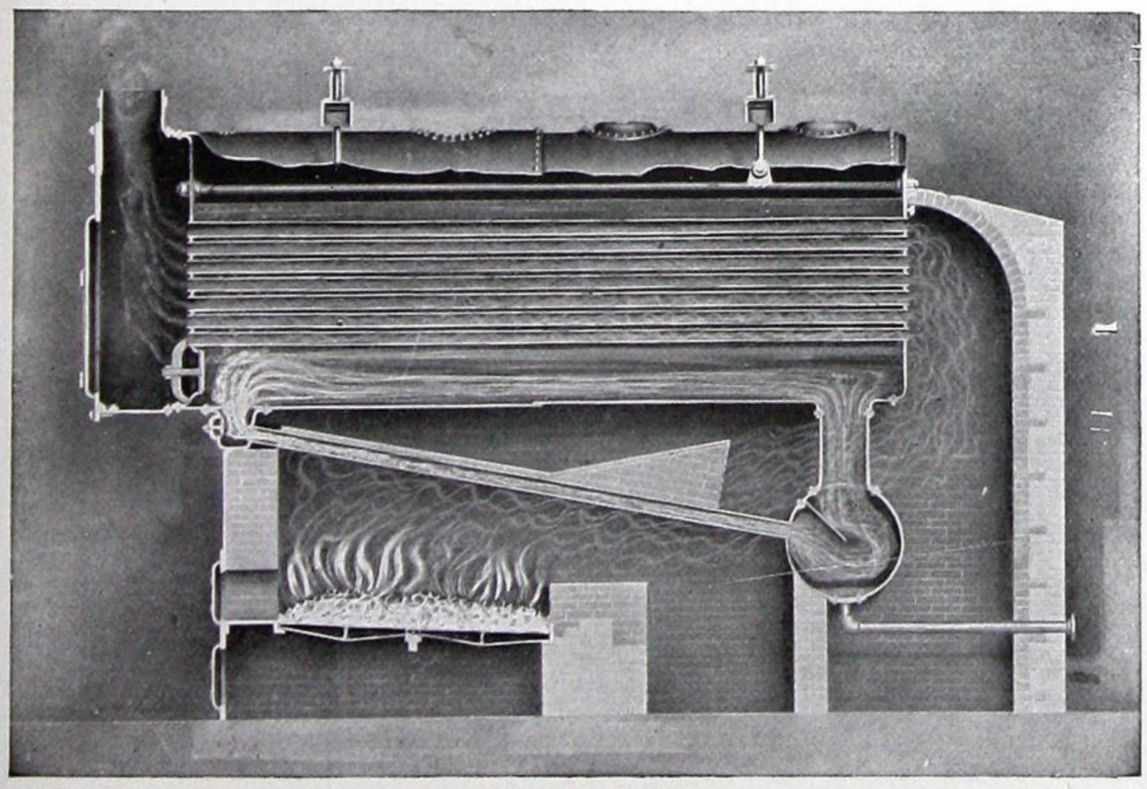
INTERIOR VIEW OF COCHRANE MULTIPORT SAFETY EXHAUST OUTLET VALVE (VERTICAL TYPE).

For the latest ideas on back-pressure valves, also information on the effect of back pressure on steam consumption of engines, send for our booklet, "The Evolution of the Cochrane Multiport," No. 15-V.

The merits of the Squires Steam Traps have repeatedly been demonstrated in marine service, high-pressure power plants, low-pressure heating systems, on laundry machinery, steam separators, vulcanizers in rubber plants, dry kilns, drying rolls of paper machines, and other places where steam traps are required.



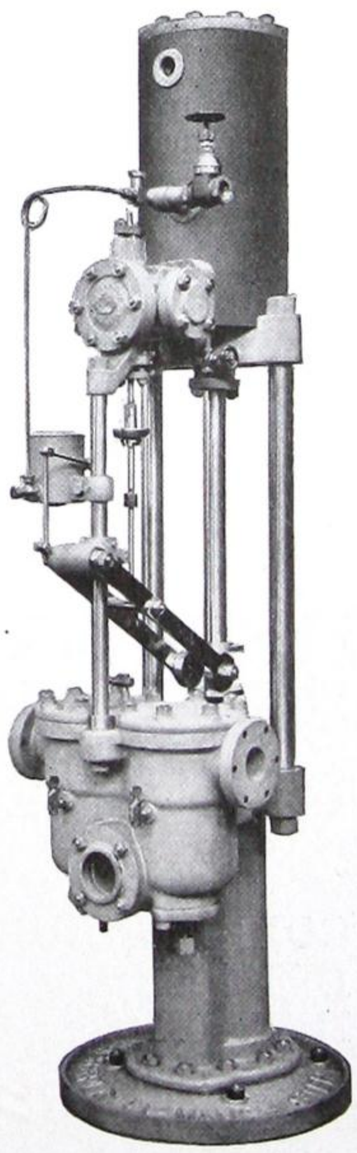
SQUIRES STEAM TRAPS.



SECTION OF BARROW COMBINATION FIRE AND WATER TUBE BOILER.

The drum at the rear of the Barrow Boiler will collect sediment, which can be blown off at the engineer's convenience. There are no hand bales or plugs in the fire.

We manufacture centrifugal and reciprocating pumps for boiler feed, fire, waterworks and other purposes. The vertical pump here shown is suitable for 200 lb. pressure.



VERTICAL FEED PUMP.

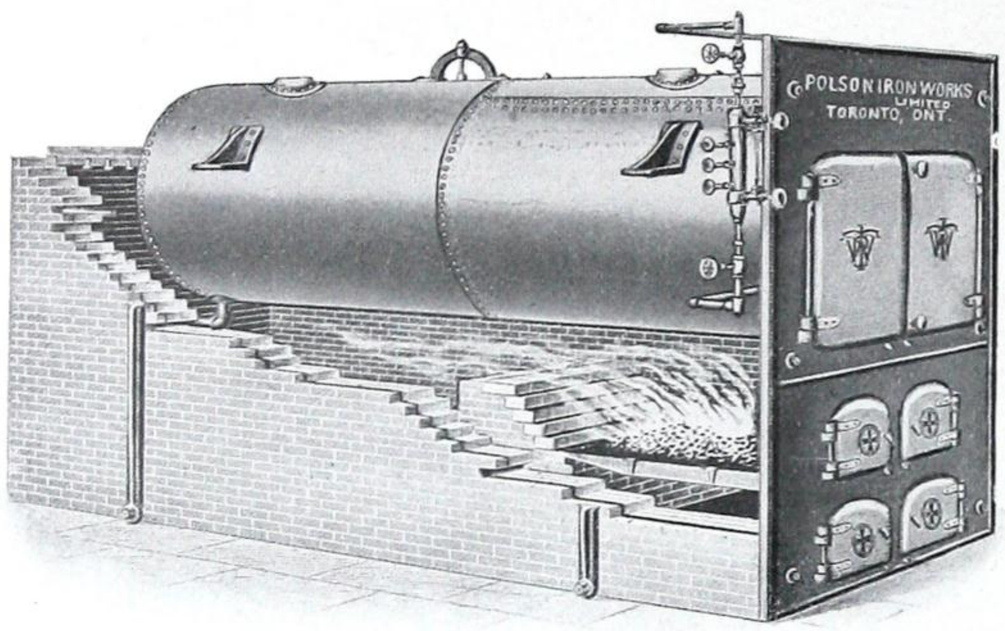
POLSON IRON WORKS, LIMITED

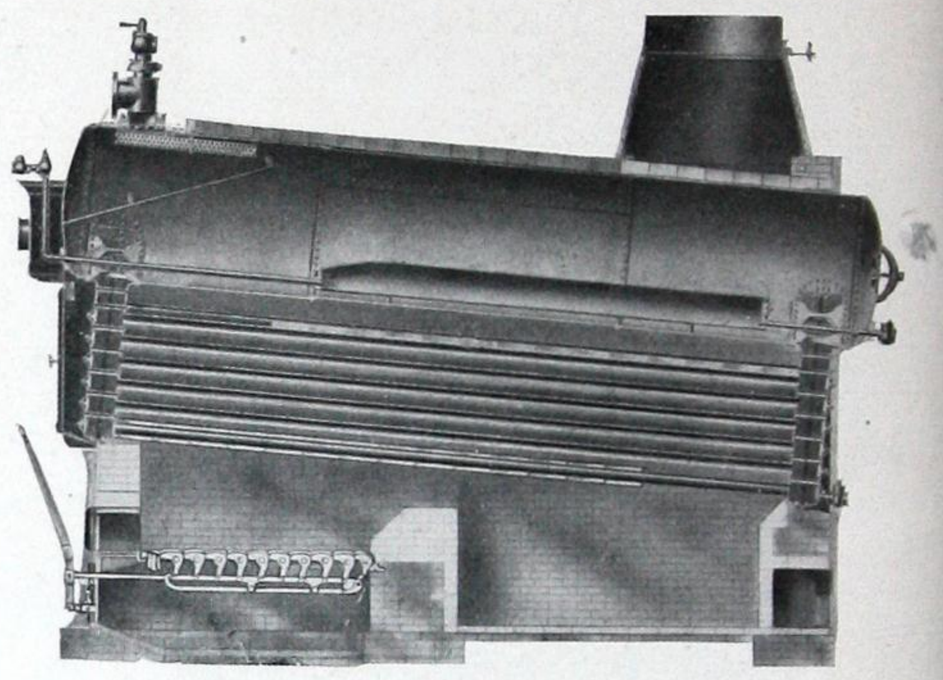
OFFICE AND WORKS, ESPLANADE EAST.

TORONTO, ONT.

PRODUCTS.

We are Engineers and Builders of HYDRAULIC AND DIPPER DREDGES, STEEL STEAM VESSELS, TUGS AND YACHTS, MARINE ENGINES AND BOILERS for every service, including "HEINE" WATER TUBE BOILERS, the "BROWN" AUTOMATIC ENGINE, VERTICAL AND HOISTING ENGINES, and various kinds of Special Machinery from designs of Engineers and Architects.





All our Boilers are made throughout of Open-Hearth, Flange-Steel Plate, having a tensile strength of 60,000 pounds per square inch of section, and elastic limit of over 32,000 pounds, an elongation of over 20 per cent., and a reduction of area of 45 to 50 per cent.; will turn over and close down solid without fracture when cold, or after heating and plunging in cold water, and will not blister.

These boilers are built for a safe working pressure of 100 pounds steam, but we make them for an increased pressure at a slight additional cost.

Our "Standard" Boilers are made with patent dry pipes, so constructed as to positively prevent water from passing into the steam pipe, and are guaranteed to furnish much dryer steam than boilers having domes. When so desired we will furnish Boilers with domes.

Boilers up to 48 inches diameter have only one fire and one ash pit door, and all sizes are provided with manhole in shell and hand holes in front and back heads, unless otherwise ordered.

The "HEINE" SAFETY BOILER.—We claim that the "Heine" Safety Boiler stands at the very head and front in the good qualities essential to complete and satisfactory performance. It is not only so constructed that it will best absorb and transmit heat, but it is so arranged that the heat will best reach it—hence economy and capacity. Safety at high pressures is guaranteed by the most careful selection and testing of materials, all final tests being carried out by the Bureau of Inspection and Tests.

All of our "Heine" Boilers are made for not less than a working pressure of 160 pounds strain, and may be made for as high as 300 pounds.

There are a number of special features incorporated in the "Heine" Boilers which serve to produce steam with the lowest percentage of moisture, and no matter how hard the boiler is forced, the water never enters the steam pipe, and, moreover, precipitation and discharge of scale and mud is effectively assured by the use of the "Heine" Mud Drum.

A big plant using many hundreds of H.P. of steam energy does not choose its boilers in a hap-hazard, hit-or-miss kind of way. It buys on expert test and judgment, and when it comes to a severe test, at once the most economical and most efficient Boiler is the "Heine." We ask a fair and critical examination of the "Heine" Boiler.

HEATING AND VENTILATING.

We are Canadian Agents for The B. F. Sturtevant Company, of Hyde Park, Mass.; designers and builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus, Fans, Blowers, Exhausters, Electric Motors and Turbine Generating Sets, Fuel Economizers, etc. Round House Heating and Ventilating a specialty.

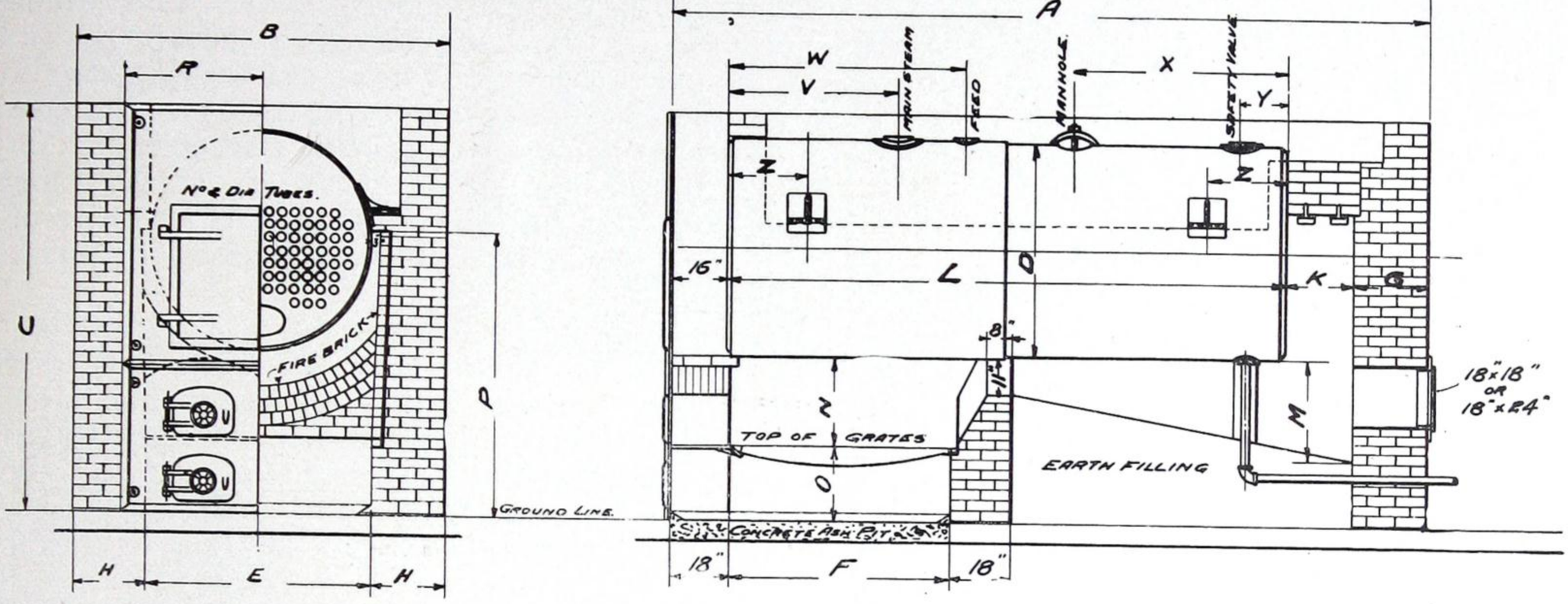
CORRESPONDENCE INVITED.

We invite corespondence from Engineers and Architects, stating their requirements, which will have the prompt attention of our engineers and experts.

For capacities, sizes and full detail information, see next page.

CONTINUED ON NEXT PAGE

NOTE:- CENTRE WALL FOR TWO OR MORE IN BATTERY TO BE 4½" THICKER THAN STANDARD OUTSIDE WALLS.



STANDARD SETTINGS OF H. R. T. BOILERS.

L	Tubes		Horse Power Rating 10 Sq. Ft., 1 H.P.	Horse Power Rating 12 Sq. Ft., 1 H.P.	Horse Power Rating 15 Sq. Ft., 1 H.P.	Heating Surface.	A	B	C	E	F	G	H	K	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Number Brick For Setting. Common.	Number Brick For Setting. Fire.
Length.	No.	Dia.					Brick Work. Length.	Brick Work. Width.	Overall. Height.	Grate. Width	Grate. L'ngth	Walls. Back.	Walls, Side.																		
10′	22	3″	22	18	15	220	14′ 4″	5′ 6″	6′ 0″	30″	36″	18″	18″	18″	21″	20″	17″	4′ 7″	4′ 6″	1′ 9″	24″	6′ 10″	1′ 3″	....	.....	....	....	1′ 6″	5,500	500
10′	32	3″	31	26	20	310	14′ 4″	6′ 0″	6′ 1½″	36″	36″	18″	18″	18″	24″	19½″	16½″	4′ 9″	4′ 6″	1′ 11″	24″	6′ 10″	1′ 6″	3′ 0″	4′ 3″	3′ 6″	1′ 3″	1′ 6″	6,500	600
12′	32	3″	37	30	25	370	16′ 4″	6′ 0″	6′ 1½″	36″	36″	18″	18″	18″	24″	19½″	16½″	4′ 9″	4′ 6″	1′ 11″	24″	8′ 10″	1′ 6″	3′ 9″	5′ 6″	4′ 6″	1′ 4″	2′ 0″	7,000	650
10′	40	3″	39	33	25	390	14′ 4″	6′ 6″	7′ 1″	42″	36″	18″	18″	18″	24″	21″	21″	4′ 9″	4′ 6″	2′ 1¼″	24″	6′ 10″	1′ 9″	3′ 0″	4′ 3″	3′ 6″	1′ 3″	1′ 6″	8,000	700
12′	40	3″	46	38	30	460	16′ 4″	6′ 6″	7′ 1″	42″	42″	18″	18″	18″	24″	21″	21″	4′ 9″	5′ 0″	2′ 1¼″	24″	8′ 4″	1′ 9″	3′ 9″	5′ 6″	4′ 6″	1′ 4″	2′ 0″	9,000	700
12′	42	3″	47	40	30	474	16′ 4″	6′ 6½″	7′ 1″	44″	48″	18″	18″	18″	24″	21″	21″	5′ 7″	5′ 6″	2′ 1¼″	24″	7′ 10″	1′ 10″	3′ 9″	5′ 6″	4′ 6″	1′ 4″	1′ 6″	10,000	750
12′	52	3″	60	50	40	590	16′ 8½″	7′ 9″	7′ 6″	48″	42″	22½″	22½″	18″	24″	25″	20″	6′ 0″	5′ 0″	2′ 6¼″	24″	8′ 4″	2′ 0″	3′ 9″	5′ 6″	4′ 6″	1′ 4″	1 ′6″	11,000	800
14′	52	3″	68	56	45	680	18′ 8½″	7′ 9″	7′ 6″	48″	48″	22½″	22½″	18″	24″	25″	20″	6′ 0″	5′ 6″	2′ 6¼″	24″	9′ 10″	2′ 0″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	12,000	800
12′	64	3″	72	60	50	720	16′ 8½″	8′ 3″	8′ 7½″	54″	48″	22½″	22½″	18″	24″	27″	22½″	6′ 7½″	5′ 6″	2′ 7⅛″	18″	7′ 10″	2′ 3″	3′ 9″	5′ 6″	4′ 6″	1′ 4″	1′ 9″	12,000	900
14′	64	3″	83	69	55	830	18′ 8½″	8′ 3″	8′ 7½″	54″	54″	22½″	22½″	18″	24″	27″	22½″	6′ 7½″	6′ 0″	2′ 7⅛″	18″	9′ 4″	2′ 3″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	13,000	900
12′	78	3″	86	72	60	860	16′ 10½″	8′ 9″	9′ 3″	60″	48″	22½″	22½″	20″	27″	27″	22½″	6′ 10½″	5′ 6″	3′ 1⅞″	18″	8′ 0″	2′ 6″	3′ 9″	5′ 6″	4′ 6″	1′ 4″	1′ 9″	14,000	950
14′	78	3″	100	83	65	1000	18′ 10½″	8′ 9″	9′ 3″	60″	54″	22½″	22½″	20″	27″	27″	22½″	6′ 10½″	6′ 0″	3′ 1⅞″	18″	9′ 6″	2′ 6″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	15,500	950
16′	78	3″	114	95	75	1140	20′ 10½″	8′ 9″	9′ 3″	60″	60″	22½″	22½″	20″	27″	27″	22½″	6′ 10½″	6′ 6″	3′ 1⅞″	18″	10′ 0″	2′ 6″	5′ 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6″	17,000	950
16′	64	3½″	110	90	75	1100	20′ 10½″	8′ 9″	9′ 3″	60″	60″	22½″	22½″	20″	27″	27″	22½″	6′ 10½″	6′ 6″	3′ 1⅞″	18″	10′ 0″	2′ 6″	5′ 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6″	17,000	950
14′	106	3″	133	110	90	1330	18′ 10½″	9′ 3″	10′ 2″	66″	66″	22½″	22½″	20″	30″	27″	22½″	7′ 1½″	7′ 0″	3′ 5″	18″	8′ 6″	2′ 9″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	17 500	1,000
14′	84	3½″	124	100	85	1240	18′ 10½″	9′ 3″	10′ 2″	66″	66″	22½″	22½″	20″	30″	27″	22½″	7′ 1½″	7′ 0″	3′ 5″	18″	8′ 6″	2′ 9″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	17,500	1,000
16′	106	3″	157	130	105	1570	20′ 10½″	9′ 3″	10′ 2″	66″	66″	22½″	22½″	20″	30″	27″	22½″	7′ 1½″	7′ 0″	3′ 5″	18″	10′ 6″	2′ 9″	5′ 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6″	18,000	1,000
16′	84	3½″	141	118	95	1410	20′ 10½″	9′ 3″	10′ 2″	66″	66″	22½″	22½″	20″	30″	27″	22½″	7′ 1½″	7′ 0″	3′ 5″	18″	10′ 6″	2′ 9″	5′ 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6″	18,000	1,000
14′	96	3½″	141	118	95	1410	19′ 2½″	9′ 9″	10′ 7½″	72″	60″	22½″	22½″	24″	33″	29″	23″	7′ 7″	6′ 6″	3′ 10½″	18″	9′ 4″	3′ 0″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	19,000	1,050
14′	80	4″	135	112	90	1350	19′ 2½″	9′ 9″	10′ 7½″	72″	60″	22½″	22½″	24″	33″	29″	23″	7′ 7″	6′ 6″	3′ 10½″	18″	9′ 4″	3′ 0″	4′ 4″	6′ 1½″	5′ 6″	1′ 8″	2′ 0″	19,000	1,050
16′	96	3½″	161	134	110	1610	21′ 2½″	9′ 9″	10′ 7½″	72″	66″	22½″	22½″	24″	33″	29″	23″	7′ 7″	7′ 0″	3′ 10½″	18″	10′ 10″	3′ 0″	5 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6	19,500	1,050
16′	80	4″	154	128	105	1540	21′ 2½″	9′ 9″	10′ 7½″	72″	66″	22½″	22½″	24″	33″	29″	23″	7′ 7″	7′ 0″	3′ 10½″	18″	10′ 10″	3′ 0″	5′ 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6″	19,500	1,050
18′	96	3½″	181	150	120	1810	23′ 2½″	9′ 9″	10′ 7½″	72″	72″	22½″	22½″	24″	33″	29″	23″	7′ 7″	7′ 6″	3′ 10½″	18″	12′ 4″	3′ 0″	5′ 6″	8′ 0″	7′ 6″	2′ 5″	3′ 0″	21,000	1,050
18′	80	4″	173	144	115	1730	23′ 2½″	9′ 9″	10′ 7½″	72″	72″	22½″	22½″	24″	33″	29″	23″	7′ 7″	7′ 6″	3′ 10½″	18″	12′ 4″	3′ 0″	5′ 6″	8′ 0″	7′ 6″	2′ 5″	3′ 0″	21,000	1,050
16′	86	4″	165	137	110	1650	21′ 2½″	10′ 3″	11′ 9″	78″	72″	22½″	22½″	24″	36″	28″	27½″	8′ 1½″	7′ 6″	4′ 3″	18″	10′ 4″	3′ 3″	5′ 0″	7′ 0″	6′ 6″	2′ 0″	2′ 6″	22,000	1,100
18′	86	4″	185	155	125	1850	23′ 2½″	10′ 3″	11′ 9″	78″	72″	22½″	22½″	24″	36″	28″	27½″	8′ 1½″	7′ 6″	4′ 3″	18″	12′ 4″	3′ 3″	5′ 6″	8′ 0″	7′ 6″	2′ 5″	3′ 0″	23,000	1,150

THE G. H. TOD CO.

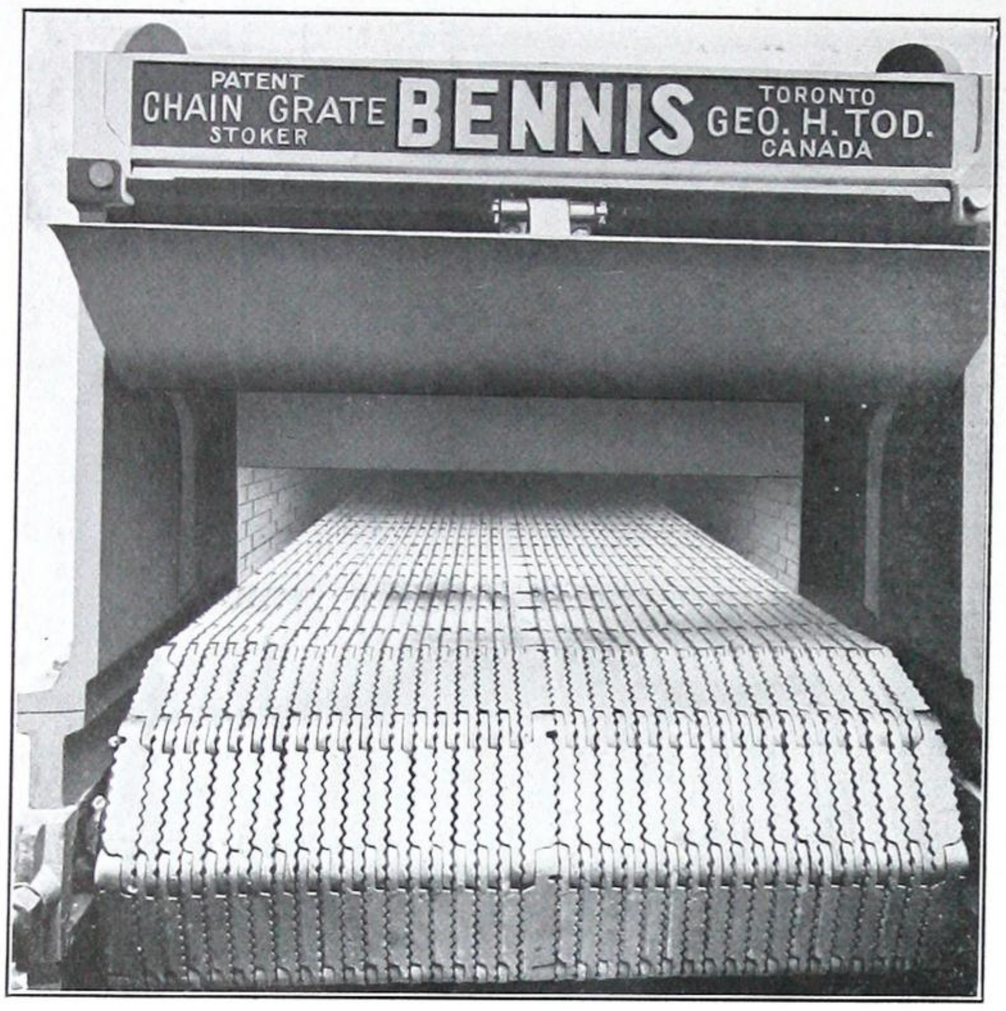
ENGINEERS,

213 MANNING CHAMBERS,
TORONTO.

601 UNION BANK BUILDING,
WINNIPEG.

BENNIS CHAIN GRATES AND COKING STOKERS

FOR WATERTUBE AND RETURN TUBULAR BOILERS.



Bennis Coking Stokers fitted with compressed air furnaces give greater output per square foot of grate than chain grate stokers, which, where floor space is restricted, is of great importance. These Coking Stokers will easily deal with coals containing a high percentage of ash and clinker.

All Bennis Stokers can be easily hand-fired in cases of emergency, and any of them will burn most satisfactorily and efficiently cheap slack coals with absolutely no smoke.

Specifying Bennis Chain Grates or Bennis Coking Stokers will ensure your getting from your steam plant maximum output and efficiency with minimum maintenance costs.

We also supply and erect:

COMPLETE WATER SOFTENING PLANTS—HAND POWER CRANES—ELECTRIC CRANES AND CAPSTANS.

BROADBENT HYDRO EXTRACTORS are recognized as the standard machines for up-to-date Laundries and Textile Mills.

ASHWORTH-PARKER HIGH SPEED ENGINES AND GENERATING SETS. For full particulars we would draw your attention to the opposite page.

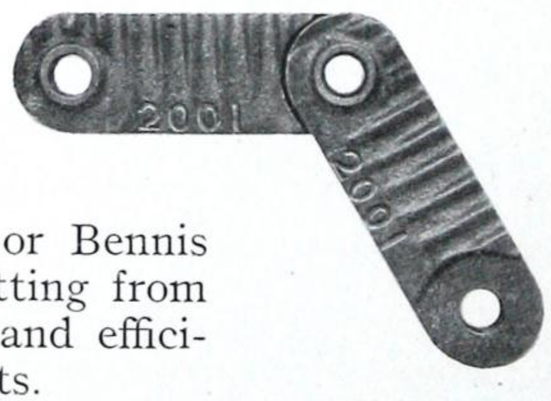
SOME SPECIAL FEATURES.

The accompanying illustrations of Bennis Chain Grates show clearly the construction of the serrated links with rounded halved ends. This exclusive feature gives a continuous grate surface across the junction of each pair of links, and a larger amount of air space per square foot of grate than is possible with a straight link, the result being that each part of the fire gets its due proportion of air, as there are no openings through which an excessive quantity of air can gain admission or into which ashes or clinker can fall.

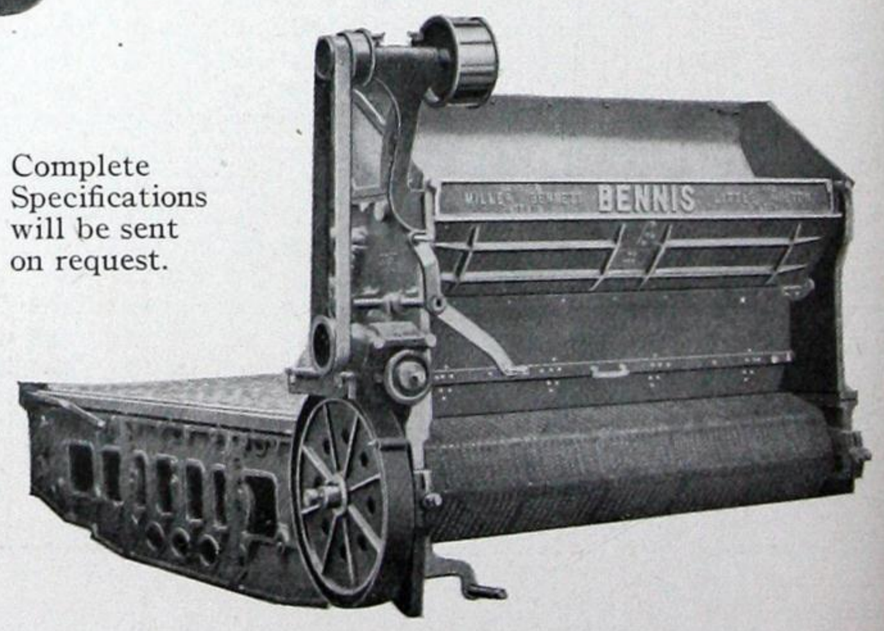
The speed of travel of the grate can be conveniently regulated within wide limits and absolute smoothness of running is always assured, the drive being continuous by means of steel cut gear wheels, arranged with six variations in speed, working in oil in an oil-tight gear case.

The coal is fed over the whole width of the grate, the depth of fire being regulated by an adjustable vertically-lifting fire-door. Thus the stoker can be adjusted to meet the varying demands for steam, the required speed of the grate, and the necessary draught.

The side and back air seals and the arrangement of the sliding door prevent all air leakage, thus ensuring all the air passing through the grate, giving the maximum output per square foot of grate area. The side air seals also prevent the rapid deterioration of furnace side walls experienced with other makes of chain grates.



Complete Specifications will be sent on request.



CONTINUED ON NEXT PAGE

THE G. H. TOD CO.

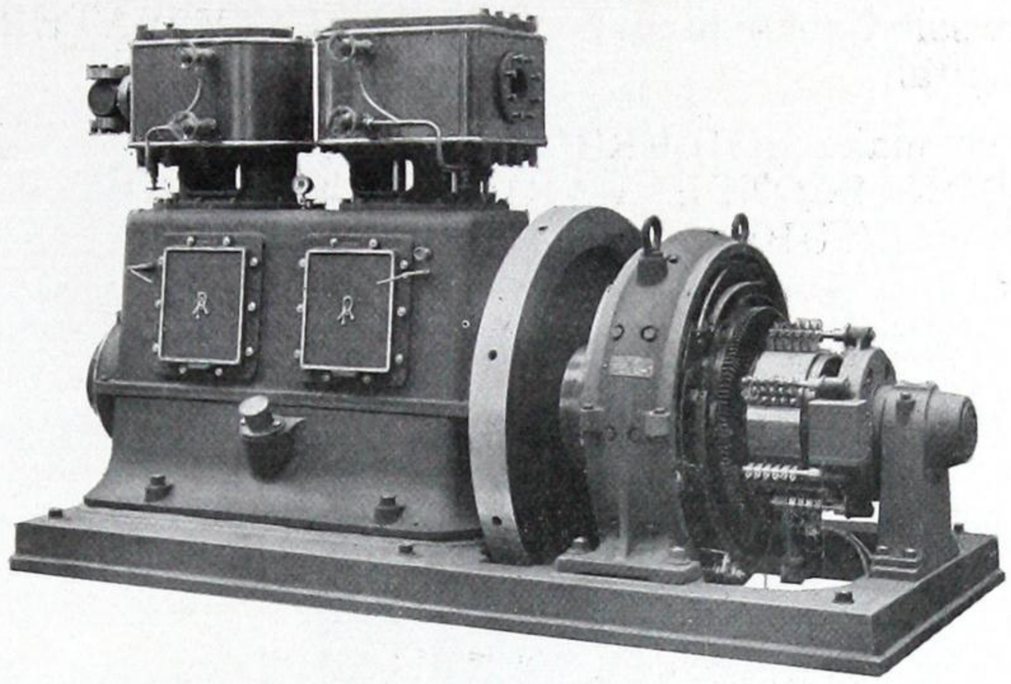
ENGINEERS,

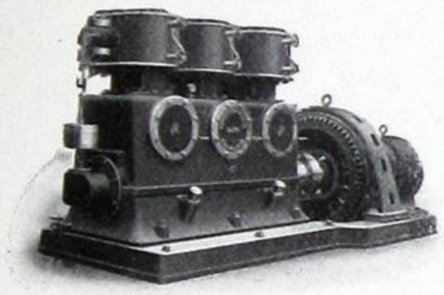
213 MANNING CHAMBERS,
TORONTO.

601 UNION BANK BUILDING,
WINNIPEG.

ASHWORTH - PARKER ENCLOSED HIGH SPEED ENGINES

FITTED WITH FORCED LUBRICATION THROUGHOUT.





The cylinder design is such as to ensure the attainment of the maximum thermal efficiency possible with compound engines, the waste clearance space and radiating surfaces being reduced to the smallest limits.

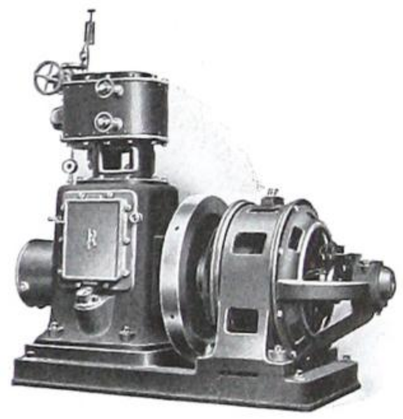
If fitted with crankshaft governors, the variation from no load to full load is guaranteed not to exceed 2%, and if the Chorlton-Whitehead governor is fitted, a considerably less variation can be guaranteed.

THE SALIENT POINTS which characterize all ASHWORTH-PARKER ENGINES and which differentiate them from the products of other makers, are the beauty of finish, the extensive use of forgings in the detail work, casting of the cylinders on chills, giving an extremely hard surface with reduced wear and friction, and the finish of many portions of the work by grinding.

PRODUCED IN A WORKS devoted solely to their manufacture, each type, though specially designed for the class of work with which it has to deal, is at the same time, by the use of the most modern machinery and efficient methods, completely interchangeable in similar sizes, and represents the highest class of work in this branch of engine construction.

THE TYPES RANGE, as indicated by the accompanying illustrations, from a single cylinder simple to the three cylinder compound, or triple expansion, and four cylinder triple expansion shown below. They are suitable for all purposes from fan driving, requiring a simple type without governor, to special variable speed engines for paper and printing machines, with complicated governing arrangements, and large engines for the most arduous electrical work, where the governing is of a special character.

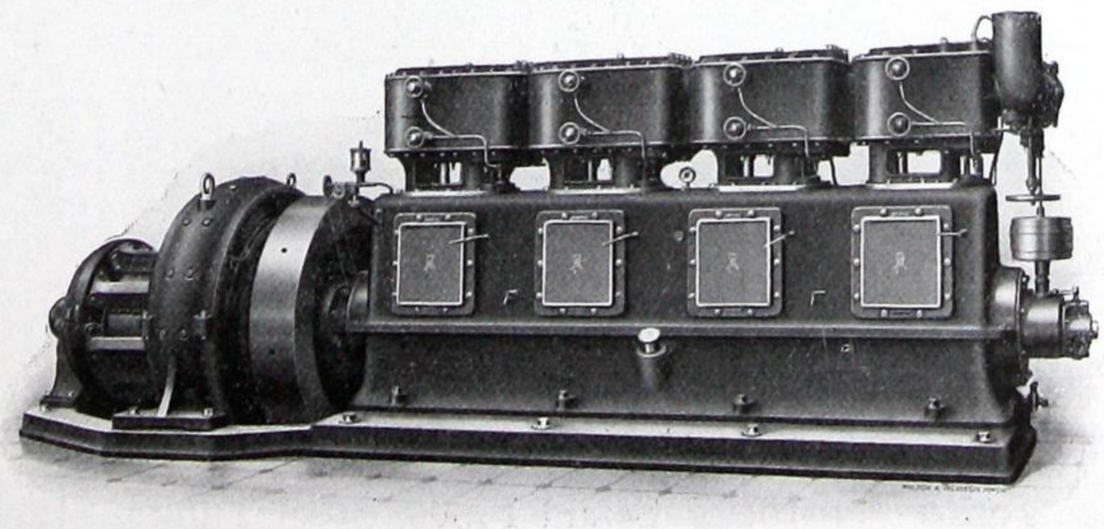
ASHWORTH-PARKER ENGINES have been running for years in a large number of the most important power plants throughout Canada, as in almost every other civilized country in the world, and here, as elsewhere, have not been equalled for economy, efficiency and entire absence of breakdown.



The valves and cylinders are arranged for the use of superheated steam, but where the steam temperature exceeds 500° F., this fact should be stated at the time of ordering, as special adjustments are required for the successful use of high superheats.

The mechanical details embody many improvements which greatly facilitate the adjustment of the engines and render them particularly easy to operate and maintain in satisfactory running order.

ENGINES
FOR ALL PURPOSES
AND FULLY
EQUIPPED
GENERATING
SETS
SUPPLIED.



FULL
SPECIFICATION
AND STEAM
CONSUMPTION
GUARANTEES
WILL BE PROVIDED
ON REQUEST.

THE JOHN INGLIS CO., LIMITED

ENGINEERS AND BOILERMAKERS,

14 STRACHAN AVENUE,

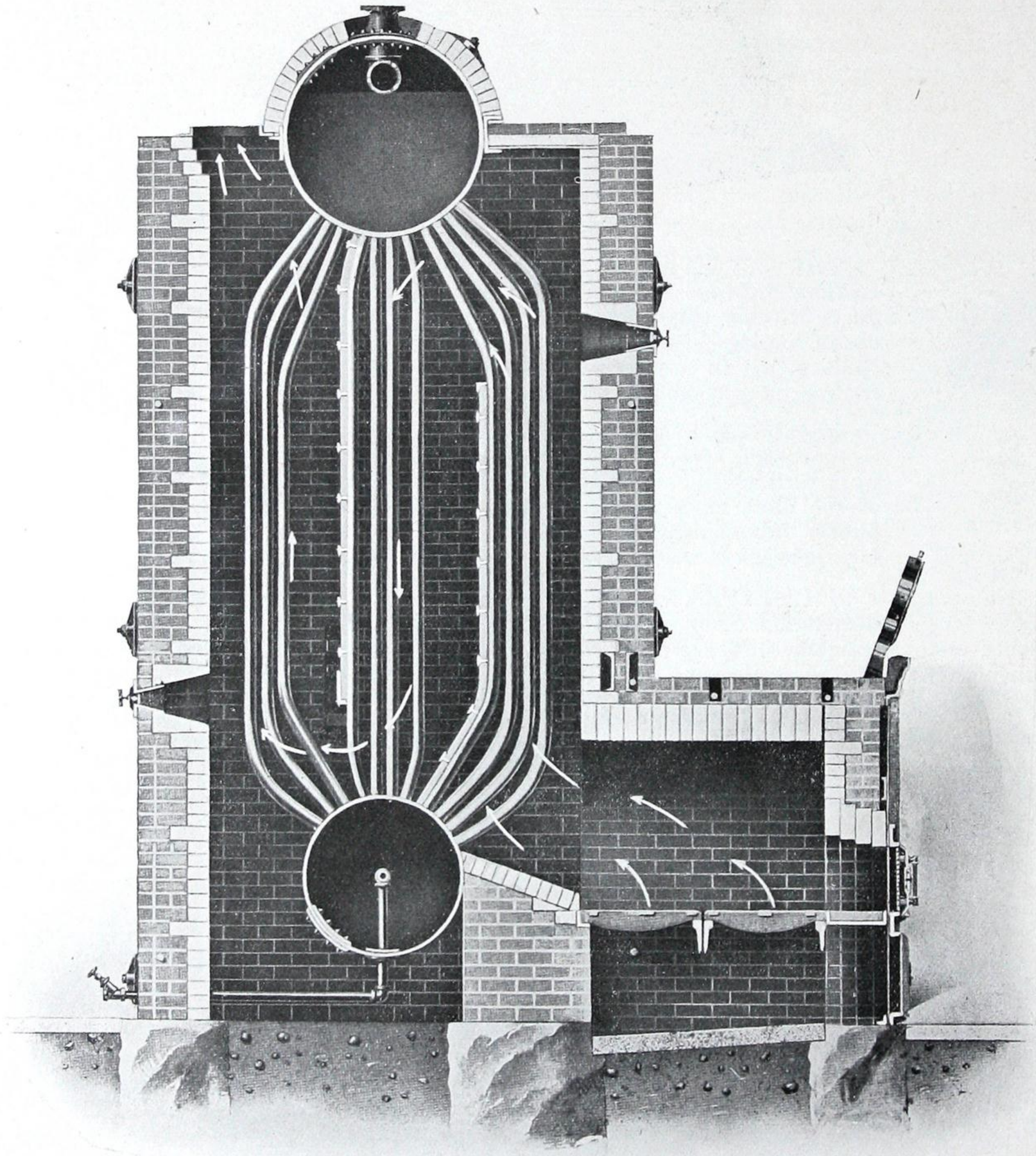
TORONTO, ONT.

MONTREAL OFFICE: 509 CANADIAN EXPRESS BUILDING.

PRODUCTS.

We are sole Canadian makers of ERIE CITY WATER TUBE BOILERS, Vertical and Horizontal.

We also make BOILERS of all kinds for any service—RETURN TUBULAR, FITZGIBBON, SCOTCH MARINE, SCOTCH DRYBACK, LOCOMOTIVE AND SUBMERGED TUBE.



SECTIONAL VIEW OF ERIE CITY VERTICAL BOILER AND FURNACE.

OTHER PRODUCTS.

Tanks—Air, Oil, Varnish, Soap and Lye Tanks.

Plate Work—Penstocks, Stand Pipes, Steel Tanks, Stacks, etc.

CONTINUED ON NEXT PAGE

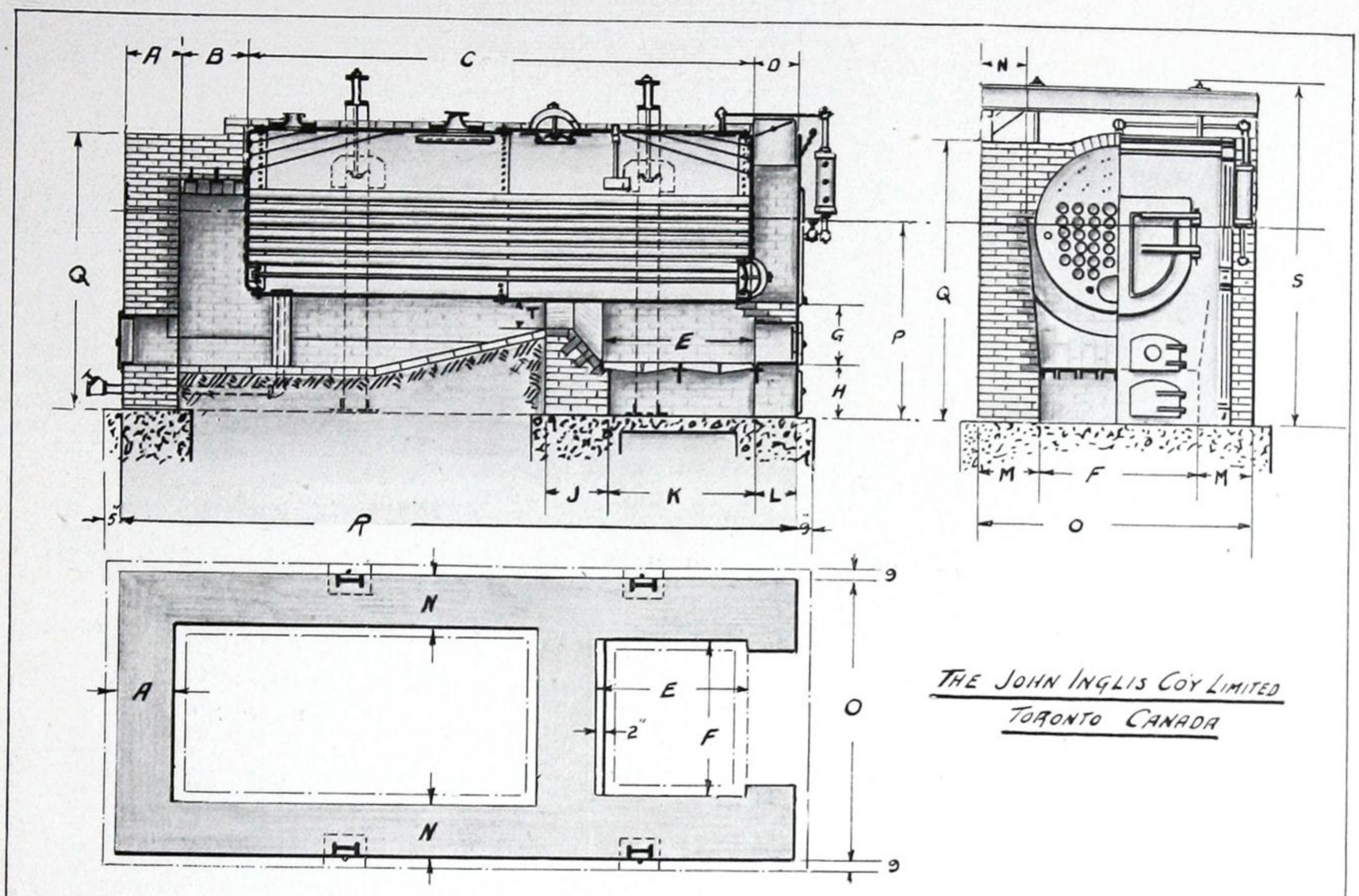
THE JOHN INGLIS CO., LIMITED

ENGINEERS AND BOILERMAKERS,

14 STRACHAN AVENUE,

TORONTO, ONT.

BOILERS OF ALL KINDS FOR ANY SERVICE.



THE JOHN INGLIS COY LIMITED
TORONTO CANADA

RETURN TUBULAR BOILER SUSPENSION SETTINGS

DIAMETER	LENGTH	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	No AND SIZE OF TUBES	HEATING SURFACE	FIRE BRICK	COMMON BRICK	ADDITIONAL COMMON BRICK PER BOILER	STANDARD # TO # OF BOILERS	
30	8-0	13½	24	96	14	36	24	30	21	22	34	12	18	13½	60	65	81	12-3½		8	22-3	174	580	5200	3500		
30	10-0	13½	24	120	14	42	24	30	21	22	40	12	18	13½	60	65	81	14-3½		8	22-3	216	620	6000	3400		
36	10-0	13½	24	120	14	42	30	30	21	22	40	14	18	13½	66	69	84	14-3½		8	32-3	305	675	7000	4300		
36	12-0	13½	24	144	14	48	30	30	21	22	46	14	18	13½	66	69	84	16-3½		8	32-3	365	725	8000	4700		
42	10-0	13½	24	120	14	42	36	30	21	22	40	14	18	13½	72	72	93	14-3½		9	38-3	363	875	8300	5000		
42	12-0	13½	24	144	14	48	36	30	21	22	46	14	18	13½	72	72	93	16-3½		9	38-3	434	930	9300	6700		
42	14-0	13½	24	168	14	48	36	30	21	22	46	14	18	13½	72	72	93	18-3½	117	9	38-3	504	980	10300	7500		
48	12-0	18	24	144	16	48	42	30	23	22	46	18	18	13½	78	77	97	16-10	125	10	44-3	503	1100	10400	7800	5-8	
48	14-0	18	24	168	16	48	42	30	23	22	46	18	18	13½	78	77	97	18-10	125	10	44-3	584	1200	11500	8000	5-8	
54	12-0	18	24	144	18	48	48	36	26	27	46	18	18	13½	84	89	108	17-0	140	10	56-3	628	1300	14000	8500	6-2	
54	14-0	18	24	168	18	48	48	36	26	27	46	18	22½	18	93	89	108	13-0	140	10	56-3	730	1400	15600	9000	6-2	
54	16-0	18	24	192	18	54	48	36	26	27	52	18	22½	18	93	89	108	21-0	140	10	56-3	846	1475	17200	11200	6-2	
60	12-0	18	28	144	18	48	54	36	22	27	46	16	22½	18	99	88	110	17-4	142	10	70-3	774	1400	16700	11000	7-2	
60	14-0	18	28	168	18	54	54	36	22	27	52	16	22½	18	99	88	110	19-4	142	10	70-3	899	1470	18000	11900	7-2	
60	16-0	18	28	192	18	60	54	36	22	27	58	16	22½	18	99	88	110	21-4	142	10	54-3½	937	1550	20000	13300	7-2	
66	12-0	18	28	144	19	48	60	42	24	27	46	18	22½	18	105	99	125	17-5	158	10	72-3½	977	1550	19000	12500	7-8	
66	14-0	18	28	168	19	54	60	42	24	27	52	18	22½	18	105	99	125	19-5	158	10	72-3½	1156	1625	21000	14500	7-8	
66	16-0	18	28	192	19	60	60	42	24	27	58	18	22½	18	105	99	125	21-5	158	10	72-3½	1217	1700	23300	16000	7-8	
66	18-0	18	28	216	19	66	60	42	24	27	64	18	22½	18	105	99	125	23-5	158	10	54-4	1353	1775	26000	18400	7-8	
72	14-0	22½	28	168	19	54	66	42	24	27	52	18	27	22½	120	102	132	19-9½	168	12	90-3½	1344	1675	23000	15800	8-2	
72	16-0	22½	28	192	19	60	66	42	24	27	58	18	27	22½	120	102	132	21-9½	168	12	90-3½	1471	1750	25000	17800	8-2	
72	18-0	22½	28	216	19	66	66	42	24	27	64	18	27	22½	120	102	132	23-9½	168	12	72-4	1555	1850	27300	19500	8-2	
72	20-0	22½	28	240	19	72	66	42	24	27	70	18	27	22½	120	102	132	25-9½	168	12	72-4	1724	1970	29700	21000	8-2	

SPECIFICATIONS AND DATA RE OUR RETURN TUBULAR BOILERS.

NFORMATION. Write us for complete information.

JOHN BRENNAN & CO.

BUILDERS OF HIGH-GRADE STEAM BOILERS, DETROIT, MICH.

PRODUCTS.

The DETROIT FIREBOX BOILERS, properly proportioned for Steam and Hot-Water Heating.

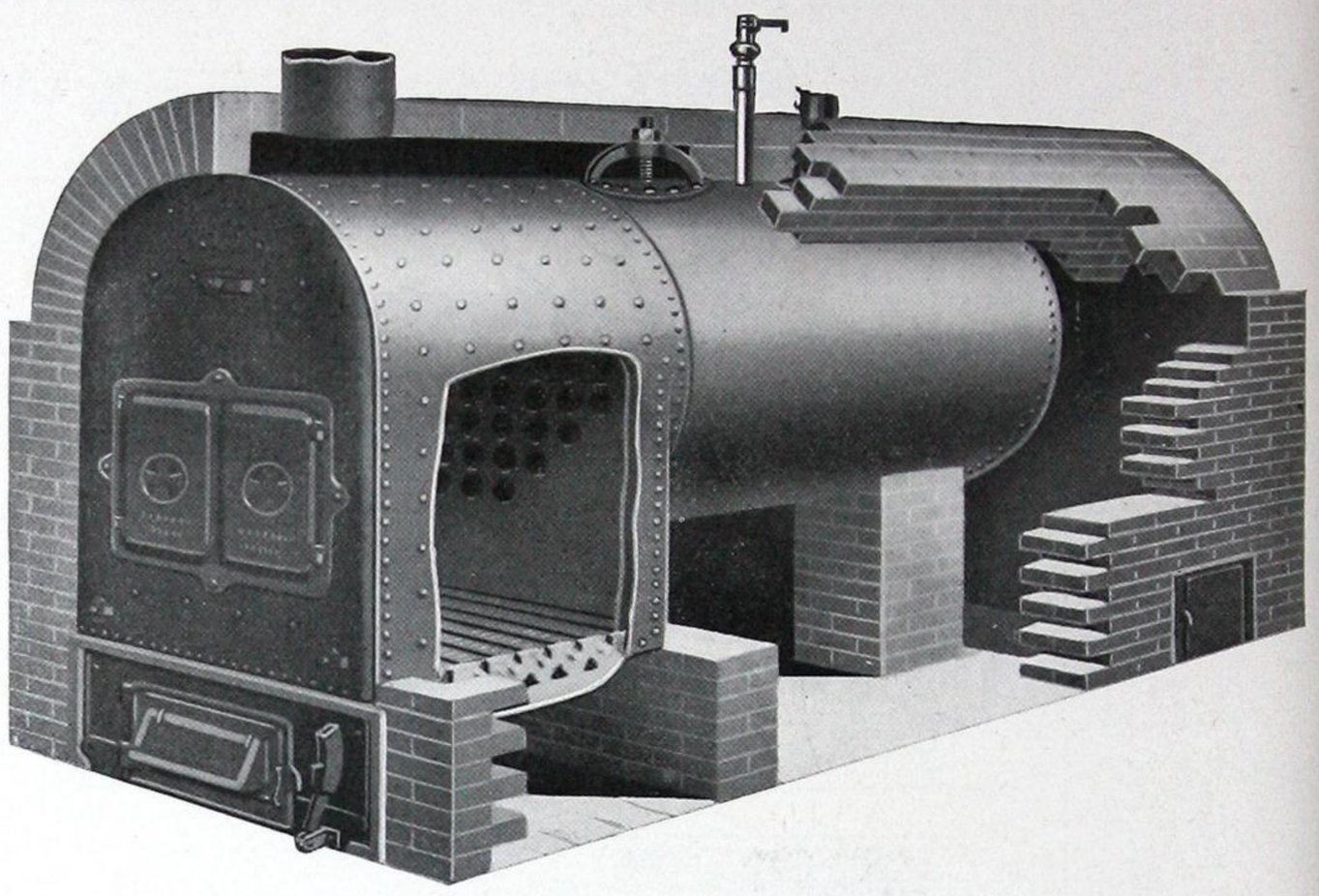
Also, WATER TUBE BOILERS, SCOTCH MARINE BOILERS, INTERNALLY FIRED HEATING BOILERS, HORIZONTAL TUBULAR BOILERS.

DETROIT FIREBOX BOILER.

The boiler is constructed throughout of steel plate with a tensile strength of 60,000 pounds per square inch, and is thoroughly braced and riveted with the best grade of mild steel rivets. It has no weak parts, being uniformly proportioned as to thickness and sizes, and tested to 125 pounds' pressure.

Burns either coal, wood or gas.

In service, it is practically automatic. Fire-doors are large, from 12 x 18 inches on the No. 1 size to 18 x 24 inches on the larger sizes, and fireboxes are of proper size for the service required. They are provided with sufficient hand-holes and clean-outs, none exposed to the action of the fire.



VIEW OF DETROIT FIREBOX BOILER WITH PART OF BRICK WORK REMOVED.

CAPACITIES, SIZES AND PRICES DETROIT FIREBOX HEATING BOILERS.

Number	00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Diameter of Boiler...in.	24	24	30	30	30	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length of Boiler over all...ft.	5½	7½	6½	7½	8½	7½	9	10½	8½	10	11½	10½	12	13½	14	16½	15½	18	16	18	16	18
Width of Firebox...in.	19	19	24	24	24	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Firebox...in.	20	26	26	32	38	32	38	44	38	44	50	44	50	56	56	62	62	68	62	68	68	74
Height of Firebox...in.	30	30	35	35	35	41	41	41	43	43	43	47	47	47	49	49	54	54	59	59	64	64
Heating Surface...sq. ft.	74	98	116	131	145	190	224	260	257	299	344	390	442	495	585	700	733	862	971	1097	1167	1325
Sq. ft. of Steam Capacity rated for each sq. ft. of heating surface	6.8	7.1	7.7	7.6	8.2	7.3	7..6	7.7	8.5	8.3	8.7	8.9	9.0	9.0	8.9	8.8	9.5	9.8	9.8	9.5	9.8	9.8
Area of Grate...sq. ft.	2.6	3.4	4.3	5.3	6.3	6.7	8.0	9.2	9.5	11.0	12.5	12.8	14.6	16.3	18.7	20.6	22.8	25.0	25.4	28.0	30.7	33.4
Sq. ft. of Heating Surface for each sq. ft. of Grate	28	29	27	25	23	28	28	28	27	27	28	30	30	30	31	34	32	34	38	39	38	40
Diameter of Breeching...in.	10	10	12	14	16	16	18	18	20	20	22	22	24	24	28	28	32	32	32	32	36	36
Diameter of Stack...in.	10	10	12	12	14	14	16	16	18	18	20	20	22	22	26	26	30	30	30	30	34	34
Minimum Height of Stack...ft.	40	40	40	40	40	40	40	45	45	45	45	45	50	50	50	50	55	55	60	60	60	60
Diameter of Stack for 2 Boilers...in.	....	....	....	....	....	....	....	....	24	26	28	28	30	32	34	34	36	36	36	38	40	42
Minimum Height of Stack for 2 Boilers...ft.	....	....	....	....	....	....	....	....	50	50	50	50	50	50	55	60	60	70	70	70	70	70
Size of Steam Opening (one)...in.	2½	2½	3	3	4	4	4	4	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Size of Return (one)...in.	2	2	2½	2½	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve...in.	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water...in.	1-4	1-4	1-6	1-6	1-6	1-6	1-6	1-6	2-5	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10
Height of Water Line...in.	48	48	53	53	53	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80	85	85
Height from floor to top of brick work...in.	64	64	70	70	70	77	77	77	83	83	83	90	90	90	96	96	108	108	114	114	120	120
Capacity Steam...sq. ft.	500	700	900	1000	1200	1400	1700	2000	2200	2500	3000	3500	4000	4500	5200	6200	7000	8500	9500	10500	11500	13000
Capacity Water...sq. ft.	825	1150	1475	1650	1950	2300	2775	3425	3600	4075	4900	5725	6525	7350	8500	10125	11425	13875	15500	17125	18750	21200
Price, Steam Boiler, Castings and Tools	$255	$270	$285	$300	$320	$375	$400	$435	$460	$510	$560	$630	$680	$735	$860	$935	$1200	$1310	$1500	$1600	$1800	$2000
Price, Trimmings for Steam Boiler	$18	$18	$18	$18	$19	$19	$19	$19	$23	$23	$23	$23	$23	$28	$28	$28	$40	$40	$40	$40	$44	$44
Price, Water Boiler, Castings and Tools	$265	$280	$295	$310	$330	$390	$415	$450	$475	$525	$575	$645	$695	$755	$880	$955	$1225	$1335	$1530	$1630	$1840	$2040

LIST PRICE OF EXTRAS AND CHANGES, TO BE ADDED TO LIST OF REGULAR BOILERS.

For longer Shell, each foot or fraction of a foot	$11	$11	$15	$15	$15	$19	$19	$19	$23	$23	$23	$32	$32	$32	$40	$40	$50	$50	$60	$60	$70	$70
For longer Firebox, including Grate, each six inches	15	15	20	20	20	25	25	25	30	30	30	40	40	40	45	45	55	55	65	65	80	80
Wrought-Iron Rings	24	24	26	26	26	28	28	28	30	30	30	32	32	32	36	36	40	40	45	45	50	50
Extra Stays and Braces for 150-pound test	6	6	7	7	8	8	9	10	12	15	17	18	20	21	30	35	40	45	45	50	55	60
Two Lugs on Shell	8	8	8	8	8	8	8	8	10	10	10	10	10	10	12	12	12	12	12	12	12	12
Rear Flue Clean-out Doors	12	12	12	12	12	16	16	16	18	18	18	22	22	22	26	26	32	32	38	38	46	46
Smoke-Box, Head and Doors for rear, when Boiler not encased in brick work	24	24	28	28	28	32	32	32	42	42	42	48	48	48	60	60	74	74	90	90	106	106

Openings in Firebox for coil, $4.00 list per boiler.

Boilers for 150-pound test pressure will be made with Wrought-Iron Rings, at above extra price.

In regular boilers the Base Rings and Door Rings are made of steel, which is much stronger than cast iron.

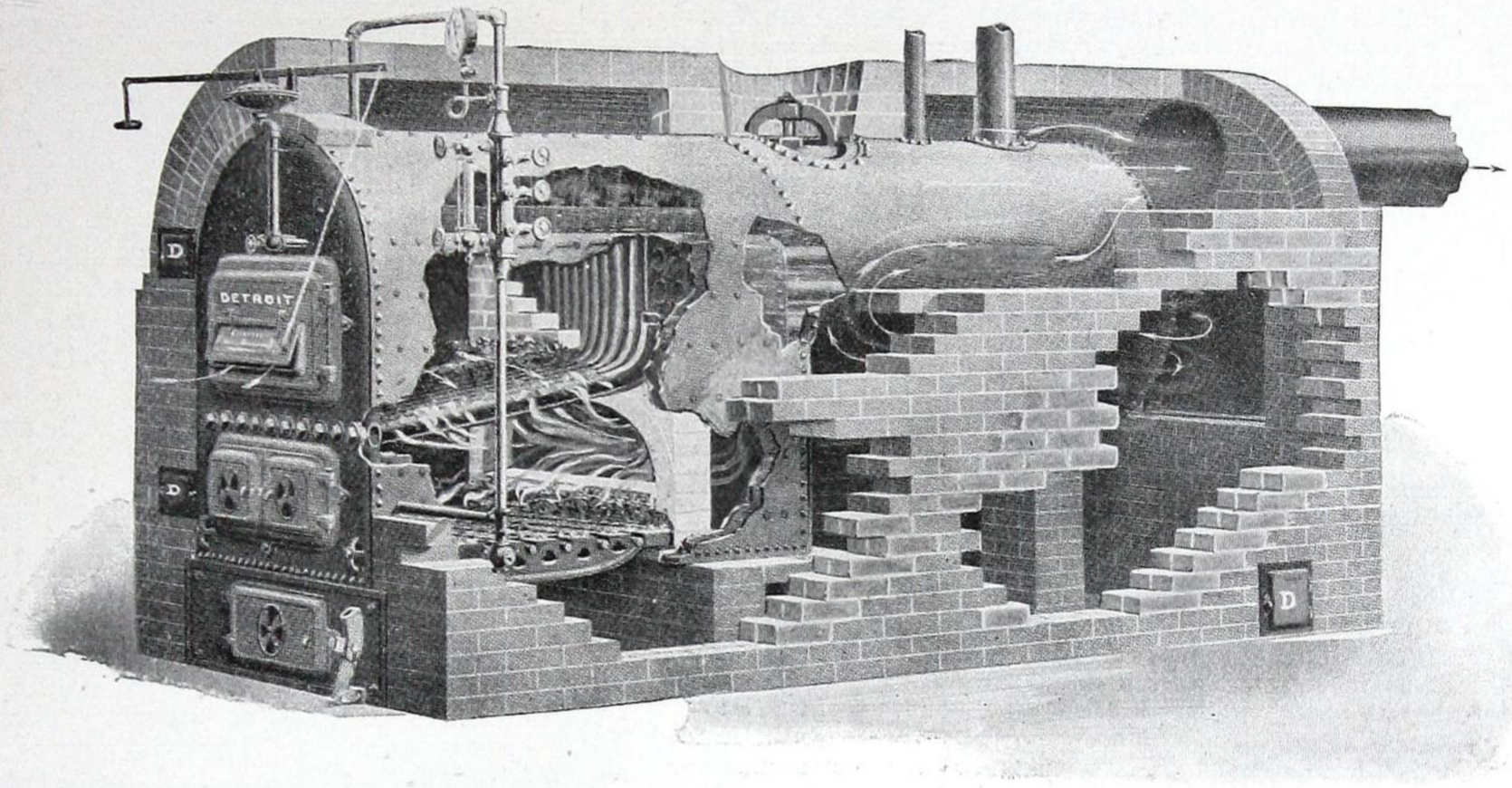
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DETROIT SMOKELESS FIREBOX HEATING BOILER.

The best Smokeless Boiler on the market for all classes of steam or hot-water heating.

FEATURES.

(1) Combines an internal firebox type of boiler, consisting of water-grates, down-draft furnace and dutch oven setting, in one unit.
(2) Construction mechanically correct.
(3) No pipe joints or threads in the fire.
(4) Only Smokeless Firebox Heating Boiler that can be set in battery.
(5) No special firebrick required.
(6) Tubes forming down-draft water-grate can be replaced without interfering with any other tube or part of the boiler.
(7) Meets the requirements of all Smoke Ordinances.
(8) Saves fuel.



DETROIT SMOKELESS FIREBOX HEATING BOILER.

SPECIFICATIONS DETROIT FIREBOX SMOKELESS HEATING BOILERS.

Number	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Diameter Boiler....inches	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length Boiler over all....feet, inches	8-7	10-2	11-7	9-10	11-4	12-11	12-4	13-10	15-4	15-10	18-4	17-10	20-4	18-4	20-4	18-4	20-4
Width of Firebox....inches	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Firebox....inches	45	51	57	54	60	66	66	72	78	78	84	90	96	90	96	96	102
Area of Upper Grate....square feet	5.8	7.1	8.3	8.5	10.0	11.3	11.7	13.1	14.9	17.0	19.0	21.0	23.2	23.4	25.8	28.4	31.1
Square feet of Heating Surface for each square foot of grate	31	30	30	30	29	30	33	34	33	34	36	35	37	41	42	40	42
Diameter of Breeching....inches	20	20	22	22	22	24	24	27	27	30	30	34	34	36	36	38	38
Diameter of Stack....inches	18	18	20	20	20	22	22	24	24	28	28	32	32	34	34	36	36
Minimum Height of Stack....feet	40	40	40	50	50	50	50	55	55	60	60	60	60	70	70	70	70
Diameter of Stack for two Boilers....inches				26	28	30	30	32	32	34	36	38	38	40	42	44	46
Minimum Height of Stack for two Boilers....feet				60	60	60	60	60	60	70	70	70	75	75	80	80	80
Size of Steam Opening (one)....inches	4	4	4	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Size of Return (one)....inches	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve....inches	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water....inches	2-5	2-5	2-6	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10	2-10
Height of Water Line....inches	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80	86	86
Height from floor to top of brick work....inches	76	76	76	82	82	82	89	89	89	95	95	107	107	113	113	119	119

PRICE LIST DETROIT FIREBOX SMOKELESS HEATING BOILERS.

Number	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Capacity, Steam....square feet	1600	1900	2200	2500	2900	3300	3800	4400	5000	5800	7000	8200	9500	10500	12000	13000	15000
Capacity, Water....square feet	2600	3100	3600	4100	4700	5300	6200	7200	8200	9500	11400	13400	15500	17000	19600	21000	24500
Heating Surface....square feet	182	213	249	252	291	335	387	449	492	580	692	735	862	968	1092	1155	1310
Square feet of Steam Capacity as rated for each square foot of heating surface	8.8	8.9	8.8	9.9	9.9	9.9	9.8	9.8	10.0	10.0	10.1	11.1	11.0	10.8	11.0	11.2	11.4
Price Steam Boiler with Castings and Tools	$590	$620	$654	$710	$770	$840	$940	$1000	$1064	$1300	$1400	$1700	$1850	$2050	$2260	$2550	$2800
Steam Trimmings	20	20	20	24	24	24	24	24	30	30	30	40	40	40	40	44	44
Price Water Boiler with Castings and Tools	$605	$635	$670	$725	$785	$855	$955	$1015	$1084	$1320	$1420	$1725	$1875	$2080	$2290	$2590	$2840
Approximate Weight....pounds	4800	5200	5700	6100	6700	7200	8400	9100	9800	12300	13600	16000	17400	19400	21000	22400	24300

LIST PRICE OF EXTRAS AND CHANGES, TO BE ADDED TO LIST OF REGULAR BOILERS.

For longer Shell, each foot or fraction of a foot....	$19	$19	$19	$23	$23	$23	$32	$32	$32	$40	$40	$50	$50	$60	$60	$70	$70
Wrought Iron Space Rings and Extra Stays and Braces for 100 pounds working pressure....	$68	$70	$72	Regul $78	ar boil $82	ers lar $86	ger th $92	an No. $96	114 m $100	ade w $115	ith wr $125	ought $90	iron m $100	ud rin $105	gs $115	$125	$135

Openings in Firebox for coil, $4.00 list per boiler.

DECARIE INCINERATOR CO.

McKnight Building,

MINNEAPOLIS, MINNESOTA.

PRODUCTS.

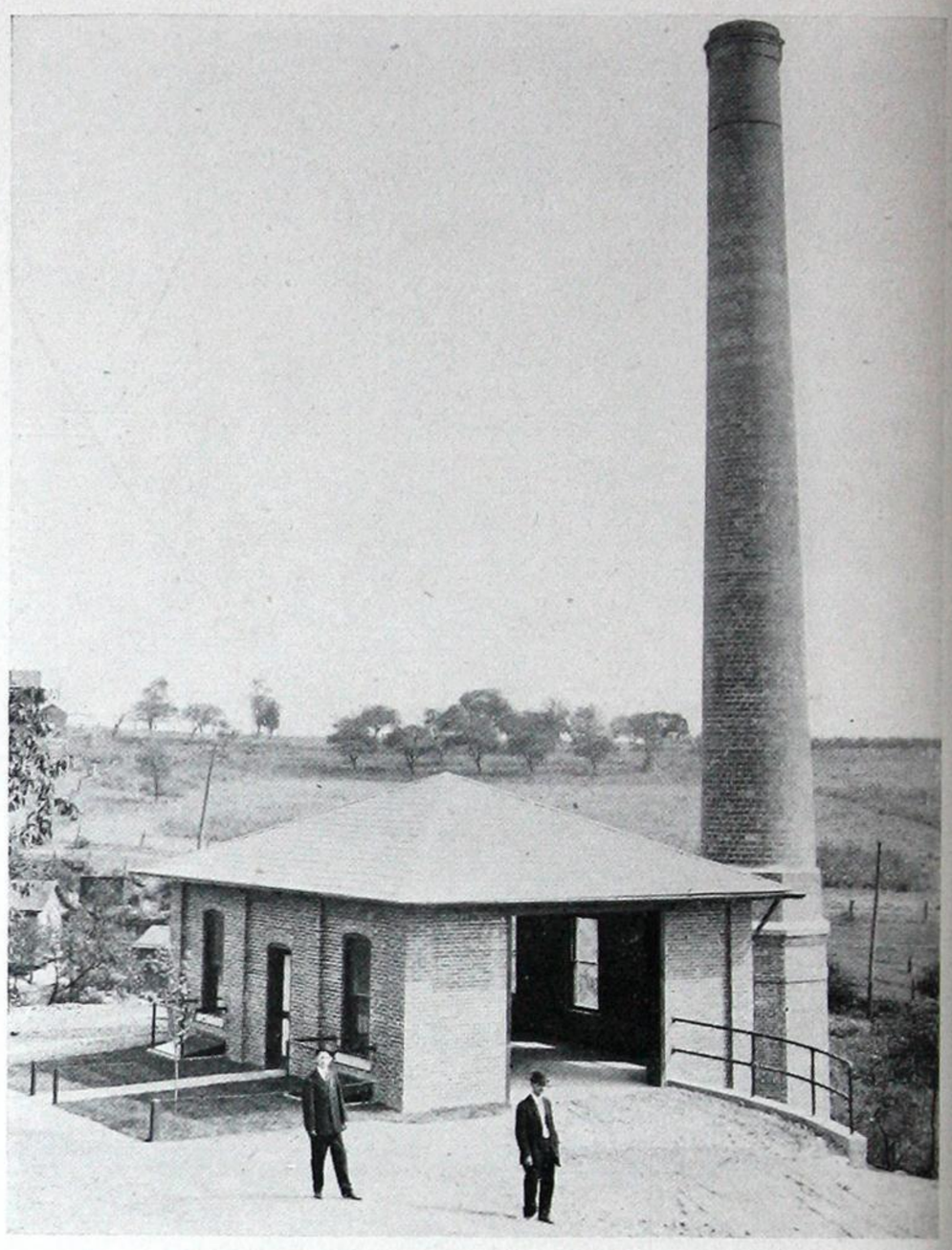
INCINERATORS.

We build Incinerators of all capacities, for all purposes and to meet all conditions.

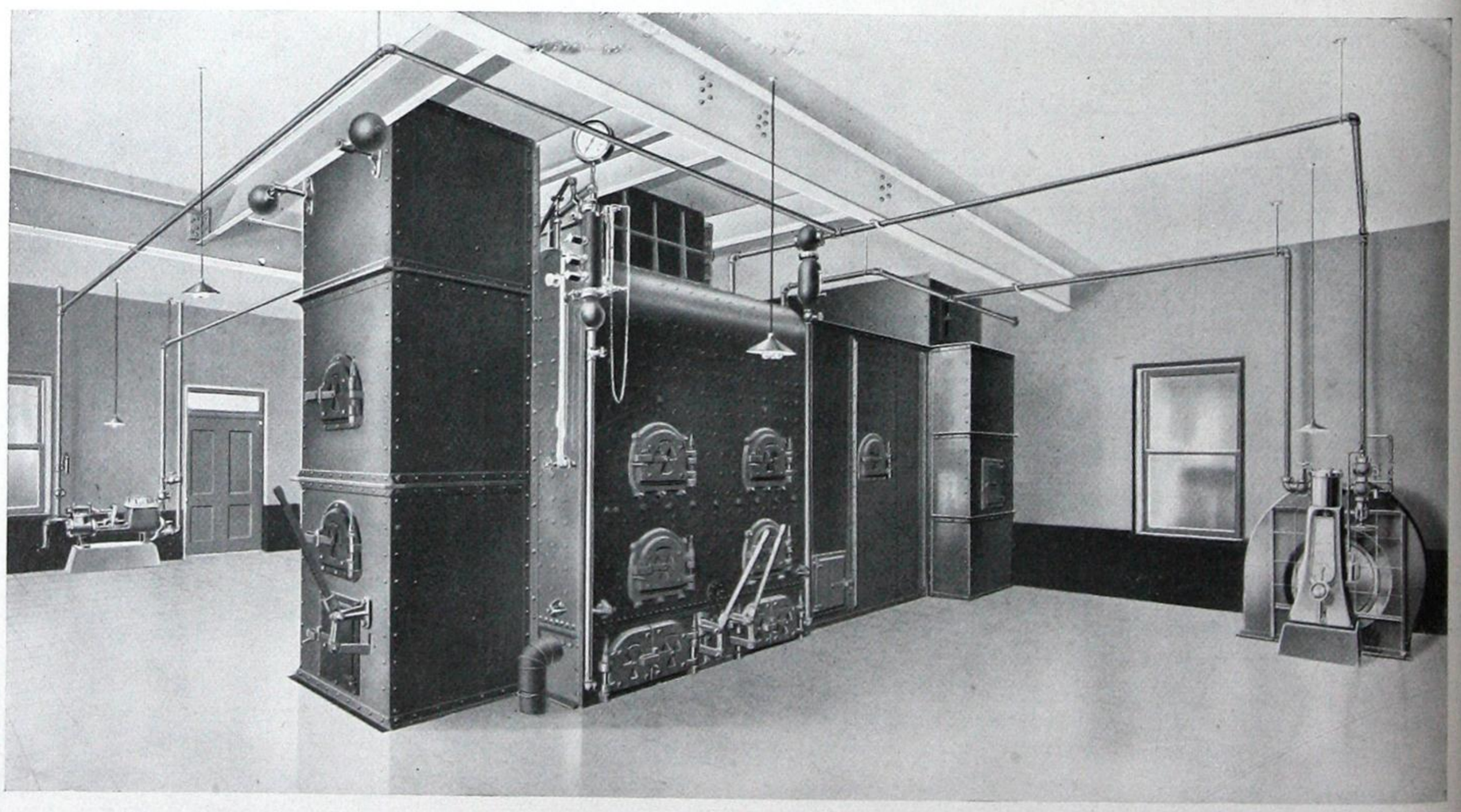
Unquestionably the general adoption of incineration by municipalities would do away with the Municipal Dump and make for better sanitary conditions and solve the problem of Refuse Disposal for every City and Town. To help make and keep our cities beautiful and to help maintain a high standard of cleanliness and health should be the aim and desire of every worthy citizen. To this end we wish to co-operate with you, and respectfully call your attention to our system of incineration.

The primary object in the performance of any operation is to have it done in a satisfactory manner with the least expense—in other words, efficiency. Our plants are designed with this end in view, the refuse being dumped from wagons, carts, or electric hoists right into the incinerators, where it is held suspended by the upper grate and is directly attacked on all sides by the flames. By this method anything that is combustible is consumed at once and is fuel to assist in drying and burning the more wet material, and all organic matter and refuse is reduced to ash at the least expense for labor and fuel. By this method we are able to lower the cost of operation from fifty to seventy-five per cent. over other methods, and are able to burn material with a larger percentage of moisture than can be done in any other incinerator manufactured. Our incinerators furnish steam for the operation of the entire plant without the necessity of a boiler installation, but where power for lighting purposes is required it is advisable to install a boiler so that a constant steam pressure may be maintained regardless of the kind of refuse that is being burned.

Our aim is to design plants suitable for the needs of the cities where they are to be located. We have many special designs for a variety of different installations, and we would ask that you write us and let us advise with you in regard to your particular installation. We have made a study of the subject of incineration and we will be glad to give you the results of our years of experience. Our plants have been improved from year to year until our incinerators have become highly efficient, and have made for themselves a reputation for durability, low cost of operation and repairs. We will be pleased to give you any information that we can.



20 Ton Plant, North Braddock, Pa.



Interior Virginia, Minn., 25 Ton Plant

Write us as to your requirements.

THE HONEYWELL HEATING SPECIALTY CO.

MANUFACTURERS OF

SPECIAL EQUIPMENT FOR HOT WATER HEATING PLANTS.

FACTORY AND GENERAL OFFICE:

WABASH, IND., U.S.A.

HERALD SQUARE BUILDING,
141-145 W. 36TH ST.,
NEW YORK.

CANADIAN OFFICE:
1008 EASTERN TWPS. BANK BLDG.,
MONTREAL.

ST. THOMAS WORKS:
GRANVILLE ST.,
BIRMINGHAM, ENGLAND.

RODUCTS.

THE HONEYWELL HEAT GENERATOR.
THE HONEYWELL UNIQUE HOT WATER RADIATOR VALVE.
THE HONEYWELL TEMPERATURE and WATER REGULATORS.

HE ONEYWELL YSTEM OF OT WATER EATING.

The Honeywell System of Hot Water Heating is a method of installation which, by the use of the equipment mentioned above, insures a positive and uniform circulation throughout the entire piping system and radiation, with a wide range in water temperatures.

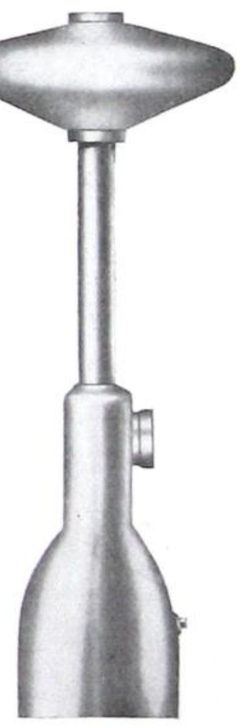
This system gives all the advantages of vacuum or steam heating without sacrificing the valuable features of ordinary hot-water work.

Pipe and valve sizes are intelligently proportioned to reduce as low as possible the volume of water, and connections from mains to branches so designed as to give a perfectly balanced circulation.

Room and water temperatures are always under perfect and automatic control.

HE ONEYWELL EAT ENERATOR.

The Honeywell Heat Generator is a device which, connected into the expansion pipe, develops *safely* and automatically, by the action of two columns of mercury, a pressure ranging from 0 to 10 pounds and seals the entire system from the atmosphere until a pressure of 10 pounds is produced.



The advantage of pressure in hot-water heating is to provide a strong circulation, equally effective at low as well as high temperatures.

With the Honeywell Heat Generator and method of piping, normal water temperatures are all that are required a greater portion of the time, but the range between a minimum of 85 deg. and the maximum temperature of 240 deg. gives a heating capacity to meet the demands of any climate or conditions.

NSTALLA- IONS.

More than 136,000 Honeywell Heat Generators are now in use.

O-OPERA- IVE ERVICE.

If the architect will send us the plans of the building in which he wishes to install the Honeywell System, showing the boiler and radiators located, and their capacities marked as he has been accustomed to figuring, we will prepare complete guaranteed piping plans for our system without charge.

Complete instruction book for proper designing and installation of the HONEYWELL SYSTEM will be forwarded to architects and heating engineers on request.

Honeywell Equipment is supplied by the Canadian boiler and radiator manufacturers and jobbers.

THE CANADIAN POWERS REGULATOR CO., LIMITED

168 Bay Street

TORONTO.

Agencies—MONTREAL—Engineers' Supply Company, 46 Alexander St.
WINNIPEG—Walsh & Charles, Tribune Bldg. VANCOUVER—F. G. Walsh Co., 429 Pender St. W.
CALGARY—American Agencies, Ltd., 231 Eighth Ave. W.

PRODUCTS.

AUTOMATIC TEMPERATURE CONTROLLING APPARATUS: For Schools, Churches, Residences, Office Buildings, etc., for various mechanical processes, for sterilizers, drying ovens, etc. Wherever artificial heat is supplied and uniform temperature desired, our heat regulating apparatus may be employed.

AUTOMATIC HUMIDITY CONTROL: For all classes of buildings.

SERVICES.

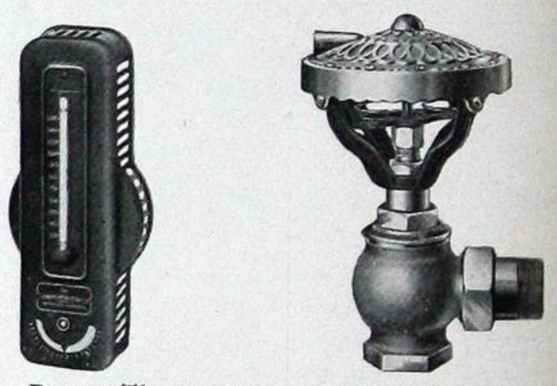
We are contracting engineers for the design and installation of our appliances. We maintain branch offices in the principal cities with a competent engineering and construction force, so as to insure the proper application of our apparatus. Powers Regulation has been in use for the past 20 years throughout the United States and Canada, and thousands of buildings have been equipped with it. Except in the case of a few specialties all installations are made by our own construction departments.

SPECIAL FEATURES.

The Powers Temperature Controlling Appliances and Systems stand pre-eminent in the field by reason of their simplicity and durability. The thermostats are all constructed upon the well-known vapor-disc principle which has now been used by us for the past 20 years with the greatest success. They are powerful in their action and free from the fine air passages, delicate springs and complicated mechanisms which characterize other devices used in this class of work. Great attention is paid to design and finish of apparatus, and, where desired, the thermostats will be provided in special finishes to match the hardware or decorative scheme of the rooms in which they are located.

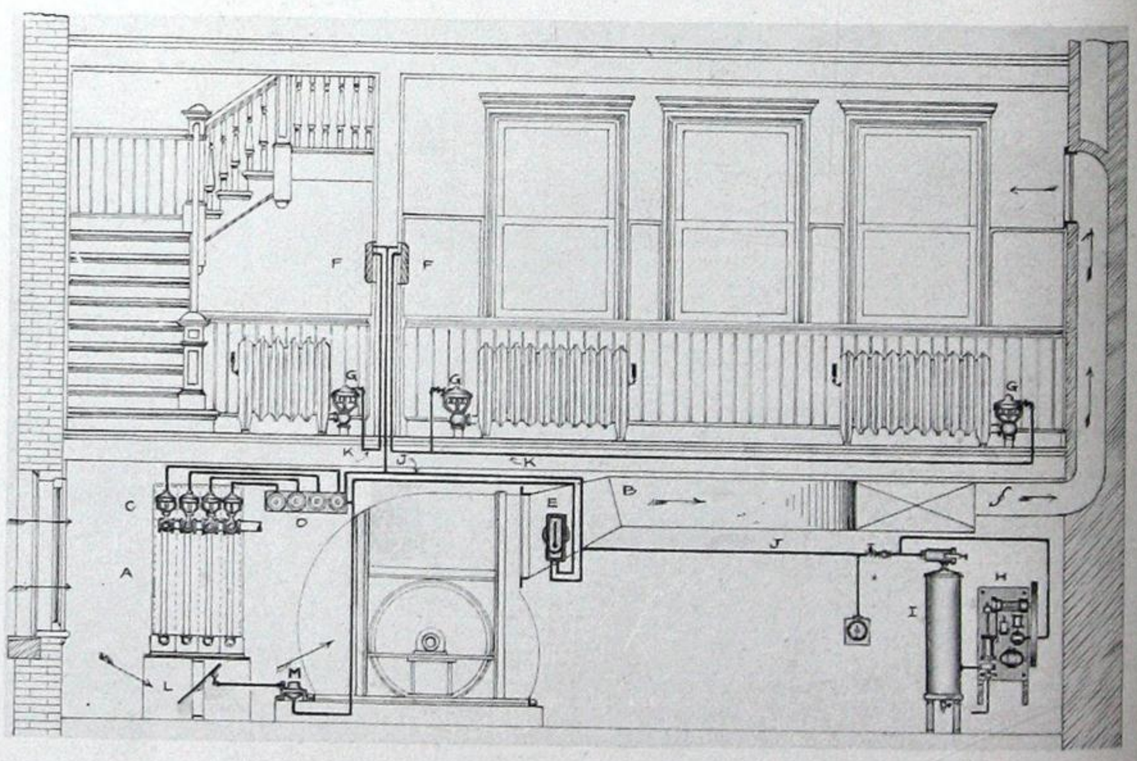
DESCRIPTION OF SYSTEM.

Temperature control is accomplished by means of an instrument called a thermostat, which responds sensitively to temperature changes, and, using compressed air as a motive power, automatically regulates the supply of heating medium to the apartment where the thermostat is installed. Each apartment must have its thermostat and each radiator or other heat source its pneumatic valve or damper controlling the heat supply, all being connected together by a system of air piping communicating with an air compressor of suitable design.



Powers Thermostat and Radiator Valve.

In Plate 3 we show a typical application of automatic temperature control as applied to the modern building with direct radiation in the rooms and mechanical ventilation. The room shown is typical of the others, in the fact that it is equipped with a thermostat "F" and diaphragm valves "GG" on the radiators. This room is also supplied with indirect heat for ventilating purposes, this coming from the blower which draws it through the heating coils "A." A thermostat, "E," located in the blower discharge controls automatically the steam supply to the coils, at the same time operating the by-pass damper beneath them for the purpose of passing unheated air whenever necessary. This thermostat will secure a constant delivery of air at a specified temperature, usually 70 degrees. The radiators in the rooms will furnish the additional heat necessary, and under



Typical application of Powers Regulation to Direct Steam Heating Plant with fan ventilation. (School House Type.)

CONTINUED ON NEXT PAGE

DESCRIPTION OF SYSTEM.

the control of their thermostats will do it automatically. Our system of temperature control is applied with equal facility to steam or hot water heat, giving either the positive or graduated control of valves as may be desired.

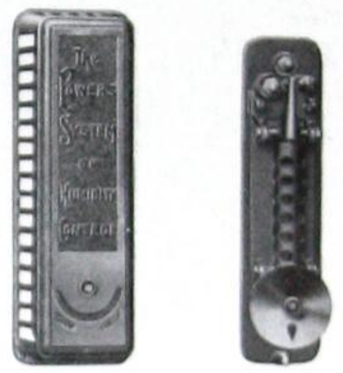
SPECIFICATION.

We are glad to furnish detailed specifications when requested, but a general specification may be written as follows:

> Furnish and install in connection with this heating apparatus the Powers System of Temperature Control, applying same to the following rooms * * * * * * * * * The system must be installed and guaranteed by the manufacturers or their agents.

HUMIDITY CONTROL.

We are specialists in this line and our services are at the disposal of those interested. We accomplish the desired results by methods that are simple and effective, and our apparatus is in every way durable and efficient. We solicit inquiry on this subject.



Powers Hygrostat.

A WORD TO ARCHITECTS AND ENGINEERS.

A system of heat regulation to be effective should be installed by workmen especially skilled in the art and operating under an organization trained in the work. The business is unique and unlike other trades. No two buildings or heating systems are exactly alike, and the application of the temperature controlling apparatus must be varied in almost every case to suit special conditions. The organization back of this work must be so large and varied in its resources as to be able to give special attention to every contract, and must be of such permanency as to insure the apparatus having such prompt and expert attention as it may need in the years following its installation.

While the appliances we manufacture are simple and durable in the extreme, the necessity for repairs at some time is inevitable and should be considered. A system out of order, with its promoters out of business, is most undesirable.

In our organization we have an engineering force specially skilled in planning and drafting specifications for work of this kind, and we are always at the service of architects and engineers desirous of applying heat regulation to their work.

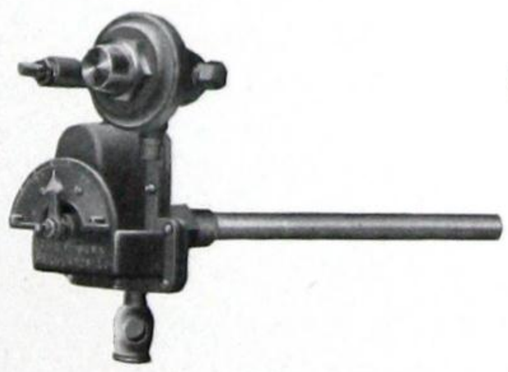
We have special catalogues of all our appliances and are glad to send them out upon application.

SPECIALTIES.

We make regulators for house heating boilers, furnaces, hot water tanks, etc. Of these we ask special attention to the Powers Hot Water Tank Regulator, a device for which there is great need in almost all buildings.

HOT WATER TANK REGULATORS.

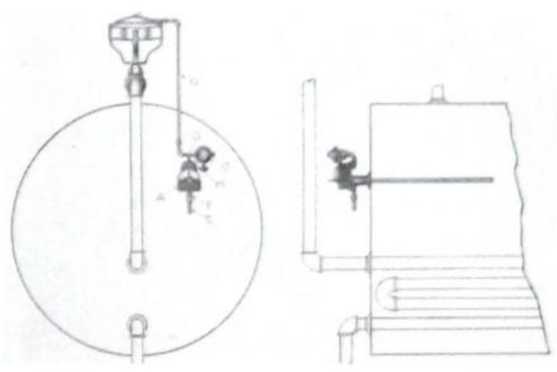
Whenever the domestic hot water service is furnished by a steam heated tank, overheating, with consequent damage to plumbing and waste of fuel, is sure to occur unless the steam supply is automatically regulated. The No. 10 Powers Regulator is especially designed for steam heated hot water tanks. Installed as shown in the small drawing, it automatically regulates the admission of steam to the tank coil, thereby maintaining the water at a specified temperature. This specialty is sold direct by us to steamfitters and plumbers, who can easily install it under our instructions. The cost of such a regulator installed complete, under ordinary conditions, runs from $70.00 upwards, depending upon the size of the steam valve required.



No. 10 Regulator.



Diaphragm Valve.



Installation.

SPECIFICATION—To specify, write as follows:

> Equip the hot water service tank with a No. 10 Powers Tank Regulator with diaphragm valve arranged to control automatically the steam supply. Install this regulator in accordance with instructions furnished by its manufacturers.

MINNEAPOLIS HEAT REGULATOR CO.

ESTABLISHED 1885.

MINNEAPOLIS, MINN., U.S.A.

CANADIAN DISTRIBUTORS:

H. J. ST. CLAIR COMPANY, LTD.

WINNIPEG:
352 CUMBERLAND AVENUE.

TORONTO:
No. 69 YONGE ARCADE.

PRODUCTS. We manufacture exclusively AUTOMATIC TEMPERATURE REGULATORS for Hot Air Furnaces, Steam and Hot Water Boilers, Hot Water Tanks and Heaters, Natural Gas and Street Steam Service.

WHAT IT WILL DO. It will keep the house at an even temperature, save coal, prevent destruction of property by fire, and prolong the life of a heater by always closing the draft before the fire gains too much headway. It will relieve the mind entirely of the care of the draft dampers, and the fear that at night, or during your absence for a few hours, there is danger to life or property through neglect of the heater. The Regulator will demonstrate that no heating plant can be efficient or complete without it. It is especially adapted for residences.

ADVANTAGES. The Minneapolis Regulator has been on the market for twenty-eight years, and is more in use than any other Regulator manufactured. Nothing to wear out. Renew dry cells every two years or longer at an expense of fifty cents.

No cast-iron thermostat or tubes through the floors to detract from or mar the home. No special dampers required. No chains to pull. No loud noises when dampers are operating.

THERMOSTAT. The Thermostat is shown in Fig. 1 (with time attachment). Temperature Regulators consist of a mechanical thermometer, technically called "Thermostat," as illustrated. This part of the device is located in the living-room, and registers the temperature the same as a thermometer. The pointer is set at a point on the scale corresponding with the temperature desired, which can be changed at will.

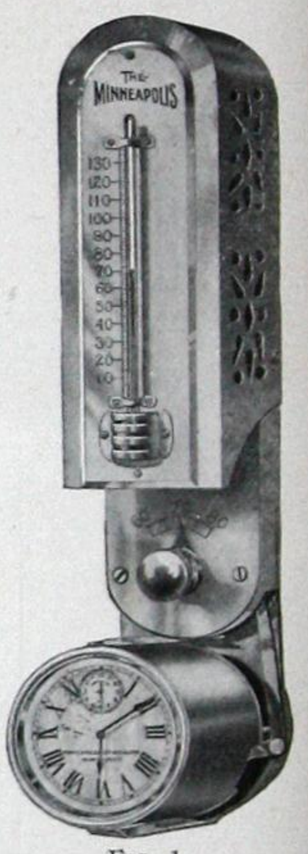


FIG. 1.

TIME ATTACHMENT. It is not necessary to use the Time Attachment except when desired. To illustrate: Upon retiring at night, swing the clock to any required position for winding; wind clock and alarm. Set the alarm hand, for instance, at 6.30 a.m. Shift the pointer to 65 or 60, or any other desired degree, and snap in place. The drafts remain closed unless the temperature in the room should go below the temperature point at which you have set the pointer, in which case the drafts will be opened until the temperature rises to that point. At 6.30 in the morning, without noise, the pointer will automatically be moved forward to any desired temperature, and by the time the family is up, the temperature will be at that point and the drafts automatically closed.

Our Attachment is mechanically perfect, very simple, and a perfect time controller.

MOTOR. Fig. 2, the Motor, as shown, is encased in a solid, pressed steel cover, No. 22 gauge, finished in black enamel (baked).

There is an index finger with scale "A," which travels as the motor is wound and unwound. A glance at the motor shows at all times the condition in reference to winding.

Dust and moisture proof. The cover has cotton sleeving at the shaft "B."

The motor is also provided with basement switch "C," by means of which the motor can be operated in the basement at will.

Easily wound by means of crank key. All of our motors, when run down, automatically leave the drafts closed.



FIG. 2.

The parts of the motor are of pressed steel and brass (no cast-iron); the bearings are lathe-turned, running in brass bushings, as finely adjusted and fitted as the very best clock made.

All parts of our motors are made in our own factories, including the cutting of all gears, manufacturing of our own magnets, etc., thus insuring perfect work and adjustment.

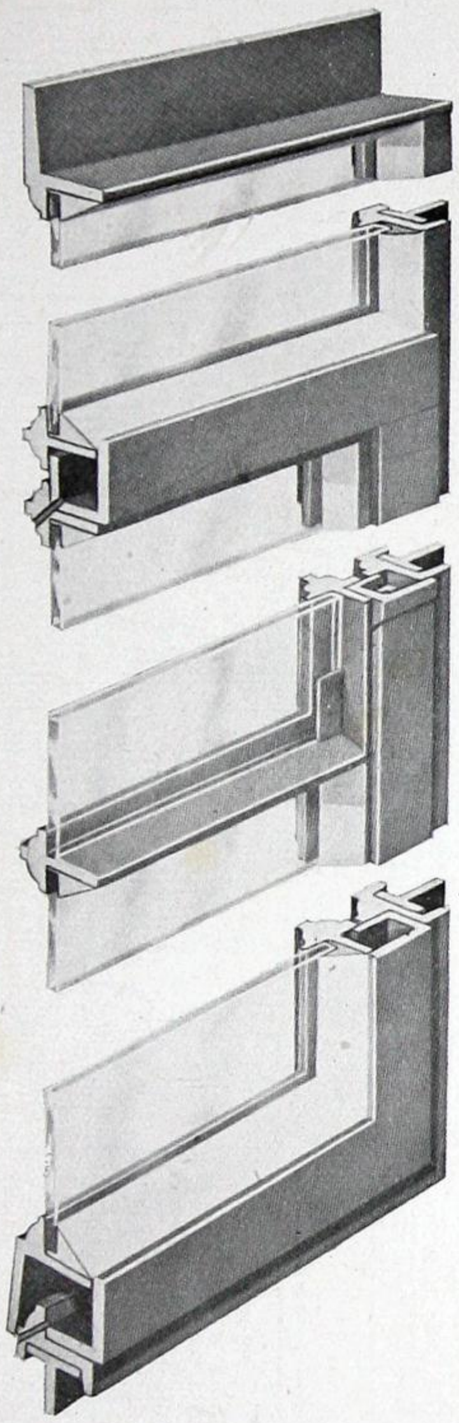
Lasts a lifetime. Requires winding about every week or ten days in the coldest weather.

THE TRUSSED CONCRETE STEEL CO. OF CANADA, LIMITED

HEAD OFFICE AND FACTORY:
WALKERVILLE, ONT.

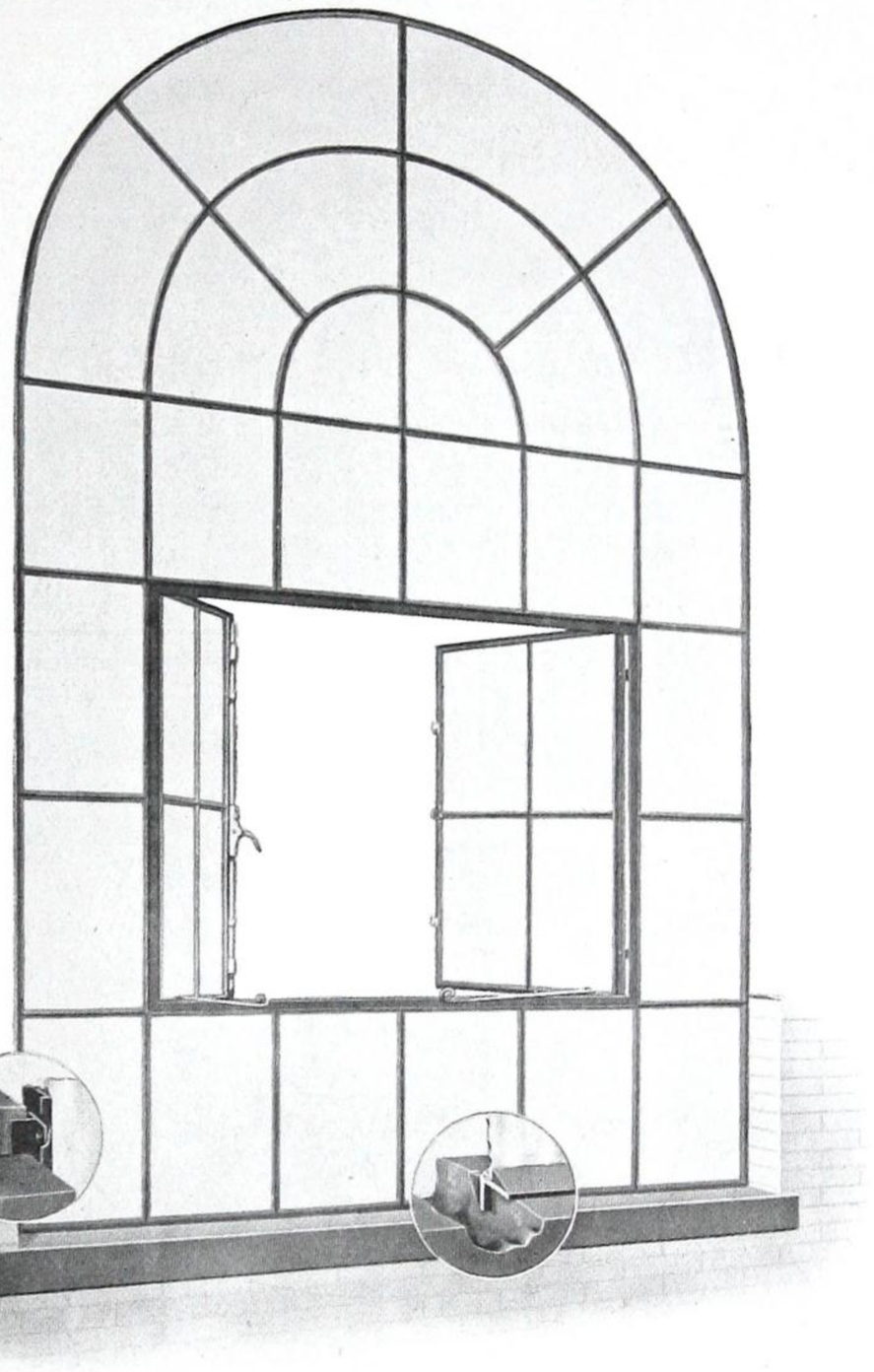
SALES OFFICES AND SHOW ROOMS:
TORONTO, 23 Jordan Street.
MONTREAL, 128 Coristine Building.
WINNIPEG, 803 Union Bank Building.
HALIFAX, Chronicle Building.
VANCOUVER, 52 Hutchinson Building.

PRODUCTS. KAHN SYSTEM SASH for use in Factories, Warehouses, Power Houses, etc.
MADE OF SPECIALLY ROLLED MILD STEEL SECTIONS.



SECTION 105.

SECTION THROUGH TWO-POINT CONTACT VENTILATOR.



TYPICAL POWER HOUSE SASH.

SPECIAL FEATURES.

FIRE PROOF—WEATHER PROOF—PERMANENT.

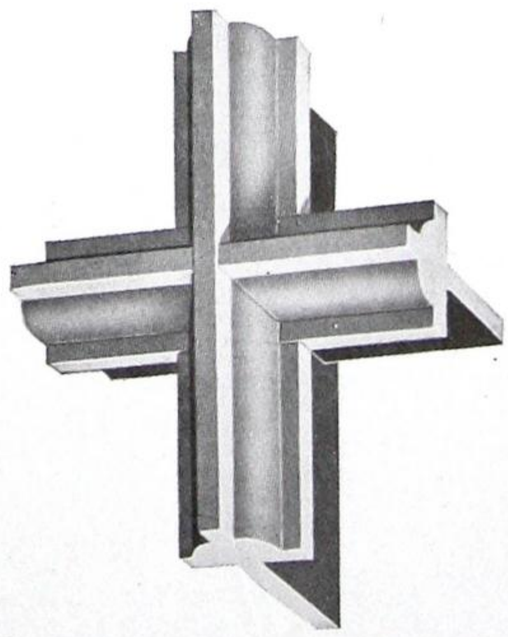
Specify the following features:

Section 105 as an outside frame section. Note the manner in which this section provides a wind-break, covers the mortar joints and provides a building line for the masons on both sides of the mortar joint.

A two-point contact ventilator.

Four Clips to each pane of glass to ensure that the glass will not be blown out; and also specify Kahn System Sash Putty, self-hardening and specially prepared for metal sash.

Ventilators hinged on Kahn's Patent Hinges. These hinges are an integral part of the sash and cannot be put out of order.



KAHN SASH JOINT.

See also our advertisement on pages 34 and 35.

STEEL AND RADIATION, LIMITED

LARGEST MANUFACTURERS OF STEEL SASH IN CANADA.

HEAD OFFICE: TORONTO, ONT.

MONTREAL OFFICE: 304 UNIVERSITY STREET.

AGENCIES:

HALIFAX, N.S.: F. S. COOMBS. ST. JOHN, N.B.: R. MAX MCCARTY.
WINNIPEG, MAN.: HACKNEY TILE AND SUPPLY CO., LIMITED.
CALGARY AND EDMONTON, ALTA.: CANADIAN EQUIPMENT AND SUPPLY CO.
VANCOUVER, B.C.: E. G. CULLEN.

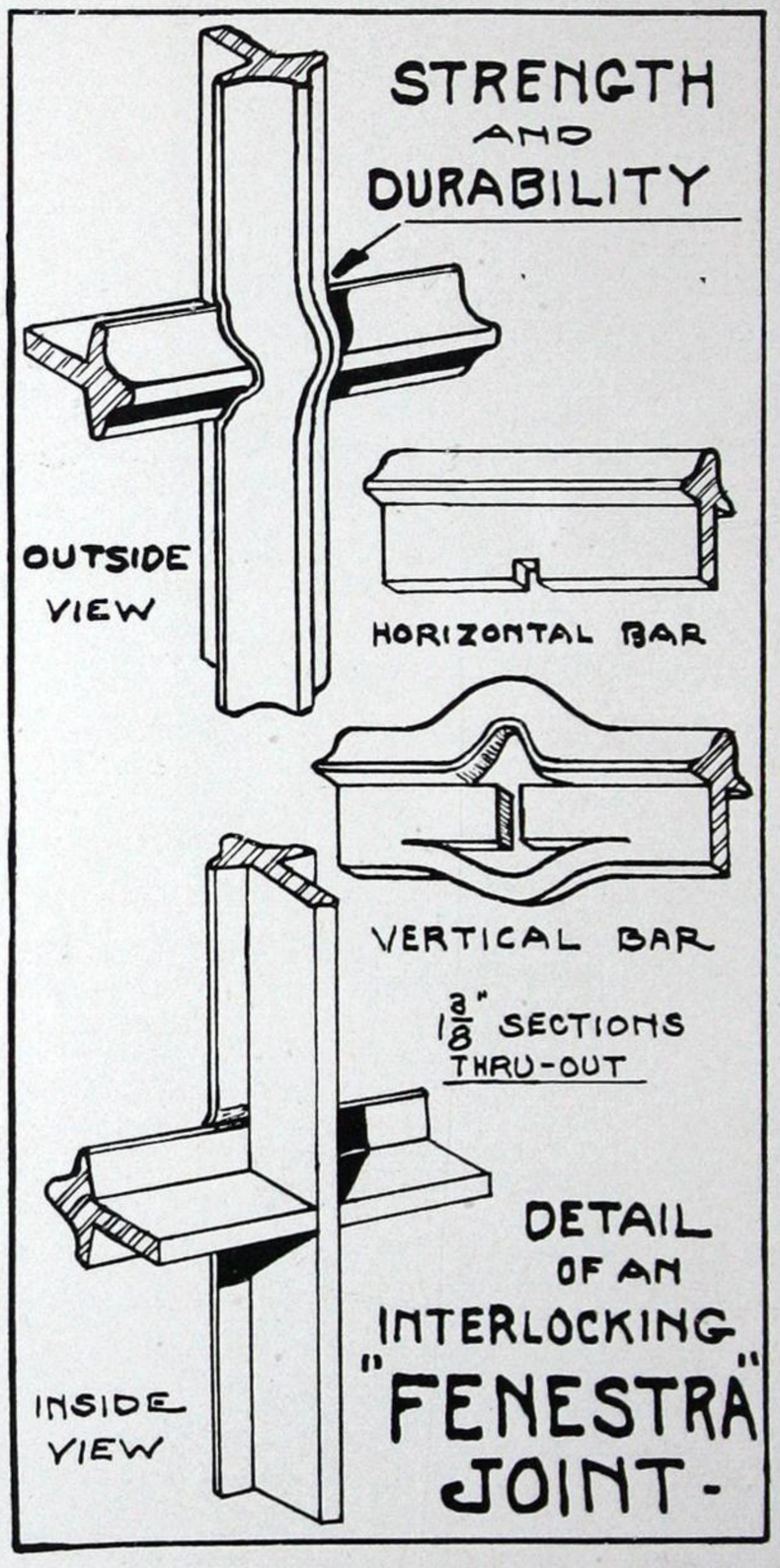
PRODUCT. "FENESTRA" SOLID STEEL SASH—MADE IN CANADA—absolutely Fireproof and Weatherproof, for Factories, Warehouses, Foundries, Power Houses, Train Sheds, and Fireproof Structures of all kinds.

"FENESTRA" JOINT. To manufacture the "FENESTRA" Joint a slot is first punched in the stem of the vertical muntin. The head and locking wing of this bar then expanded (see Vertical Bar) to allow the horizontal muntin, which has a small nick (see Horizontal Bar), being passed through, after which the head and locking wing are pressed snug against and into the horizontal bar, forming a self-contained interlocked joint, thus making it impossible for the joint to open, should the sash be vibrated by wind or other means. It will be readily seen that the amount of material removed is thus exceedingly small, under 20%. It is not possible to construct a mitre joint unless 50% of the material is removed. The EFFICIENCY OF THE "FENESTRA" JOINT is accordingly far greater than that of any other sash on the market.

QUALITY. The "FENESTRA" joint, which is formed cold, necessitates the use of steel of uniform mildness, and ductility. This protects the buyer from the use, even accidentally, of brittle or a poor quality steel.

SIZES. Because of the strength of the "FENESTRA" joint, it is possible to use sections that will permit the delivery of 25% more light through an opening than heretofore available. We can fill large openings; there is no limit to the size.

VENTILATION. Ventilation in "FENESTRA" Sash can be as large as 100%, and we guarantee all ventilators to be absolutely weatherproof. See detail of Double Weathering on the following page.

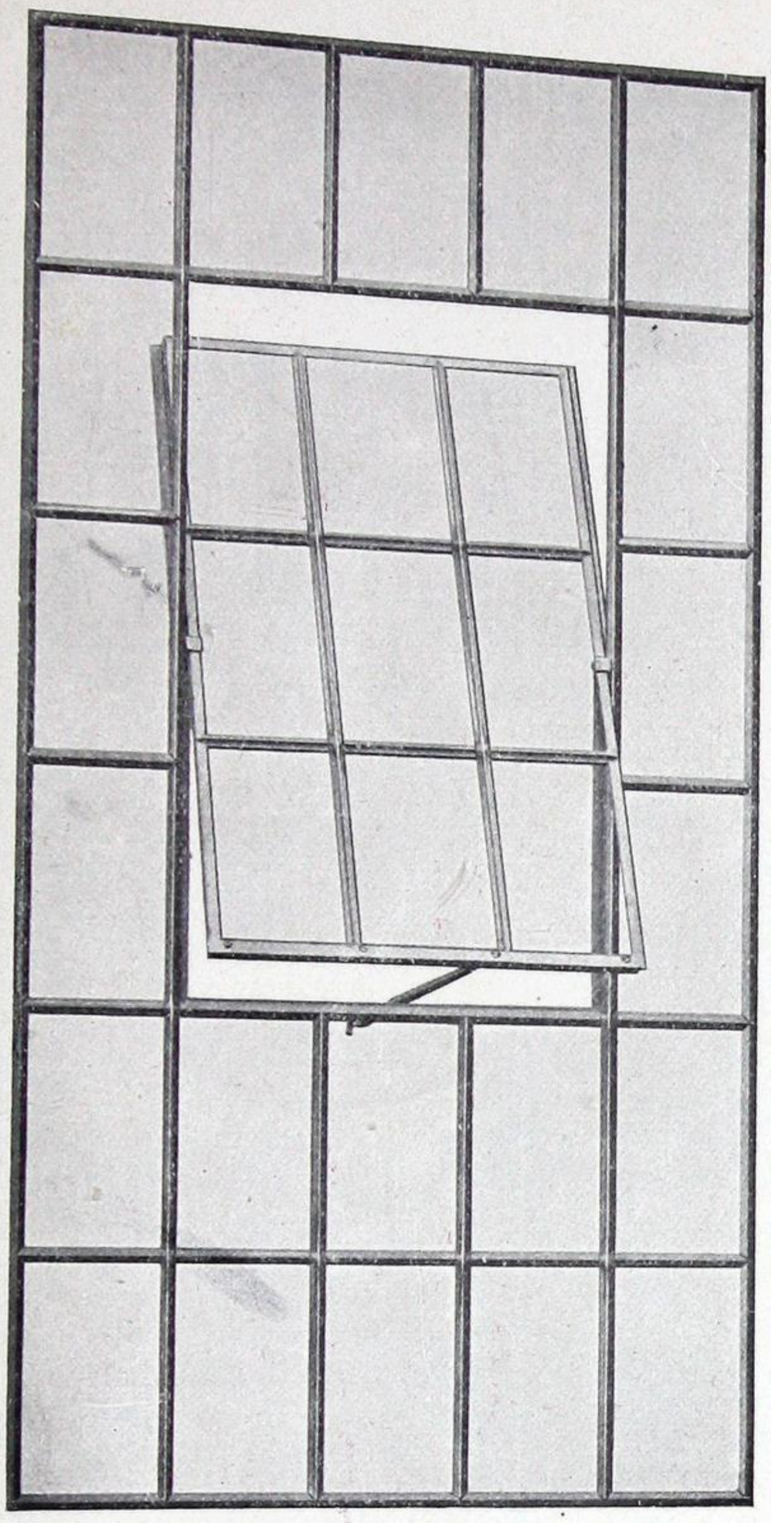


GLAZING CLIP. Our "Glazing Clip," comprised of a flat steel strip contained in the joint when bent back over the glass, makes it impossible for the glass to fall out unless broken.

STYLE. "FENESTRA" has a character and finish. A natural curve at each joint breaks the monotony of outline, noticeable in other sash, and gives "FENESTRA" an appearance quite its own.

STEEL AND RADIATION, LIMITED, are the only manufacturers of "FENESTRA" Sash in Canada.

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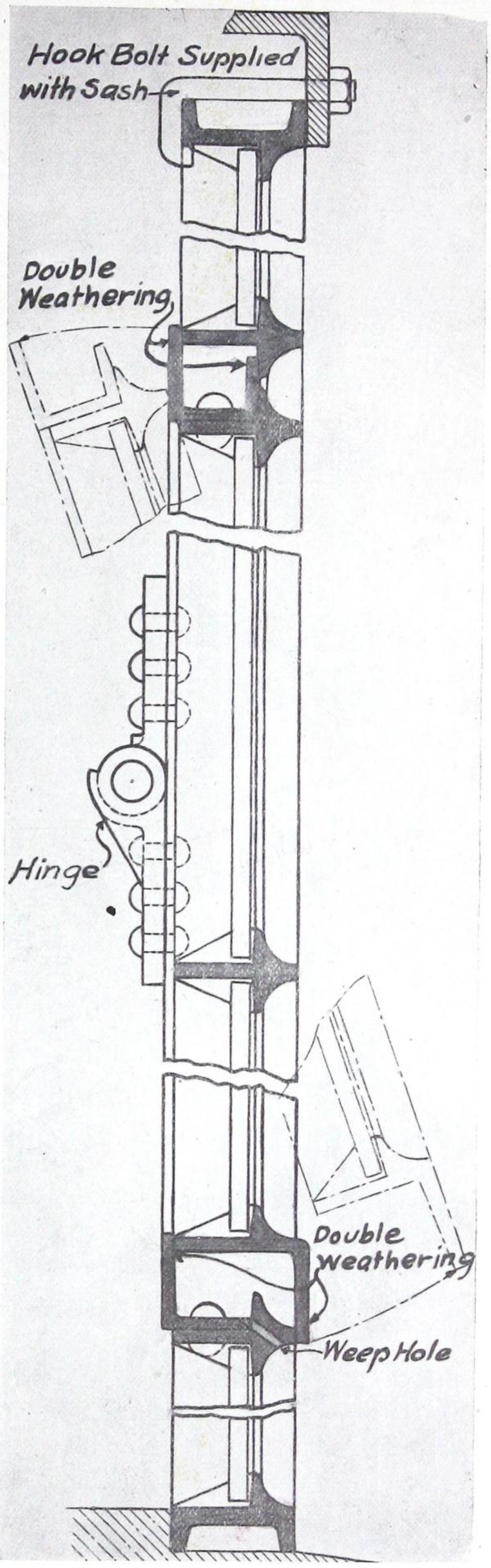


Y56192. 5′ 2¾″ x 9′ 3⅛″.

"FENESTRA" STANDARDS.

Standards in "FENESTRA" are designed to take 12 inch x 18 inch and 14 inch x 20 inch glass size. The initial letter "Y" denotes the former, and "Z" the latter. Our standard sash is known by numerals. The first figure denotes the number of panes wide. The second figure denotes the number of panes high. The third figure, the number of ventilators. The fourth figure, the number of panes in ventilator. The fifth figure, the number of panes the ventilator is above the sill. Hence the sash shown is Y 56192.

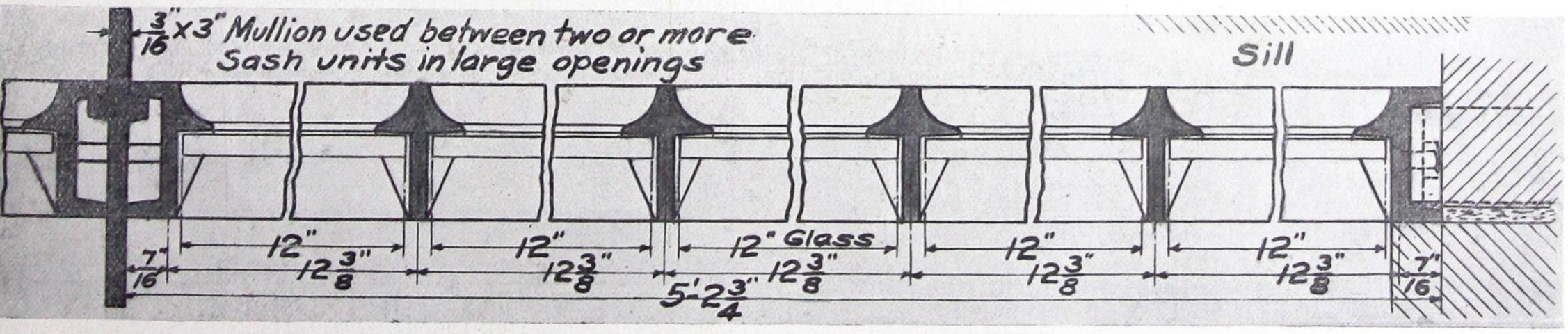
All ventilators are horizontally pivoted as shown, unless otherwise specified.



The cost of "FENESTRA" is governed by the quantity of material involved, the size and uniformity of openings, and the amount of ventilation used in each sash unit. We aim to obtain information regarding prospective work in time to consult with our customers concerning details of building construction. In this way we are able to give the benefit of our experience in so planning openings as to secure the advantages of our product without unnecessary expense.

By using standards you insure quicker delivery, and reduce the price.

To find the size of "FENESTRA" take size of glass, add ⅜ of an inch, multiply by the number of panes, add ⅞ of an inch, this will give the over-all dimension of the sash.



THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. WINNIPEG.

ASSOCIATED WITH

THE METAL SHINGLE & SIDING CO., LIMITED,

PRESTON, MONTREAL, SASKATOON, CALGARY, EDMONTON, REGINA.

HOLLOW STEEL TRIM.
METAL STORE FRONTS.
ROLLING STEEL DOORS.
SKYLIGHTS, CORNICES.

VAN KANNEL REVOLVING DOORS.
INTERIOR STEEL AND BRONZE DOORS.
BRONZE AND COPPER WINDOWS.
ORMSBY-LUPTON STEEL SASH.
POND CONTINUOUS STEEL SASH.

STEEL PARTITIONS.
TIN-CLAD DOORS.
FOLDING DOORS.
METAL CEILINGS.

"UNDERWRITERS" FIREPROOF WINDOWS AND DOORS. "CANADIAN METAL PRODUCTS."

MADE IN CANADA.

THIS IS AN EXAMPLE OF HOLLOW STEEL CONSTRUCTION.



FINISHED IN CIRCASSIAN WALNUT.

PRODUCTS:

HOLLOW STEEL-BAKED ENAMEL-FINISHED DOORS, PARTITIONS, BORROWED LIGHTS, TRANSOMS, WAINSCOT, BASE, CHAIR RAIL, PICTURE MOULDING, WIRE CORNICE, ETC.

Every interior trim member made of steel, faultlessly finished, indestructible, unburnable, an actual and positive fire prevention, killing the blaze wherever it starts.

BRONZE-COVERED WINDOWS, with interior steel trim. A new product, covered in the only efficient way—by machine.

THERE IS NO METAL MORE BEAUTIFUL THAN BRONZE.

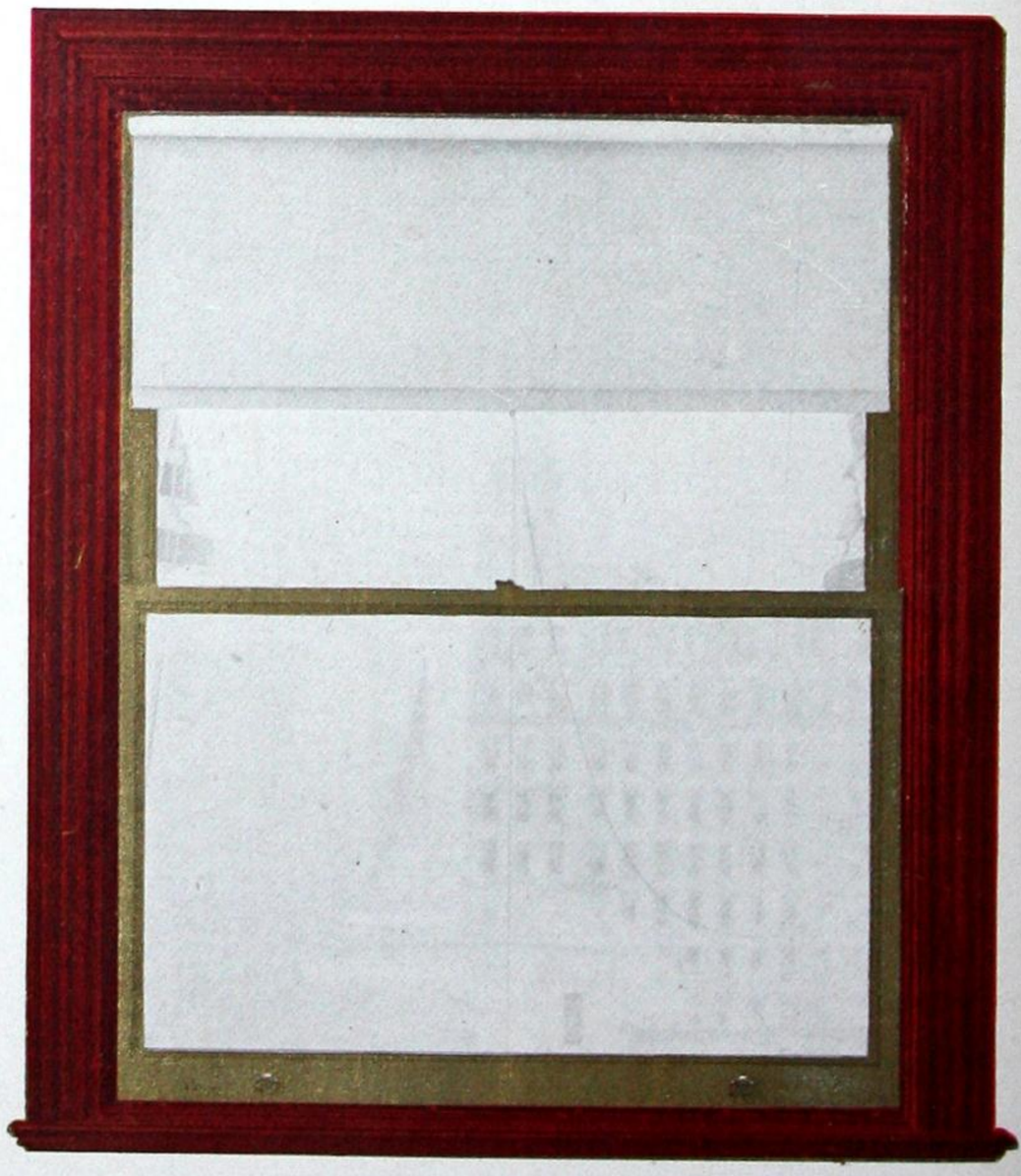
NO METAL THAT LASTS LONGER OR STANDS MORE.

IT CANNOT RUST, NEEDS NO PAINT.

STEEL DOORS AND TRIM.
BRONZE WINDOWS.

THE TWO PRODUCTS WHICH ALONE CAN MAKE THE FINISH IN YOUR BUILDING EVERLASTING

PROOF AGAINST FIRE AND YET BEAUTIFUL AND ARCHITECTURALLY CORRECT.



FIRE PROOF—EVERLASTING.

Your contours must and will be what you expect. Wood and metal must and positively do adhere. This window fills every exterior opening in the Woolworth Building, New York City, (installed by the U.S. Metal Products Company).

It is the window we offer to you.

We invite your inspection and inquiry.

CONTINUED ON NEXT PAGE

THE A. B. ORMSBY COMPANY, LIMITED

ASSOCIATED WITH

TORONTO. THE METAL SHINGLE & SIDING CO., LIMITED, WINNIPEG.

PRESTON, MONTREAL, SASKATOON, CALGARY, REGINA, EDMONTON.

THE ORMSBY SIMPLEX REVERSIBLE WINDOW.

ADAPTABILITY. The most efficient window made to-day for office buildings, hotels, apartments, banks, factories, warehouses or residences.

MATERIAL. Made in Bronze, Copper or Iron. Covered—Hollow Bronze, Copper, or Galvanized Iron or Solid Steel or Bronze Sections.

ADVANTAGES. May be used as single or double sash, vertically arranged.

As single or double casements, swinging out, or in any combination desired.

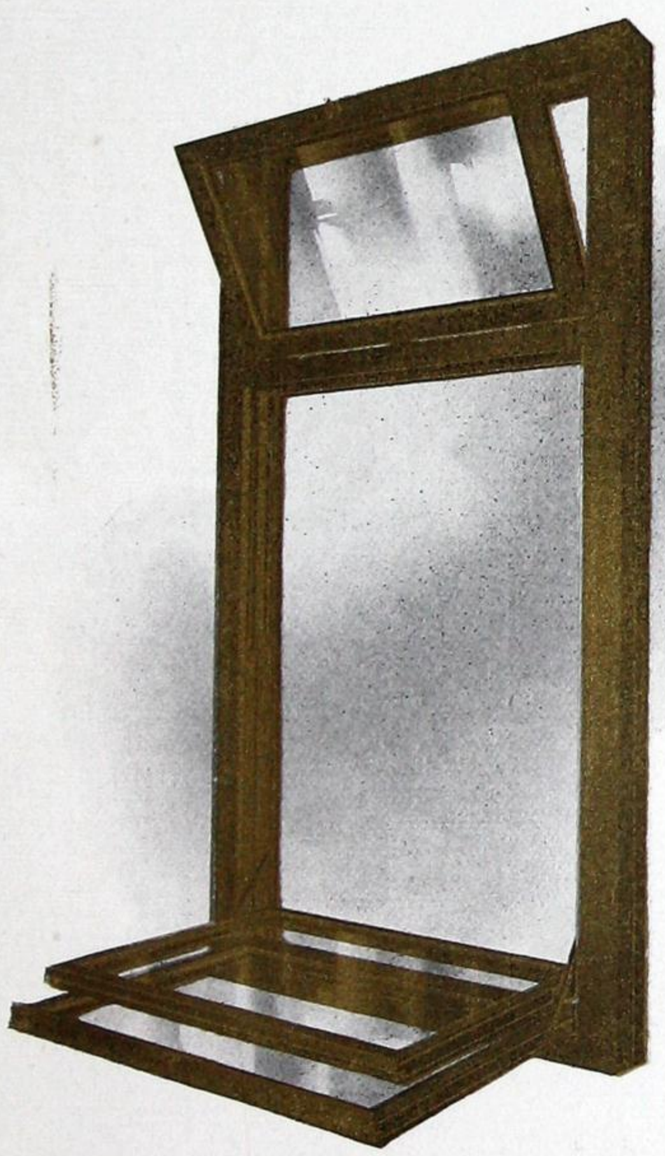
Sash, partially open, act as louvres, affording perfect ventilation and protection at the same time.

All Sash reverse and may be cleaned entirely inside the building. (See cut.)

In Hollow Metal these windows are approved and labelled by the Underwriters.

A combination of qualities hard to beat.

Complete information upon request.



ORMSBY HABERLE REVERSIBLE WINDOW (OPEN).



ORMSBY SIMPLEX REVERSIBLE WINDOW.



ORMSBY HABERLE REVERSIBLE BRONZE COVERED WINDOW (CLOSED).

THE ORMSBY HABERLE REVERSIBLE BRONZE COVERED WINDOW.

ADVANTAGES. Normally operated as a Double-Hung Window (see cut), absolutely weatherproof, simple in detail and construction.

For cleaning purposes, both Sash open in (see cut). Wall Bolts are unnecessary. Window cleaners never are forced to risk their lives or those of passers-by below by going outside the building to clean the glass.

Bronze never needs to be protected against the elements; therefore, no expense for upkeep. (These windows can be covered with iron at a lesser cost, but, so made, they naturally require to be finished from time to time.)

INSTALLATIONS. See the installations of this window in

The Dominion Bank, Toronto - - - - -	Over 400 openings.
The Methodist Book Rooms, Toronto - - -	" 400 "
The Guarantee Building, Montreal - - - -	" 150 "

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THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. ASSOCIATED WITH WINNIPEG.

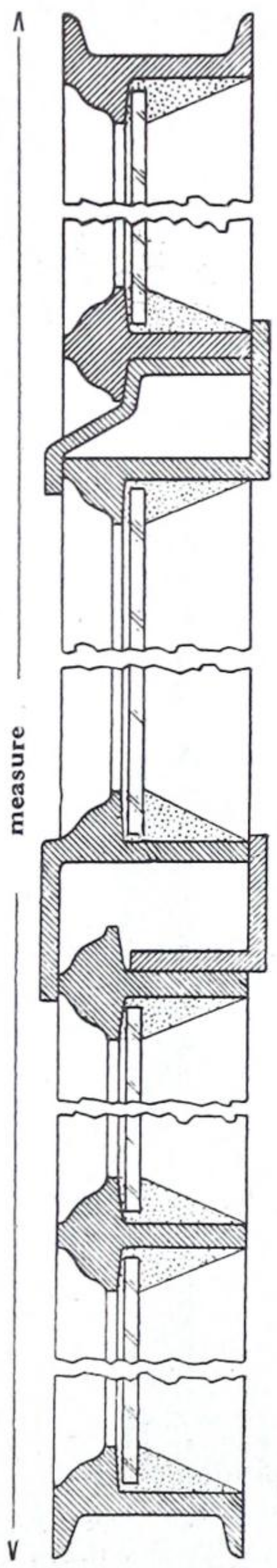
THE METAL SHINGLE & SIDING CO., LIMITED,

PRESTON, MONTREAL, SASKATOON, CALGARY, EDMONTON, REGINA.

ORMSBY-LUPTON STEEL SASH.

(Patented and patents pending.)

DETAILS ARE ONE-HALF FULL SIZE.



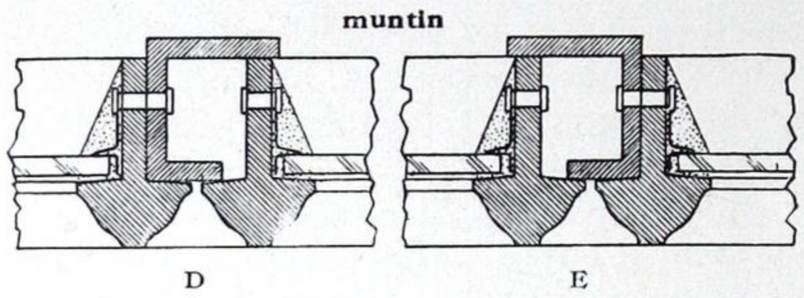
G
Channel frame member, Section 101, at head of sash.

H
Double weathering at top of ventilator.

I
Double weathering at bottom of ventilator.

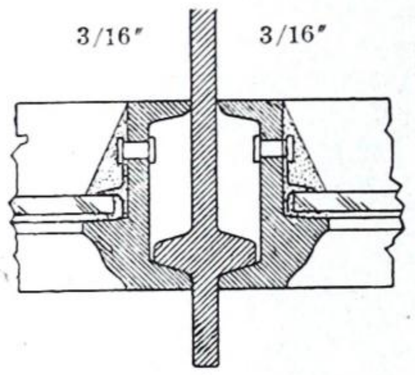
Muntin.

J
Section 101 at Sill.

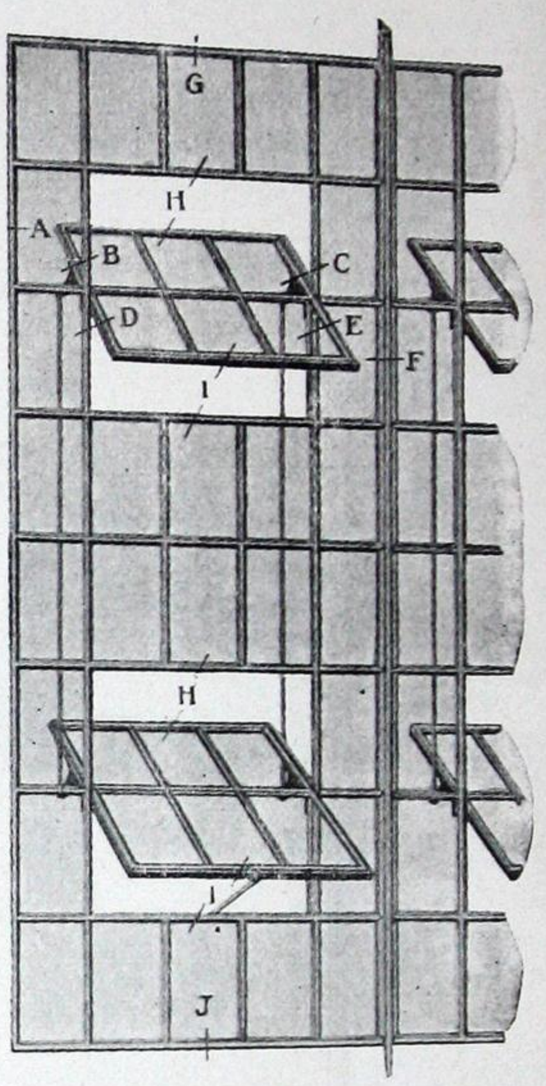


D E

Taken below pivots, showing double weathering.

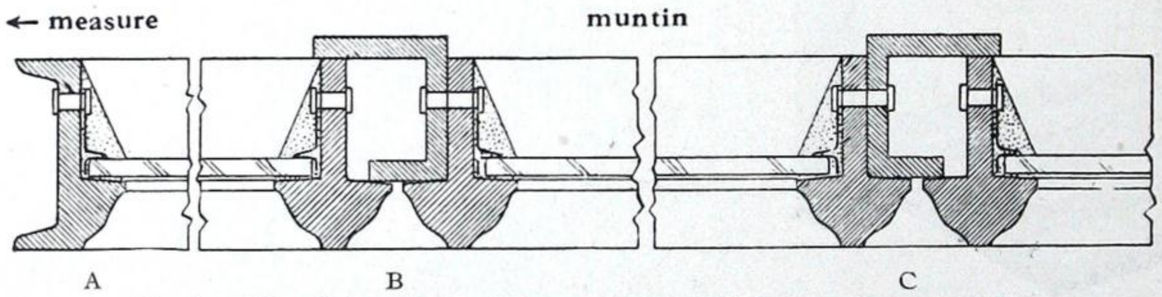


F
Showing Standard mullion, Section 102, between sash.



TYPICAL ORMSBY-LUPTON STEEL SASH.

Two arms are used to connect upper and lower ventilators. They are placed at the pivots and assure control of both ventilators in alignment.



A B C

Section 101. Taken above pivots, showing double weathering at Wall Jamb.

ADDITIONAL PRODUCTS.

"UNDERWRITERS" HOLLOW METAL WINDOWS AND TERNE CLAD DOORS. Automatically closing, approved by the Underwriters, insuring lowest rates.

VAN KANNEL REVOLVING DOORS, panic-proof, and capable of handling 200 per minute, 100 people in each direction.

ORMSBY COUNTERBALANCE FREIGHT ELEVATOR DOORS, one half opening up, the other down, mutually counterbalancing sections terne clad or corrugated iron in angle frames.

KALAMEIN IRON, BRONZE AND COPPER-COVERED DOORS AND WINDOWS. All members drawn through machined dies. Fireproof and lasting.

ROLLING STEEL SHUTTERS AND FOLDING DOORS OF ALL TYPES.

SKYLIGHTS, CORNICES, CORRUGATED SHEETS, ROOFING.

GEORGE WRAGGE, LIMITED

WARDRY WORKS,
MANCHESTER, ENGLAND.

AGENCIES:

MONTREAL:
THE JAS. WALKER HARDWARE CO., LTD.

TORONTO:
JOHN LINDSAY.

WINNIPEG:
WILLIAM H. THORNHILL CO.

CALGARY:
CANADIAN EQUIPMENT & SUPPLY CO., LTD.

VANCOUVER:
E. G. CULLEN.

PRODUCTS. Manufacturers of high-class STEEL AND BRONZE CASEMENT WINDOWS AND LEADED LIGHTS.

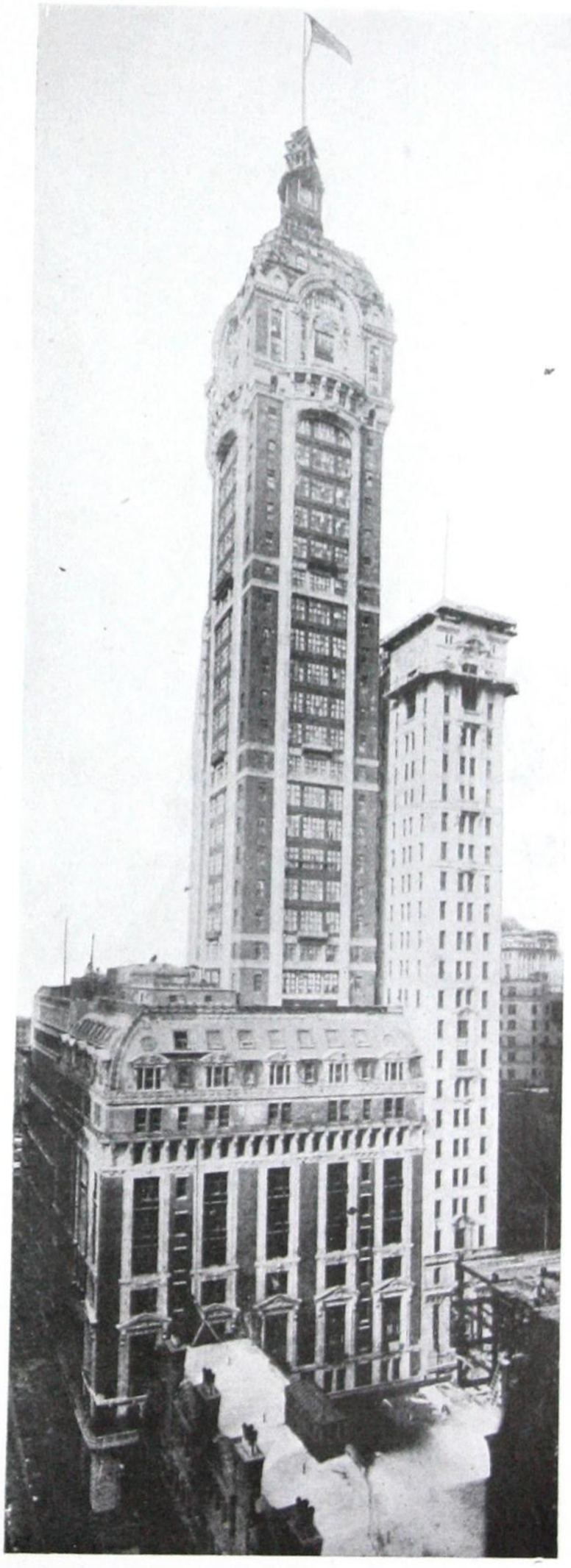
QUALITY. The good name for quality of workmanship which follows our work is the result of many years' practical experience, the outcome of severe tests in actual operation, and in our own testing department. Every casement is subjected to thorough inspection before leaving our factory, and the risk of faulty work reaching a job is thereby reduced to a minimum. Failures in construction are, consequently, almost impossible.

GUARANTEE. Subject to rebate being approved by us, we guarantee our casements weathertight and dustproof.

ADVANTAGES. Wragge Casement Sash are indestructible and fireproof.

They are neat and enhance appearance of building.

Maximum amount of glass surface is obtained, while casements are weatherproof and dustproof; facility in opening and closing. Maintain rigidity for all time, and do not get out of order, or sag, as do wood sash.



SINGER BUILDING, NEW YORK. ERNEST FLAGG, Architect.
We supplied and fitted over 3000 vertical pivot-hung, safety-cleaning casements for this Building, the whole being completed in 24 weeks from date of order.

CONTINUED ON NEXT PAGE

SPECIFICATION FOR WRAGGE'S CASEMENTS.

WORKMANSHIP. All casement frames and sash shall be formed of best quality steel, free from blemishes and imperfections. Bars shall be of uniform dimensions and perfectly straightened. All joints shall be machine made, riveted and brazed. The casements shall then be oiled and painted one coat pure red lead, and a finishing coat of approved colour of white lead and oil paint applied.

TYPE. Specify the type desired for the different cases, the number of leaves into which the sash shall be divided and how the sash shall be hinged or pivoted. See our catalogue for the various sections suitable for the different requirements. Our representatives will be glad to give expert advice in making these selections.

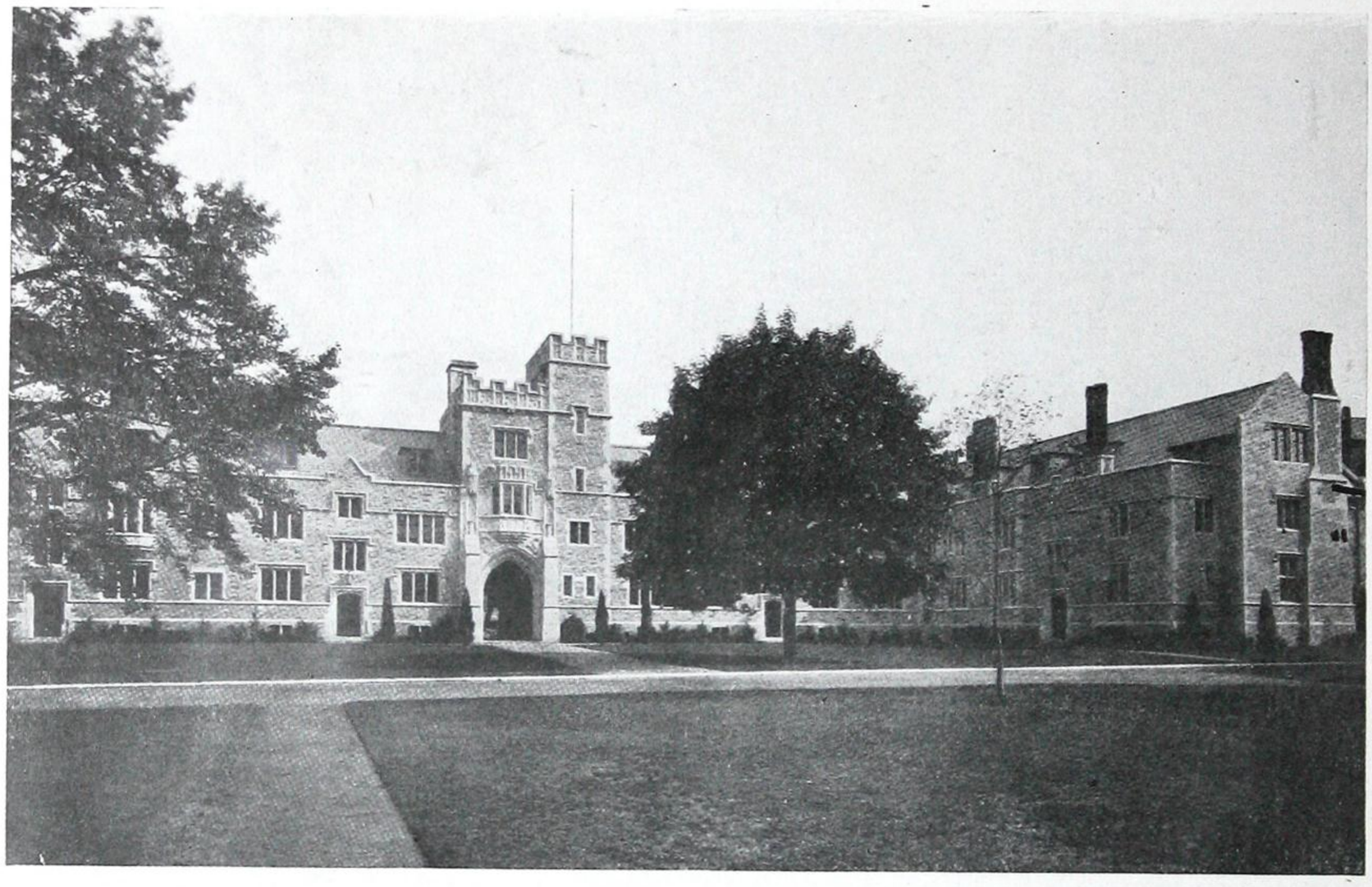
FIXING (EUROPEAN METHOD). See that the casement will go into the opening freely and that no binding of the frames takes place. If there is any "binding," the stone or wood must be cut down until the casement will go in easily.

In stone or terra-cotta work mark off and carefully cut circular holes opposite those in the steel frame and plug same with hard wood or lead plugs.

Bed the frame into the rebates with metallic cement and screw to the plugs, taking great care that the steel frame is not twisted in screwing up. This is very important. If the frame gets out of plumb, loosen the screws, pack between the stone and frame and tighten up again. Any distortion of the frame will prevent the casement bedding properly to the outer frame when closed.

See that the casement is working freely and then point up with best quality mastic cement inside and outside, taking care to see that all the outlet holes in the sill are clear.

(The European Method of fixing is suitable for openings where the stone, terra-cotta or other masonry jamb is finished clear through to the inside, as in the case of the tracery in Gothic church work, etc.)



PRINCETON UNIVERSITY BUILDINGS
PRINCETON, N.J.

CRAM, GOODHUE & FERGUSON
ARCHITECTS.

FIXING (CANADIAN METHOD). In Canada, where the weather conditions are more severe, and the finish of the jambs of windows is different from the practice usual in Europe, it is better to have, in addition to the frame of the casement, a furring frame, set in Portland cement (either a Z, T or angle section, as the details of the jamb make most suitable). This furring frame can either be built into the masonry as the walls are constructed, or metal fastening lugs may be built into each side of the opening as the work proceeds, and the furring frame screwed to these lugs later. This furring frame is then pointed with mastic cement. The outer frame of the casement is then secured to this furring frame with screws.

GLAZING. First lay a small quantity of mastic or metallic cement into the rebate to be glazed, then place the glass in position and wedge up at points indicated in illustration, so that the weight of glass does not distort the casement, and see that the sill clears the corresponding section. Then place pegs of steel, lead or hardwood in the holes provided for that purpose and point up with metallic cement, or else secure with metal glazing fillets. Do not paint the outside pointing until dry.

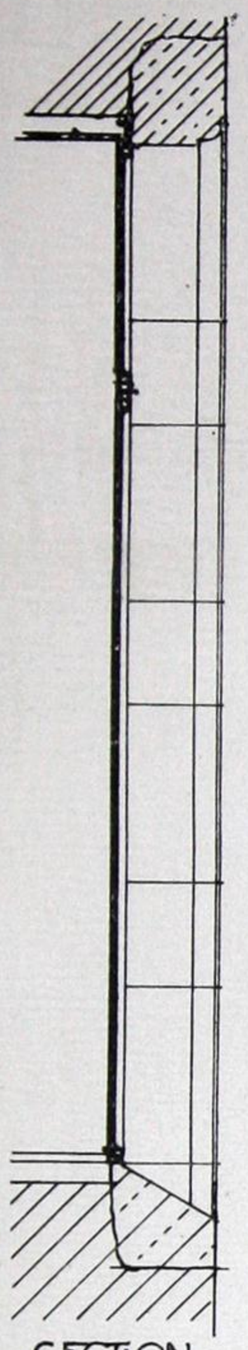
GLAZING FILLETS. For all large casements we strongly recommend metal glazing fillets, which make a better looking and more secure glazing than the usual front pointing.

METALLIC CEMENT. In glazing and fixing casements, ordinary glaziers' putty should not be used, as nothing but mastic or metallic cement mixture will adhere to the metal.

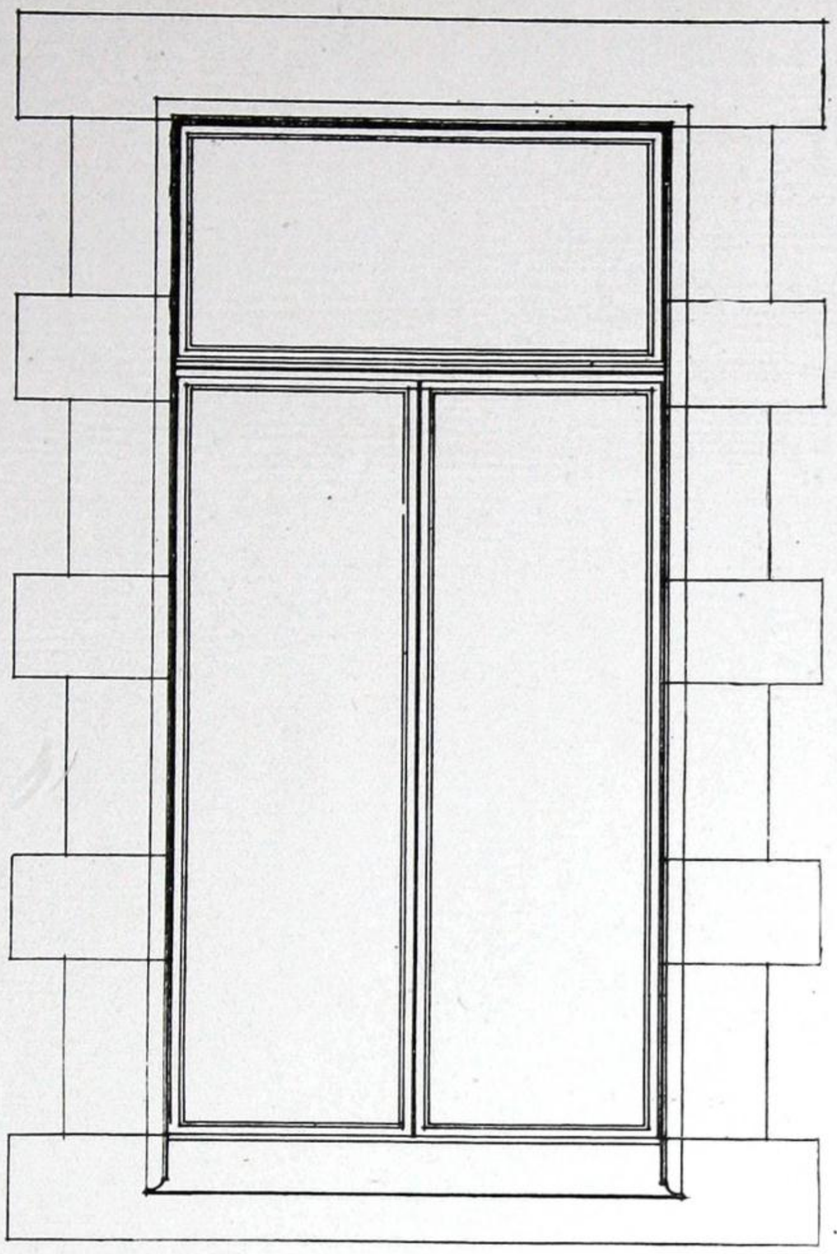
DETAILS. The contractor shall prepare and submit to the architects, scale and full size details of the casement windows. These details shall be approved by the architects before the work is proceeded with.

HARDWARE. This contractor shall furnish and fit all hardware, including hinges, pivots, fasteners, etc. Hardware shall be (gun-metal bronze plated to match other hardware). (Our representative will give advice as to the selection of suitable hardware.)

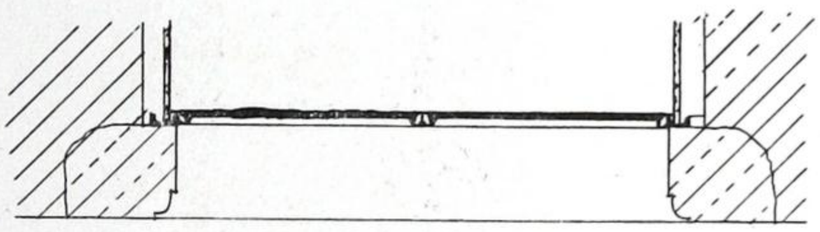
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SECTION



ELEVATION



PLAN

HALF INCH SCALE

AND

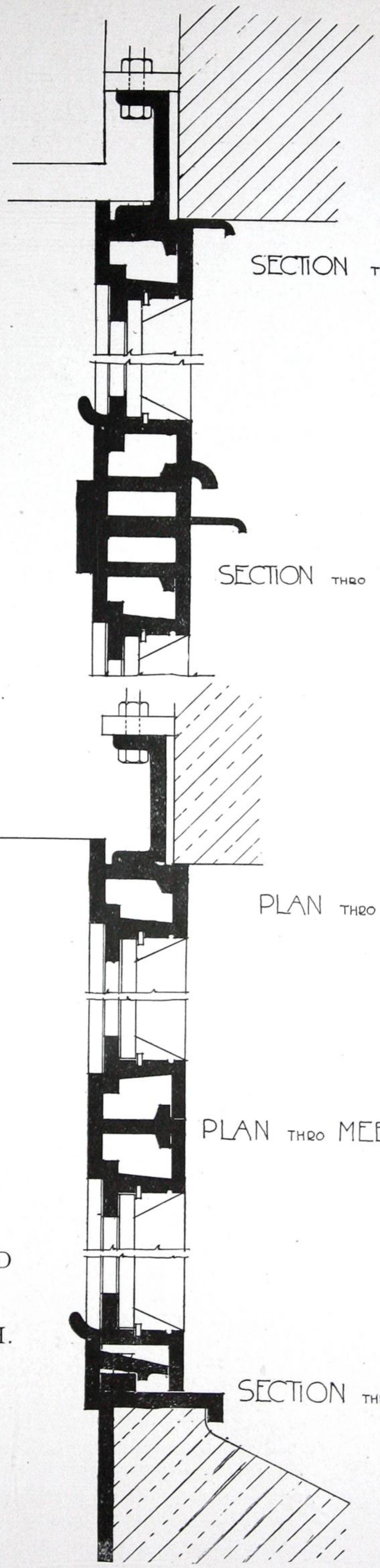
HALF FULL SIZE DETAIL

OF

SUGGESTED CANADIAN METHOD

OF SETTING

WRAGGE'S METAL FRAME SASH.



SECTION THRO HEAD

SECTION THRO TRANSOM

PLAN THRO JAMB

PLAN THRO MEETING RAIL

SECTION THRO SILL

CRITTALL CASEMENT COMPANY

MANUFACTURERS OF

"UNIVERSAL" SOLID STEEL CASEMENTS.

HEAD OFFICE FOR CANADA: 65 VICTORIA STREET,
TORONTO, ONT.

AGENCIES IN ALL PRINCIPAL CITIES. WORKS: BRAINTREE, ENG., AND DETROIT, MICH.

GENERAL. The greatest recommendation in favour of the "UNIVERSAL" CASEMENT, in preference to all other systems of metal window construction, is its simplicity and adaptability to all preparations of work and sizes of openings. The Universal Casement is made in three sizes of section, to produce windows of any practical dimensions, the section used being determined by our own engineers and governed by the size of opening to be filled.

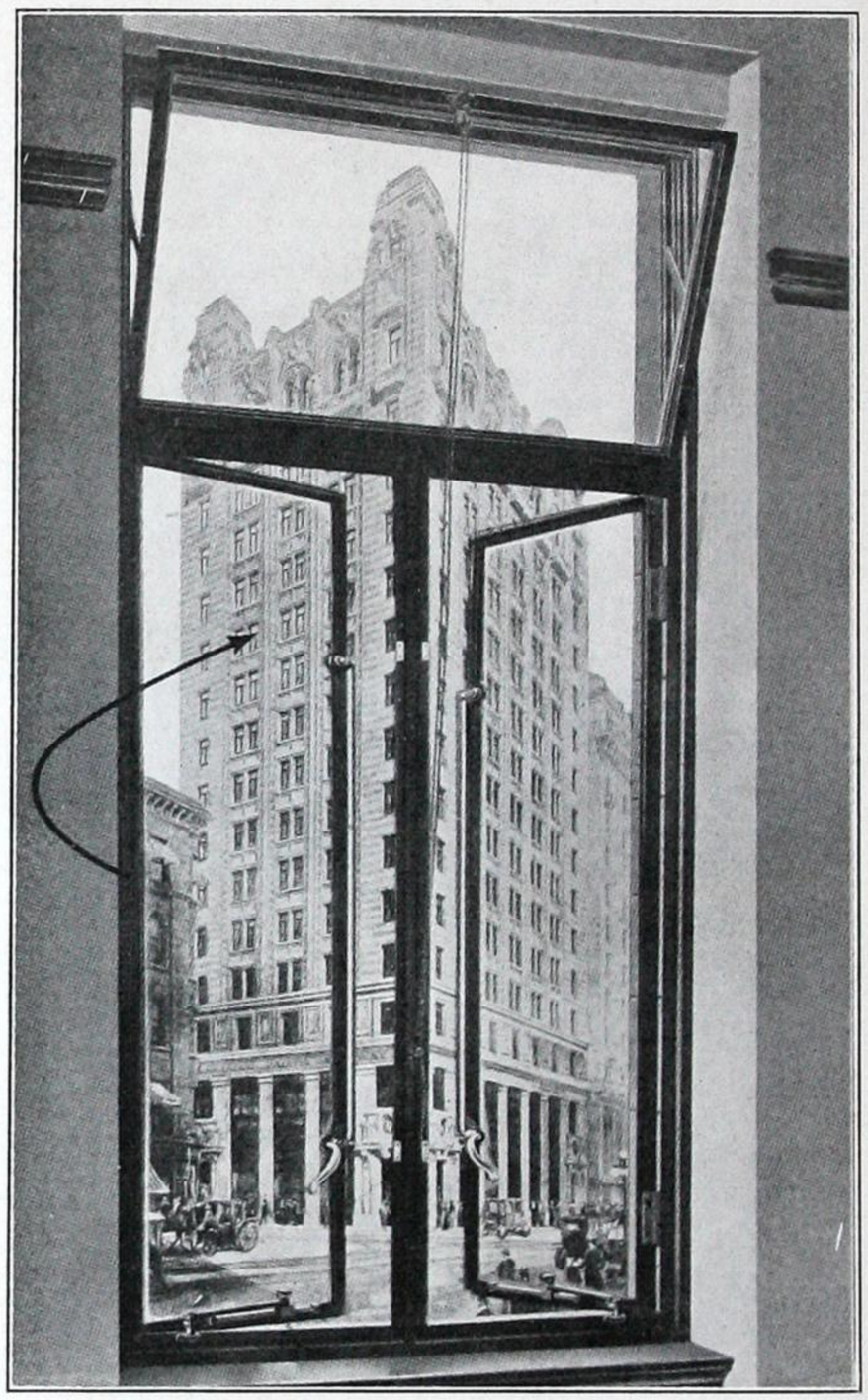
MATERIAL. Crittall Universal Casements are made in Solid Steel, KOPEROID and Solid Bronze.

SOLID STEEL.—The Commercial and Domestic Steel Casement is of solid steel rolled sections, thoroughly cleaned before painting and hung on solid bronze hinges. All Crittall Casements are sandblasted all over and dipped in zinc oxide before assembling. They are given a further priming coat of zinc paint before dispatch.

KOPEROID.—Casements treated with our special KOPEROID process may be used as a substitute for solid bronze casements at a lower price. This allows their use where appearance and non-painting are primary items. They can either be finished pure copper colour or, if preferred, can be made to have the exact appearance of a pure bronze casement, but, in either case, will turn a rich brown colour if left to tarnish naturally.

SOLID BRONZE.—All Universal Sections are also made in this material. Bronze Casements are specially suitable for monumental buildings, churches, high-class public buildings, in countries where there are sudden changes of climate, or in conservatories or bath-rooms where there is excessive condensation. They are absolutely rust-proof, requiring no paint (therefore costing nothing for upkeep).

PHOTOGRAPH TYPICAL OPENING TAKEN AT POINT OF ARROW.



CANADIAN PACIFIC RAILWAY OFFICE BUILDING, TORONTO.
CRITTALL "UNIVERSAL" CASEMENTS INSTALLED THROUGHOUT.
DARLING & PEARSON, Archts. G. A. FULLER CO., LTD., Contrs.

ADVANTAGES. The perfect window is one which:

Is weathertight.	Never sticks.
Is permanent.	Easy to operate.
Has low upkeep.	Ventilation without draft.
Is fireproof.	Allows maximum amount of daylight.
Never rattles.	Neat and artistic appearance.
Does not warp or twist.	Makes provision for condensation.

The Crittall Window has all these features.

PROCESS. All corners and all brackets for fittings are welded, electrically or autogenously, no brazing being used. The omission of brazing and the use of the sandblasting process combine to make the Crittall Casement unique in its freedom from rust at time of erection, and subsequent expenditure in painting and upkeep will not be money wasted, as it would be on an article rusty from the outset.

"Universal" Casements have no screwed-on fillets for weathering; all pivoted casements have weathering contacts accurately milled and turn on a hardened steel ball.

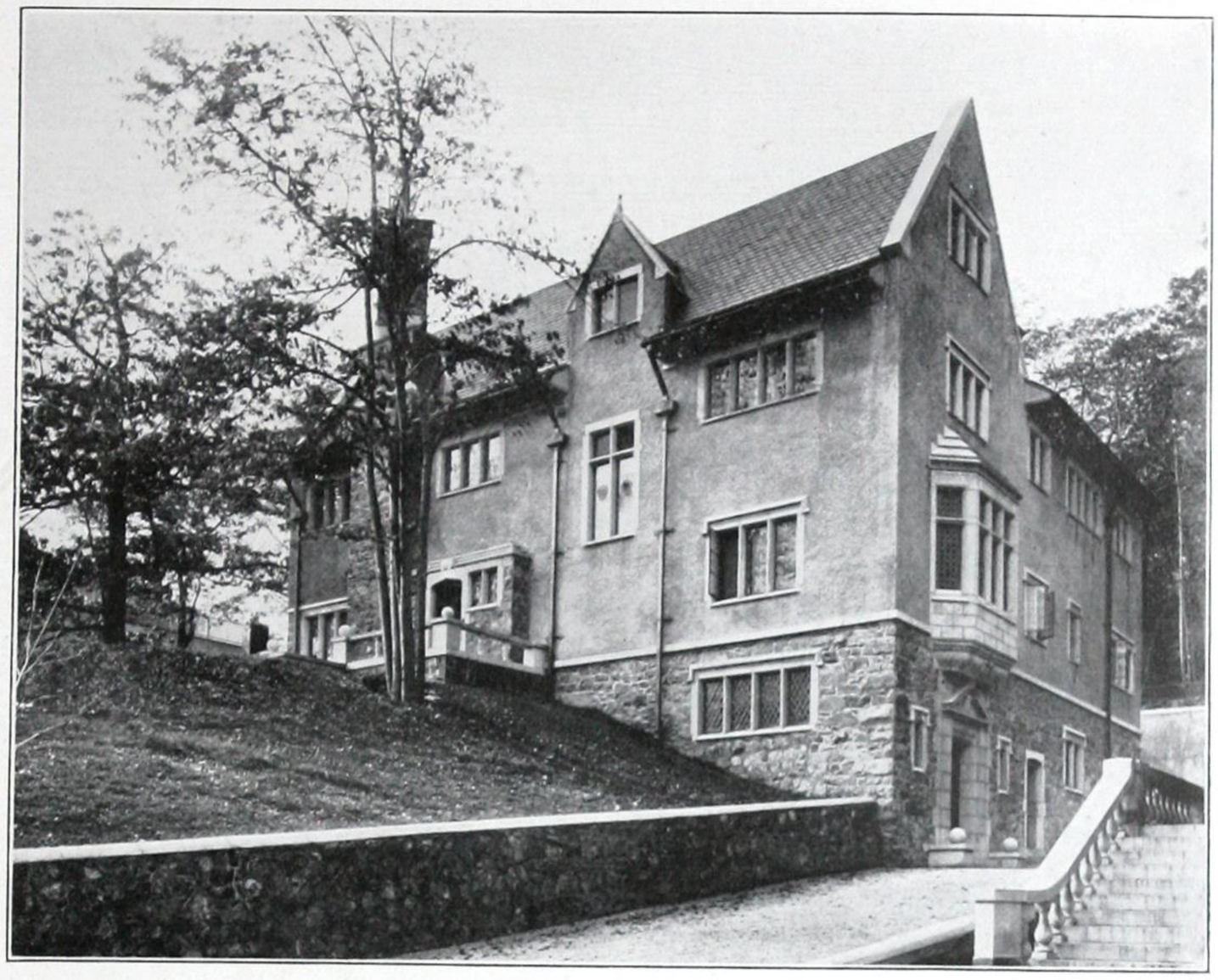
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GLAZING.

The Universal Casement can be made to glaze from inside or outside without affecting price or detail. All windows should be glazed from inside, for the following very good reasons:

In high buildings glass can be fixed or removed from inside without expensive or dangerous use of ladders or slings.

Solid metal face exposed to weather.



RESIDENCE, DR. MORGAN, MONTREAL. ED. & W. S. MAXWELL, Architects.



OTIS-FENSOM ELEVATOR CO. BUILDING, TORONTO.
GEO. W. GOUINLOCK, Architect.



HERMANT BUILDING, TORONTO.
BOND & SMITH, Architects.

ERECTION.

If possible, we prefer to erect all our own work, as, no matter how perfectly a Casement is made, it will not give satisfaction unless properly fixed. We have a large staff of skilled erectors, and will quote for work erected in any part of Canada.

THORP FIRE PROOF DOOR CO.

"THORP RICHARDSON" FIREPROOF DOORS AND FINISH.

"Make Each Room a Separate Building."

1600-1616 CENTRAL AVENUE,

MINNEAPOLIS, MINN.

REPRESENTATIVES IN SIXTY-FIVE PRINCIPAL CITIES OF THE UNITED STATES AND CANADA.

PRODUCTS. Manufacturers of "THORP RICHARDSON" FIREPROOF DOORS and FINISH for Office Buildings, Hotels, Hospitals, Sanitariums, Theatres, Schools, Court Houses, Business Blocks, Stores, and Private Dwellings; TRANSOMS; CORRIDOR WINDOWS; DRAWN MOULDINGS; METAL-COVERED FRAMES and SASH.

ORNAMENTAL ENTRANCE DOORS a specialty. For these we use pure copper or bronze, and make a fireproof door which conforms to all the niceties of the architect's designs.

CONSTRUCTION. Fig. 1 shows the construction of the standard door, frame, and detail of one of the styles of trim. The panels are sunk by hydraulic pressure with one sheet to each side. The reinforcing band goes clear around the door, locking the sheets on all four edges. We fit and apply the hardware at the factory if same is furnished to us, or we will furnish same at list prices.

DETAIL. "Thorp Richardson" Doors are made in our standard detail and construction, or in special detail and standard construction, to follow architects' details. This enables them to be used with any scheme for which the buildings call. In following special designs, the covering may either be special locked or welded together so that the sheet on each side is in effect a single sheet. We do not depend on mortice joints or lag screws to hold the door together, and there are no joints to open.

FINISH. "Thorp Richardson" Finish is either duplex plate, old copper, or brass; grained to match any of the natural woods; flat, galvanized, or solid copper.



FIG. 1.

"RICHARDSON" STANDARD SOLID-PANEL DOOR, LIGHT OAK FINISH.

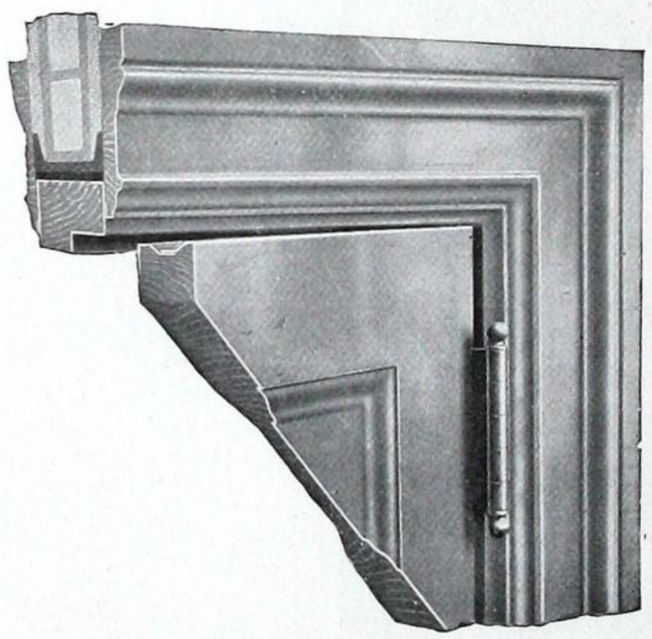


FIG. 2.

SECTION THROUGH "RICHARDSON" DOOR AND FRAME.

This shows the core of three thicknesses, laid crosswise, covered with asbestos; also, the seamless, hydraulic stamped panel. These single sheets on each side lap in a groove on all four edges, and are bound by a continuous steel band, further stiffening the door. Frames and trim are made, in our standard metal-covered construction, to any detail.

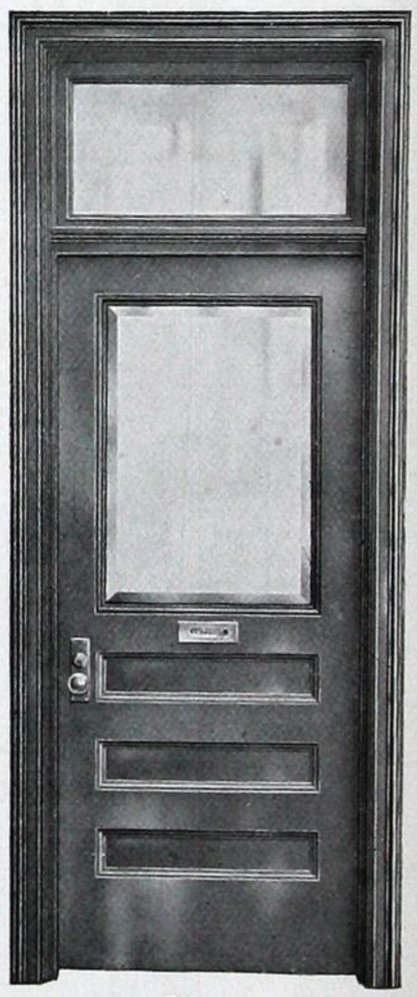


FIG. 3.

"RICHARDSON" STANDARD GLASS-PANEL DOOR, OLD COPPER FINISH.

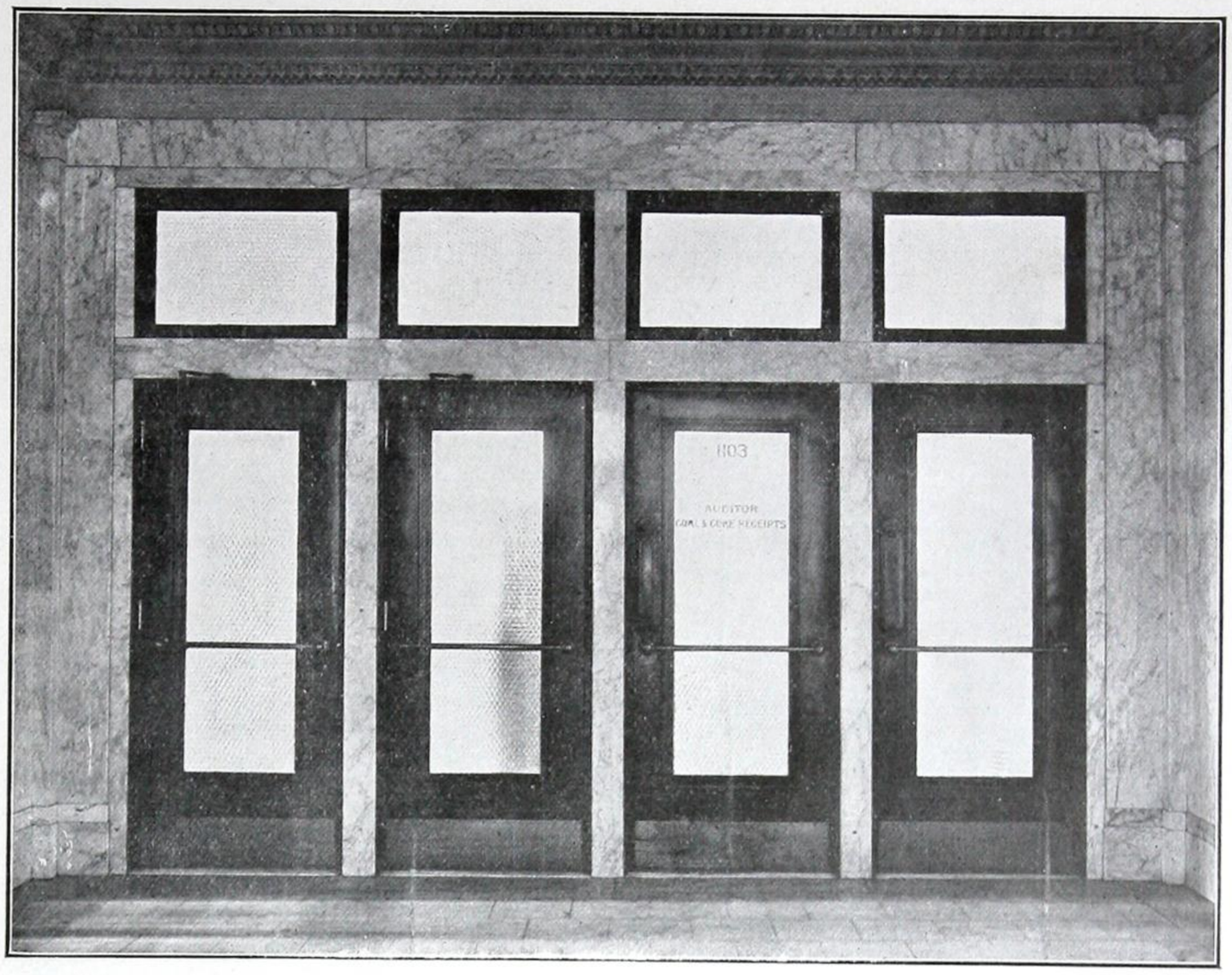
NOTE. The Underwriters' Standard for fireproof doors is based on a three-ply, built-up wood core, covered with sheet steel locked on.

The Thorp way of interpreting this specification is to line the three-ply wood core with heavy sheet asbestos, and cover the wood and asbestos with good 24-gauge sheet steel, locked by a patent process.

CONTINUED ON NEXT PAGE

THORP DOORS MAKE EACH ROOM A SEPARATE BUILDING.

Illustrations are taken from work furnished on orders and are simply indicative of the character of Thorp Doors. The theory of fireproof interior finish is to "make each room a separate building," and the Thorp product lends itself to this purpose for every class of fireproof structure. Our entire equipment and attention is concentrated on this one type of work, and we are in a position to give every service combined with the best workmanship.



B. & O. Office Bldg. Baltimore, Md.

ORNAMENTAL ENTRANCE DOORS.

We would call special attention to the increasing use of "Thorp Richardson" Doors covered with *solid copper or bronze*, made to architects' details, for exterior entrances. These have all the advantages and the appearance of cast doors, without the extreme weight or cost.

CO-OPERATIVE SERVICE.

Our estimates are based on the demands in each particular case, and we are always glad to make quotations on any work. Full-sized details and working drawings are furnished when required, and we invariably co-operate with the contractors to the end that everything shall be correct. Innumerable large buildings completely equipped without delay or a single replacement testify to our carefulness.

Write for booklet, fully explaining construction, economy and safety.



Main Entrance, Exchange National Bank, Little Rock, Ark.
Charles L. Thompson, Architect.

GEO. W. REED & CO., LIMITED

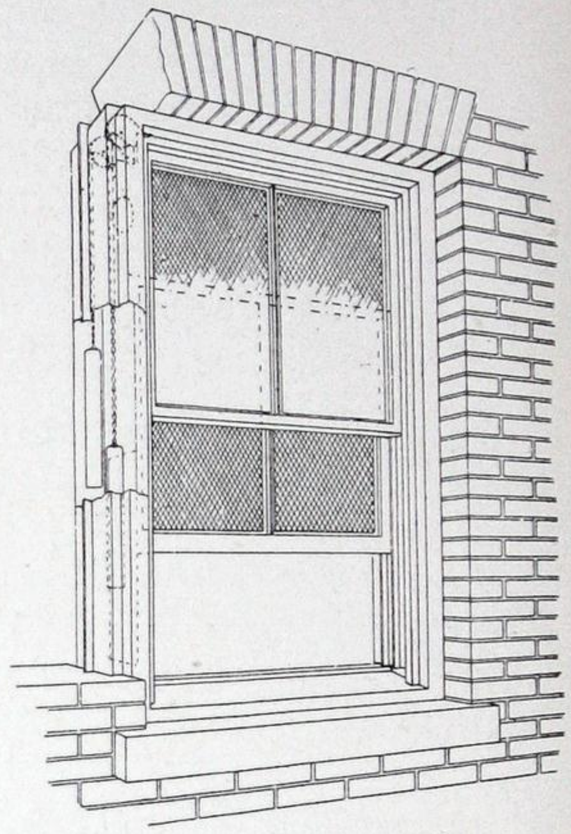
FIREPROOF DOORS AND WINDOWS, SKYLIGHTS, VENTILATORS AND GENERAL SHEET METAL WORK,

37 St. Antoine Street,

MONTREAL.

PRODUCTS.

Metal Fireproof Windows, Fire Doors, Skylights, Ventilators, including the celebrated Burt Exhaust Systems for Planing Mills, Shoe Factories, Pulp and Paper Mills, Cotton and Woollen Mills, Jewelry Factories, Foundries, etc.; Asphalt, Cement and Mill Flooring, Sheet Metal Work and Roofing of all kinds.



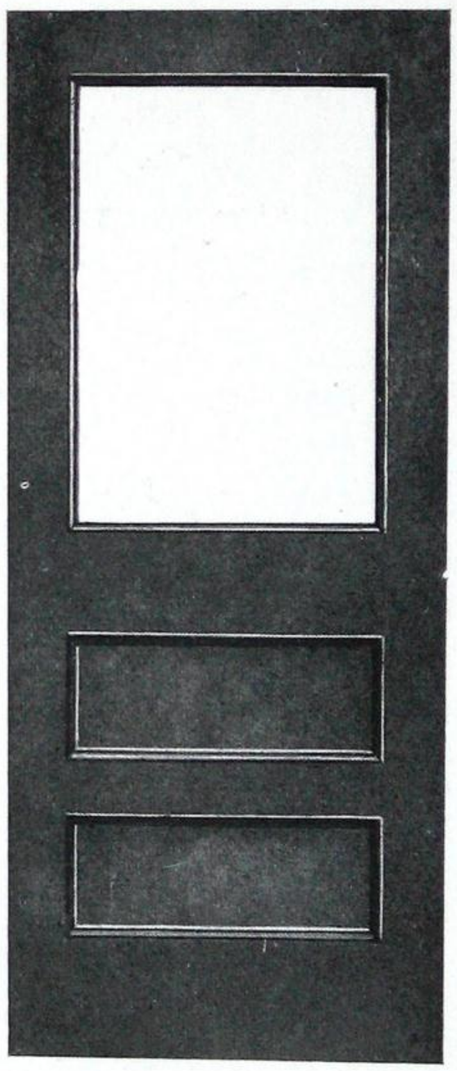
Sliding Window, for Store or Office Building.

FIREPROOF WINDOWS.

We manufacture Stationary, Pivoted, Counterbalanced, English Sliding Sash, or any style of window required. All windows are fitted with wired glass, and, where sash is movable, is arranged with fusible link attachment, which closes and locks window automatically at 160 deg. of heat.

FIRE DOORS.

These doors are made from start to finish in our own factory. The woodwork consists of three thicknesses of well-seasoned white pine of good, sound quality, securely fastened together by wrought iron clinch nails. The covering is Prime Terne Plate, IC thickness, size 14 x 20 inches, every sheet stamped. All work is done under the supervision of the Underwriters' Laboratories, Inc., and bears their label, thus guaranteeing user the lowest rates of insurance.



Kalameined Door.

KALAMEINED DOORS.

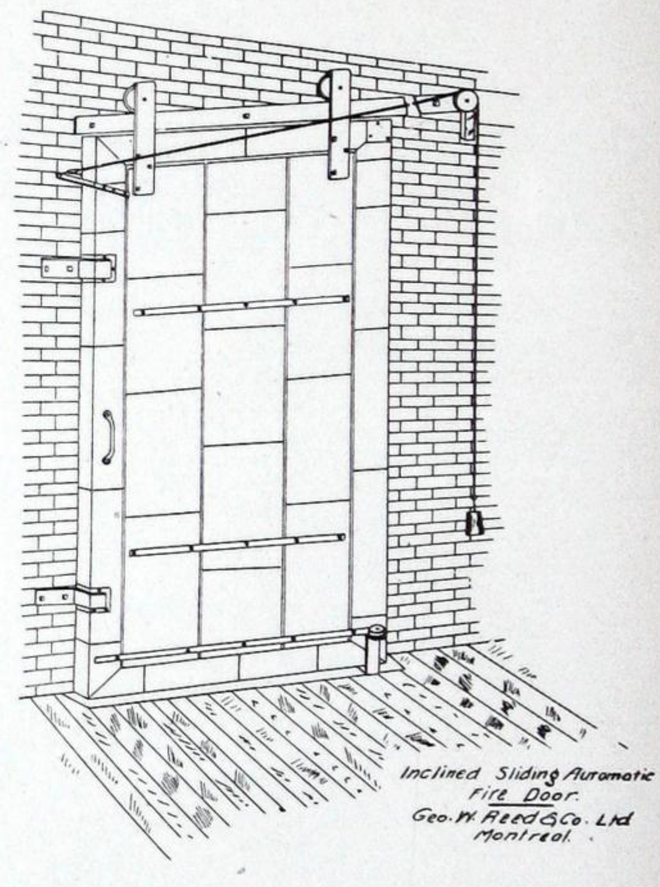
We also manufacture Kalameined Doors in large variety; any style of moulding may be obtained. While meeting all the requirements of the Underwriters, they are architectually attractive, and may be grained to match any wood.

FITTINGS.

Our Fire Door Fittings are made in our own factory and are of the most substantial nature.

AUTOMATIC CLOSING DEVICE.

Sliding and Hinged Fire Doors are counterbalanced by means of weights attached to door with cord and fusible link. The link fuses at 160 deg., which releases the weight, causing door to close by force of gravity.



SERVICES AND ESTIMATES.

We are prepared to quote on Doors and Windows erected in building or will furnish same complete ready for erection.



All our Fire Doors bear this Label.

EXHAUST SYSTEMS.

We design and install complete Exhaust Systems for Planing Mills, Shoe Factories, Pulp and Paper Mills, Cotton and Woollen Mills, Jewelry Factories, Foundries and Brass Finishing Shops, and factories of all kinds.

OTHER ADVERTISEMENT.

See Roofing, Skylights, Ventilators, etc., on page 76.

THE GOLDIE & McCULLOCH CO., LIMITED

GALT, ONTARIO, CANADA.

WESTERN BRANCH:
248 McDermott Ave.,
WINNIPEG, MAN.

TORONTO OFFICE:
1101-2 Traders Bank Building.

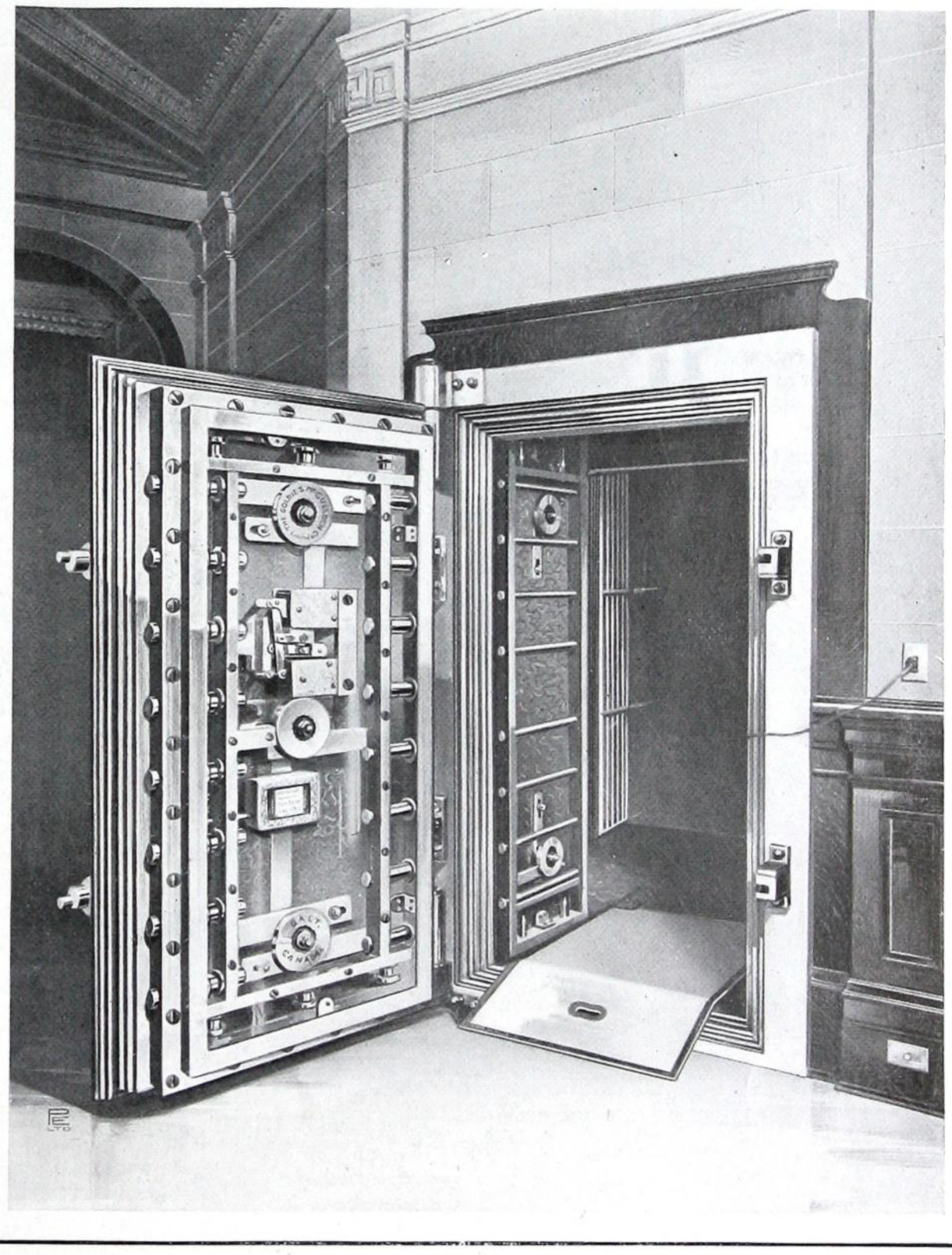
QUEBEC AGENTS:
Ross & GREIG, 412 St. James St.
MONTREAL, QUE.

B.C. AGENTS: ROBT. HAMILTON & CO., VANCOUVER, B.C.

PRODUCTS. SAFES, VAULTS, VAULT DOORS, DEPOSIT BOXES, PRISON CELLS, ETC.

ILLUSTRATION. The accompanying illustration shows the vault of the DOMINION BANK at Vancouver, B.C.

This is one of a large number of vaults of similar design recently installed by us.



SPECIFICATIONS. We are always glad to supply specifications, plans and full information to architects or others who contemplate the installation of vault work of any kind.

CONSTRUCTION. Our Bankers' Heavy and Extra Heavy Vault Doors are made of the best quality of five-ply welded chrome steel and iron. The hinges are of the heavy scroll crane design and work on ball bearings. All spindles have enlarged centres, to prevent driving in or drawing out, and, along with bolt work, are built into the doors.

These doors all have serrated tongues and grooved rubber door jambs and are made any desired thickness to suit purchaser.

PROTECTION Is the chief consideration when installing a vault, and during the 35 years that we have been building safes and vaults, it has been our constant effort to devise and manufacture for banking and monetary institutions safes and vaults that are as nearly impregnable as it is possible to make them, and we present with confidence the product of our manufacture, which has been proven to be at least the equal of any made. We want you to have our Catalogue. It is yours for the asking.

J. & J. TAYLOR, LIMITED

TORONTO SAFE WORKS,

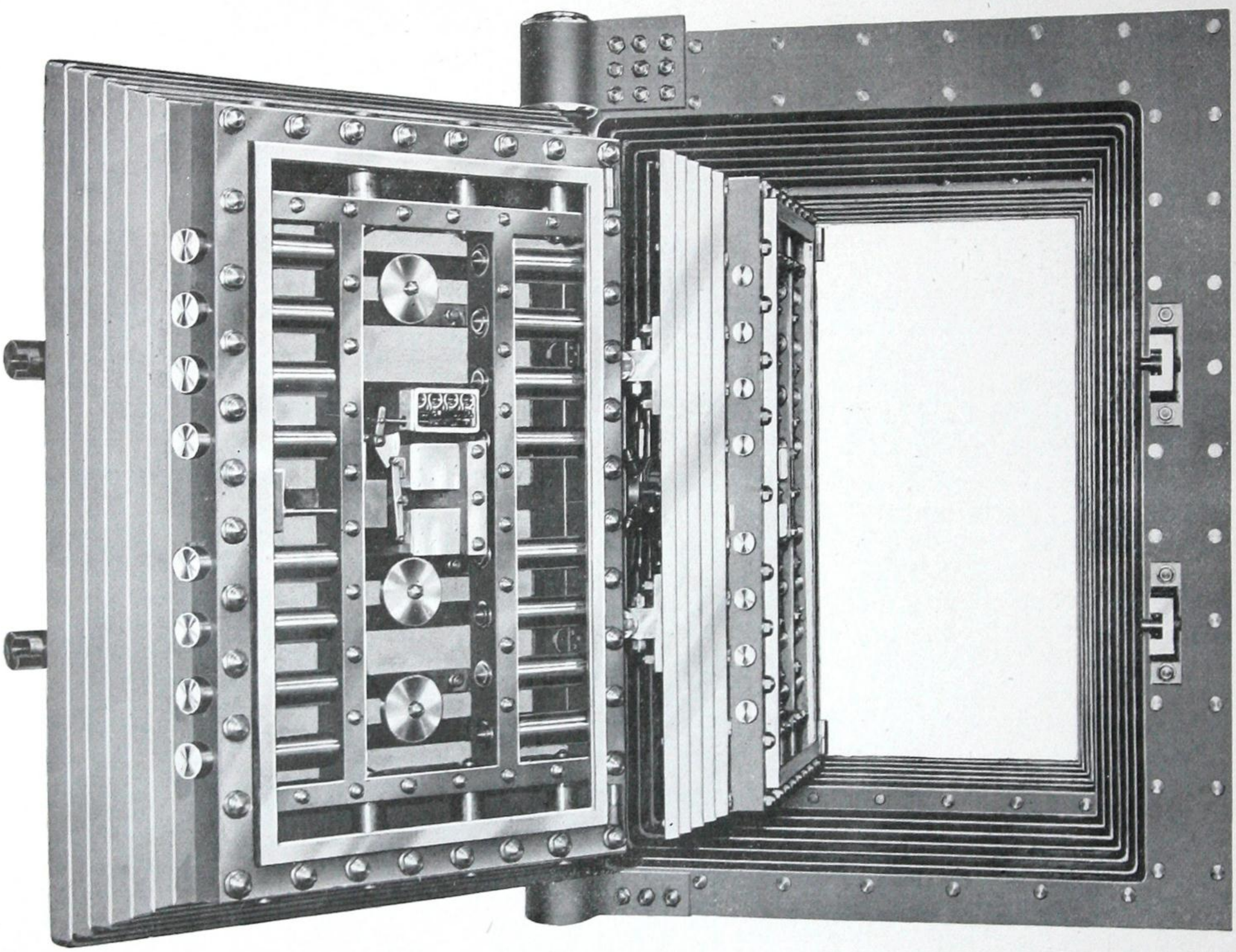
TORONTO, ONTARIO.

(ESTABLISHED 1855.)

AGENCIES:
MONTREAL. WINNIPEG.
VANCOUVER.

SAFES. VAULT DOORS. VAULT LININGS. DEPOSIT BOXES.

PRODUCTS. We have specialized for 59 years in VAULT DOORS, VAULT LININGS, SAFES AND DEPOSIT BOXES, and also manufacture STEEL CUPBOARDS, SHUTTERS, PRISON GATES, GRILLES, ETC.



REFERENCES. Two of the above Vault Doors were built by us for the Bank of Montreal and the Royal Trust Co., Winnipeg, being the heaviest vault entrances now on the American Continent (weight, 52 tons each). This is an example of our competence to supply the best.

Over 85 per cent. of all of the Head Offices of Chartered Banks and Trust Companies in Canada are equipped with our Safes or Vault Work. Our goods can be found also in many foreign countries—China, India, South Africa, South America, Mexico, Australia, New Zealand, West Indies, Bermuda, etc., etc.

FIREPROOF VAULT DOORS. Full information and sizes of Standard Fireproof Vault Doors will be found on pages 95 to 106 in our Catalogue. This will be gladly sent on request.

CO-OPERATION. We are glad to be of assistance to those desiring information or requiring specifications on this class of work.

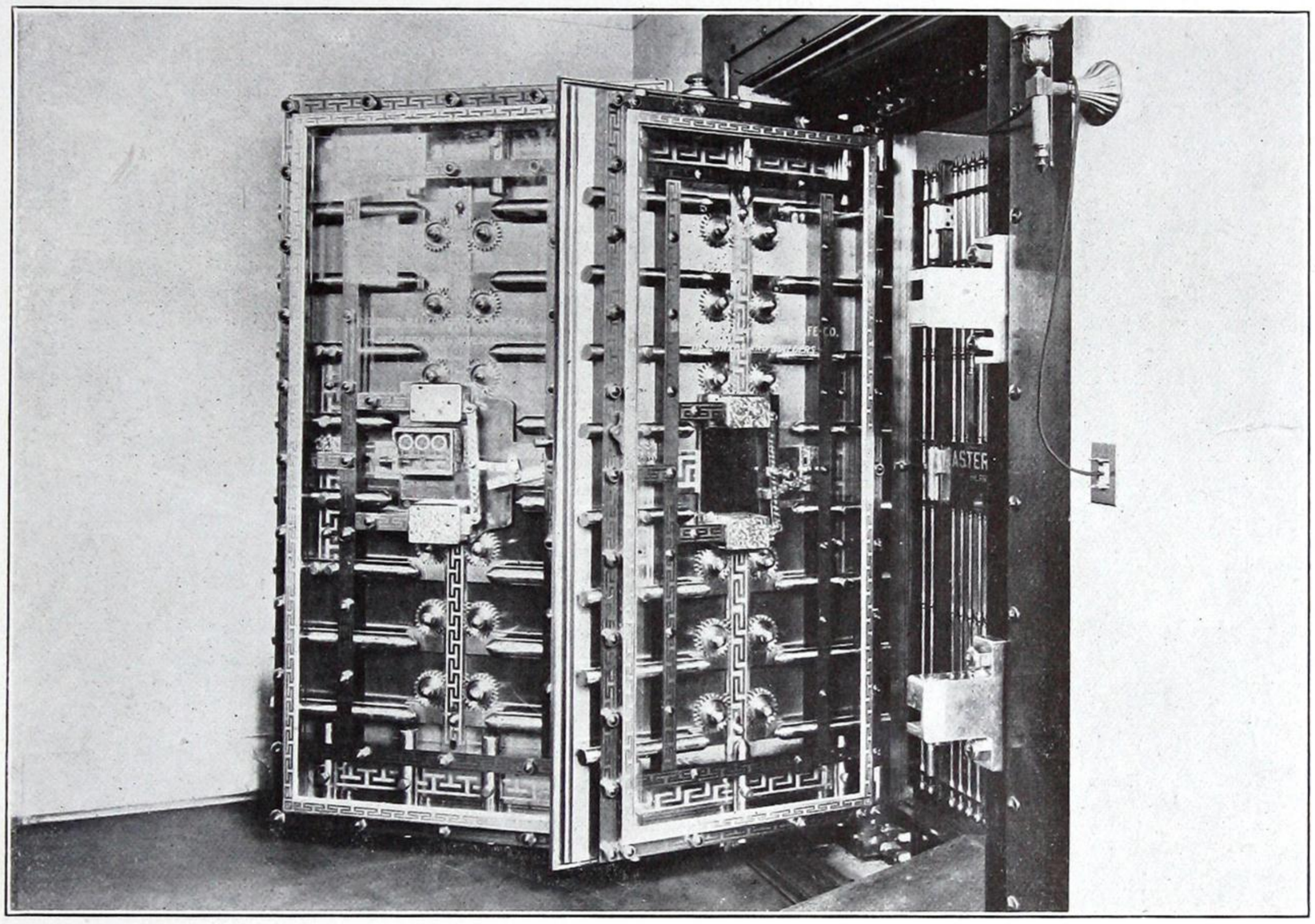
THE DOMINION SAFE & VAULT CO., LIMITED

FARNHAM, P.Q.

SELLING AGENTS,
THE CANADIAN FAIRBANKS-MORSE CO., LIMITED.

MONTREAL, TORONTO, ST. JOHN, N.B., WINNIPEG, CALGARY, SASKATOON,
OTTAWA, VANCOUVER, VICTORIA.

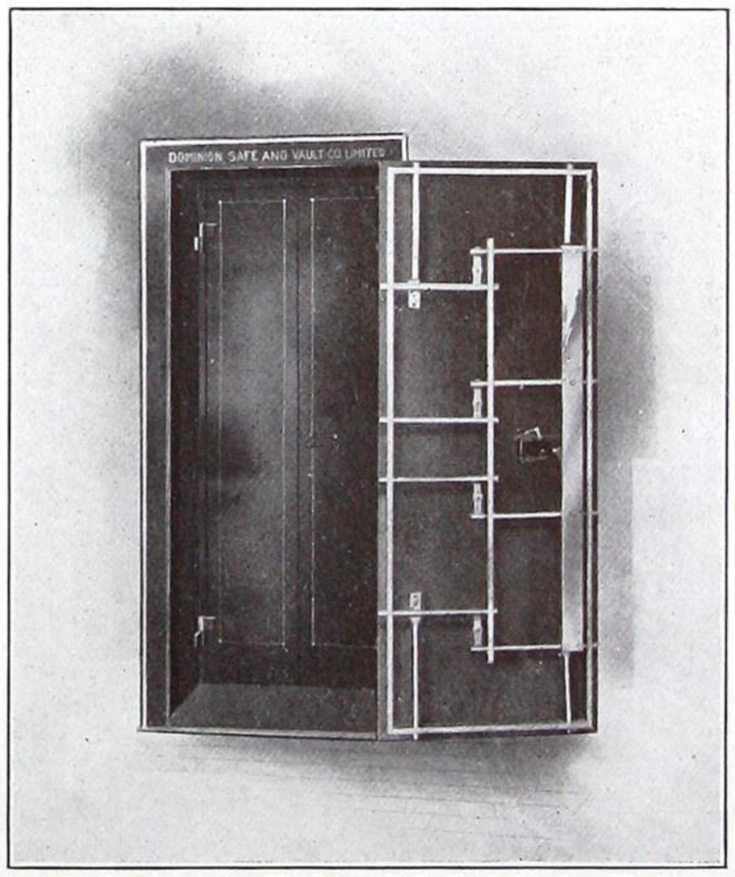
PRODUCTS. Manufacturers of SAFES, SAFETY DEPOSIT AND BANK VAULTS, ETC.



This is an illustration of the Vault Doors installed by us for The Canadian Bank of Commerce, St. Catherine Street, Montreal. The entire work is up to date and modern in every way.

FIREPROOF VAULT DOORS.

Cat. No. Door.	Wall Opening Required.		Clear Opening Through Vestibule.	
	Height.	Width.	Height.	Width.
19	79	32	76	27½
20	81½	34½	78	30
21	81½	34½	78	30
22	81½	34½	78	30



Vault Door No. 22.

We build all kinds of Vault Fronts to order and will be glad to furnish information.

WINNIPEG SAFE WORKS, LIMITED

50 Princess Street,

WINNIPEG, MAN.

PRODUCTS. Dealers in FIRE-PROOF SAFES, BURGLAR-PROOF SAFES, FIRE AND BURGLAR PROOF SAFES, RAILROAD SAFES, JEWELLERS' SAFES, SKELETON SAFES, WALL SAFES, HOUSE SAFES, FIRE-PROOF VAULT DOORS, FIRE-PROOF VAULTS, BURGLAR-PROOF STEEL VAULTS, SAFE DEPOSIT BOXES, EXPRESS MESSENGER BOXES, TIME LOCKS, COMBINATION LOCKS, KEY LOCKS, CUT-OFF SPINDLES, AUTOMATIC BOLT OPERATING DEVICES, ANTI-DYNAMITE DEVICES, JAIL CELLS, SPECIAL PATENTED ATTACHMENTS.

Sole Canadian Agents for the world-famous DIEBOLD SAFES AND VAULTS.

SIZES.

Fire-proof Tempered Steel Vault Doors.

STANDARD SIZES.

No.		Size of Vault Door. Wide.	High.	Wall Opening Required. High.	Wide.	Thickness of Wall. Deep.
1	Sizes:	2 ft. 4½ in.	6 ft. 4 in.	6 ft. 6 in.	32 in.	20 in.
2		2 ft. 6 in.	6 ft. 4 in.	6 ft. 6 in.	34½ in.	20 in.
3		2 ft. 6 in.	6 ft. 6 in.	6 ft. 8 in.	34½ in.	20 in.
4		2 ft. 8½ in.	6 ft. 4 in.	6 ft. 6 in.	37 in.	20 in.
5		3 ft. 4 in.	6 ft. 4 in.	6 ft. 6 in.	41 in.	20 in.

We make Vault Doors to fit any opening. Can be made to take any thickness of wall.

SAFE-CABINET. We draw the architect's attention to the Safe-Cabinet, made in Marietta, Ohio, as a substitute for Vaults. Fire-proof as average vault, portable, very light, interior adjustable to any requirements, economical. The Safe-Cabinet bears the Underwriters' Label, and is the only fire-proof container that does.

Is a revenue producer.

CATALOGUE. Catalogue and full information furnished upon request.

THE SAFE-CABINET COMPANY, INC.

THE SAFE-CABINET AND OTHER STEEL OFFICE FURNITURE.

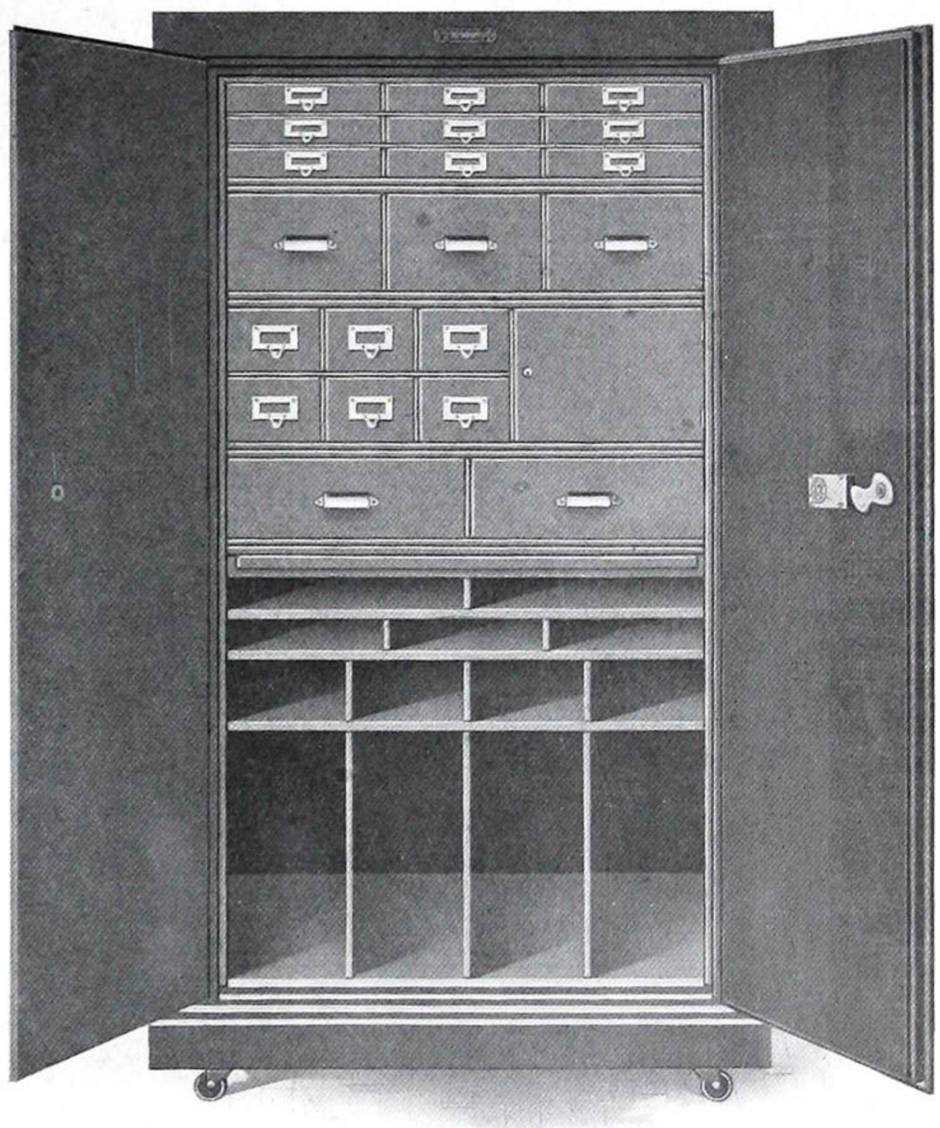
FACTORY AND MAIN OFFICE:
MARIETTA, OHIO.

CANADIAN AGENCIES:
WINNIPEG SAFE WORKS, LTD., WINNIPEG. MOECKEL & SCHURMAN, MONTREAL AND HALIFAX.

PRODUCTS. We are sole manufacturers of THE SAFE-CABINET, a high-grade, fire-resisting STEEL CABINET for general office use; THE S-C BOOK-UNIT, THE S-C LINE of STEEL OFFICE FURNITURE.

DESCRIPTION. THE SAFE-CABINET has double walls of finest sheet steel, with air-chambers between. Interlined throughout with fireproof material. No heat conducting connections between the walls.

Doors overlap, closing with tongue and groove union; independent bar fastenings; improved combination lock. Interior equipment adjustable to all filing requirements.



CONSTRUCTION. THE SAFE-CABINET is constructed in such a manner that it is practically one-piece throughout. The outer walls are welded together and the inner walls locked and interlocked within these without the use of bolts, screws or rivets.

ADVANTAGES. THE SAFE-CABINET (1913 Model) furnishes the largest measure of protection for its contents with the least bulk and weight. Under actual fire conditions it has been proven to protect its contents intact for forty-nine minutes, thirty of which were at an average temperature in excess of seventeen hundred degrees Fahrenheit.

THE SAFE-CABINET can be moved like any other piece of furniture and is free from the objectionable features of old style safes. It is admirably adapted for modern office buildings, as its interior can be adjusted to suit the requirements of each and every tenant. It is handsome and inexpensive.

SIZES. THE SAFE-CABINET is made in a number of standard sizes, adequately providing for all ordinary requirements.

PATENTS. THE SAFE-CABINET is covered by patents protecting the basic principles of its construction. The name is registered.

UNDERWRITERS' APPROVAL. THE SAFE-CABINET (1913 Model) is approved by the Underwriters' Laboratories.

SPECIFICATION. In order to avoid substitution, specify as follows:—

The fire-resisting filing cabinets used in this building shall be those known as "THE SAFE-CABINET," manufactured by THE SAFE-CABINET COMPANY, INC., of Marietta, Ohio.

CATALOGUES. We will send on request the following catalogues: No. 1, THE SAFE-CABINET; No. 2, THE S-C FILING-UNITS; No. 3, THE S-C BOOK-UNIT, the new sectional bookcase without fixed partitions.

USERS. The United States Government at home and abroad, express companies, railways, office buildings, manufacturers, merchants and professional men, have bought THE SAFE-CABINET in large quantities.

AGENCIES. If you do not find us listed in local telephone directory, write to nearest Canadian agency.

THE STEEL EQUIPMENT CO., LIMITED

OFFICE:
UNION BANK BUILDING,
OTTAWA, ONT.

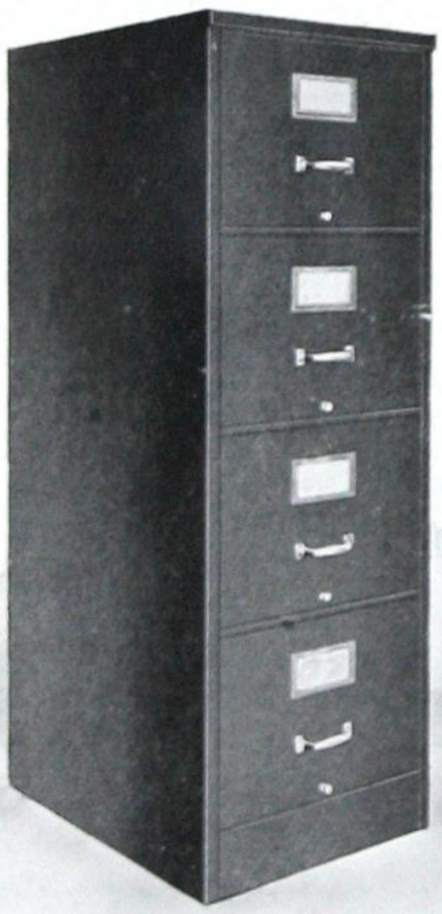
FACTORY: PEMBROKE, ONT. AGENTS THROUGHOUT CANADA.

PRODUCTS. STEEL OFFICE EQUIPMENT of every description: FILING CABINETS, STEEL FURNITURE, STEEL SHELVING, VAULT FITTINGS, etc.

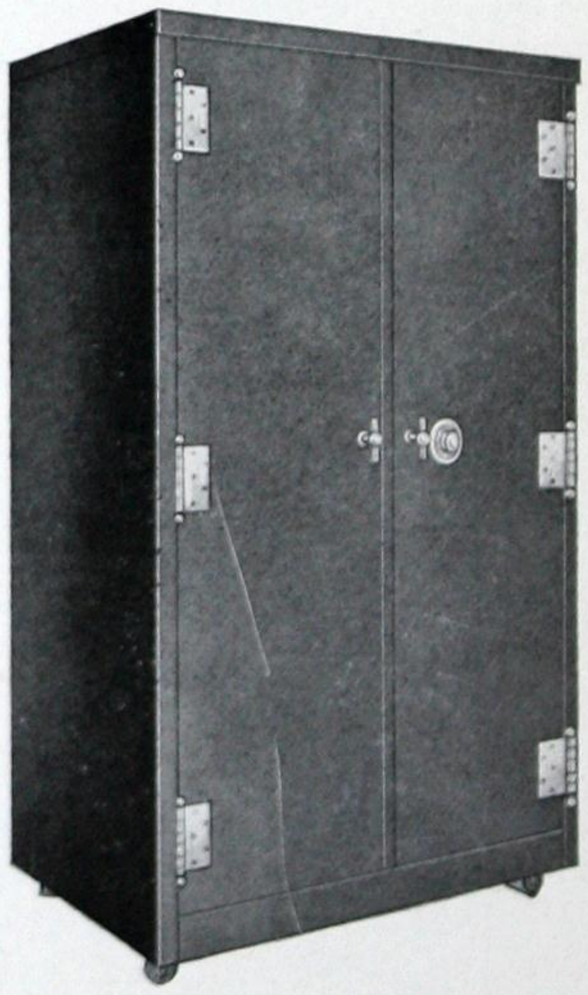
CONSTRUCTION. Frame work is built up of steel plates strongly held together by heavy steel rods reinforced at all corners with angle braces. Drawers are shaped up in one piece and electrically welded to the fronts.



STEEL DESK.



STEEL FILING CABINET.



HEAT-PROOF SAFE.

ADVANTAGES. Modern Fireproof Building Construction demands Office Equipment which prevents interior fires.

Steel Equipment Cabinets cannot burn.

Steel Equipment Cases protect the records which fire insurance cannot restore.

INFORMATION. Send for "Satisfaction in Steel Equipment," a folder which illustrates our stock cases.

Plans and estimates submitted for special work.

UNION FIBRE COMPANY

MANUFACTURERS OF
SOUND DEADENING, SHEATHING AND INSULATING MATERIALS.

RAILROAD SALES OFFICE:
1613 GREAT NORTHERN BLDG.,
CHICAGO, ILLINOIS.

GENERAL OFFICE:
WINONA, MINNESOTA.

FACTORIES:
WINONA, MINN.
YORKTOWN. IND.

CANADIAN AGENCIES:

PHILIP CAREY COMPANY,
TORONTO, ONT.
PHILIP CAREY COMPANY,
MONTREAL, QUE.

DOUGLAS-MILLIGAN, LTD.,
MONTREAL, QUE.
CANADIAN ASPHALT CO., LTD.,
WINNIPEG, MAN.

REFRIGERATION & ENG., LTD.,
WINNIPEG, MAN.
WM. N. O'NEIL CO., LTD.,
VANCOUVER, B.C.

PRODUCTS. Manufacturers of LINOFELT, LITH, UNION CORK BOARD, FIBROFELT and UNION LITH BRINE PIPE COVERING.

FACILITIES. All of these products are manufactured in the largest exclusively insulation factories in the world.

LINOFELT. Linofelt is made of pure flax fibres (unbleached linen thread), stitched between two sheets of extra strong Kraft paper, waterproof paper or asbestos paper, according to specifications.

Linofelt is furnished in two general styles:—

The first for sheathing houses, like building paper, and for laying under floors or in partitions to deaden the passage of sound. This style is known as Retted and Natural Linofelt, and is generally furnished in 36-inch rolls, 66 2-3 feet long. We now manufacture these grades in 48-inch, 32-inch and 16-inch widths, to fit exactly over 16-inch centre studdings, as shown in Fig. 1.

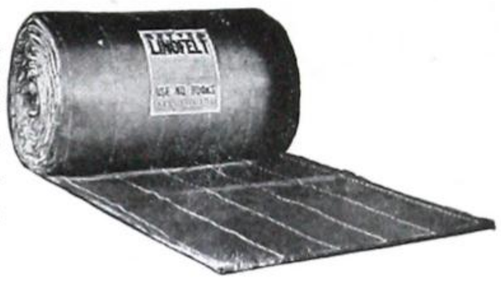


Fig. 2.

The other style, called Frost-Proof Linofelt, to distinguish it from sheathing Linofelt, is furnished in sizes to fit between studdings, with a 2-inch paper lap on each side, to be fastened to the studdings by nailing a lath over it, as shown in Fig. 3. It is cheaper, more efficient, more easily applied than back-plaster. By actual test, Linofelt, ¼-inch thick, is better for excluding cold, heat and sound than 38 sheets of building paper. It is also furnished in ½-inch thicknesses, when specified, its efficiency increasing proportionately.

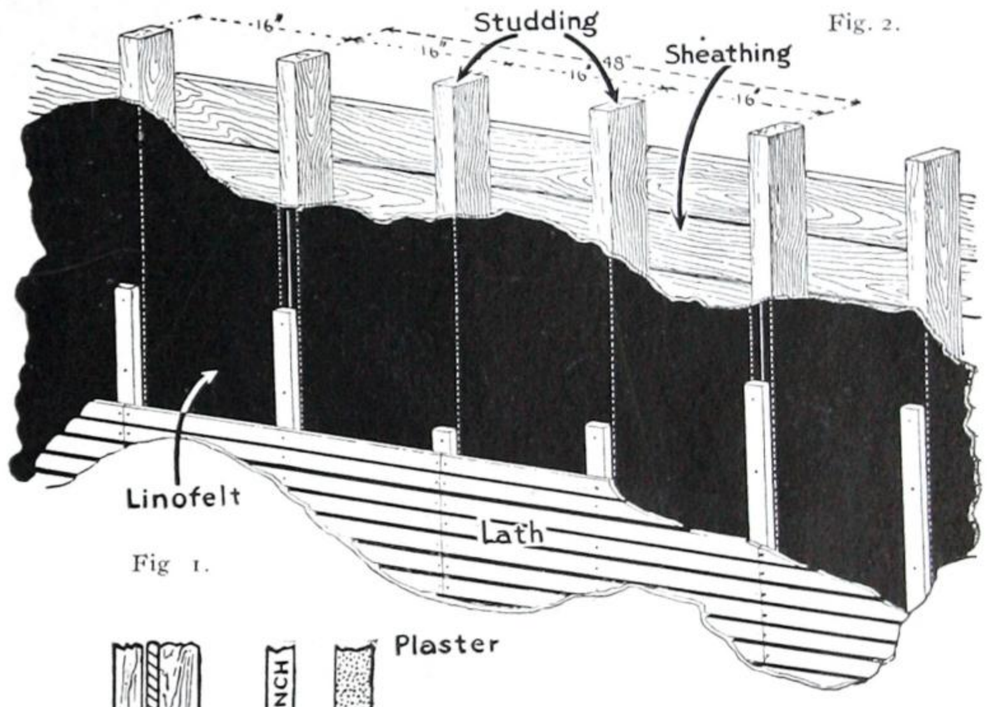


Fig 1.

LITH BOARD. Lith Board is a combination of flax fibre, rock fibre wool and a waterproofing compound containing within a unit volume the greatest possible number of extremely small air spaces. The chemists of the Company have recently, by an improvement in the process of treating the fibre and with a new waterproofing, augmented the strength and insulating qualities of Lith, until it is now without a superior for insulation work. It has absolutely no capillary attraction; sanitary; can be sawed like lumber, and is used extensively by satisfied customers for cold storage insulation throughout the world. Lith is furnished in boards containing six square feet and from ½ inch to 3 inches in thickness.

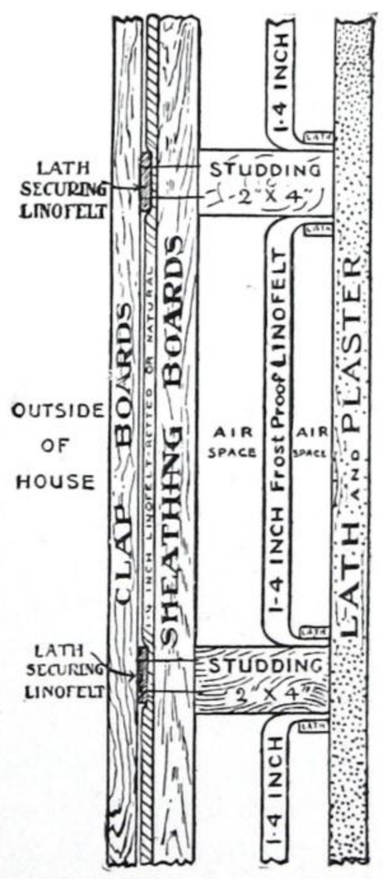


Fig. 3.



Fig. 4.

UNION CORK BOARD. Union Cork Board contains two ingredients: pure natural cork granules and a specially prepared asphaltum, making it an ideal cold storage floor insulation. Union Cork Board is furnished in boards containing four square feet and from ½ inch to 3 inches in thickness.

FIBROFELT. Fibrofelt is a board form of insulation, regularly put up in sheets 3 feet by 8 feet, but furnished also in sizes cut for studdings, when specified.

UNION LITH BRINE PIPE COVERING. Union Lith Brine Pipe Covering is being used extensively where a perfect regular, heavy or ice-water covering is demanded.

SAMPLES, PRICES AND CATALOGUES. We will cheerfully furnish samples, prices and catalogues showing our various materials and methods recommended by us for application. Inquiries referred to any of our Canadian agencies will receive prompt and careful attention. Correspondence solicited.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

COLD-STORAGE INSULATION.

PRODUCTS. J-M PURE CORK SHEETS, J-M IMPREGNATED CORKBOARD.

Also, J-M GRANULATED CORK; J-M HAIR FELT; J-M MINERAL WOOL; J-M WEATHER-TITE PAPER; KEYSTONE HAIR INSULATOR.

J-M PURE CORK SHEETS.

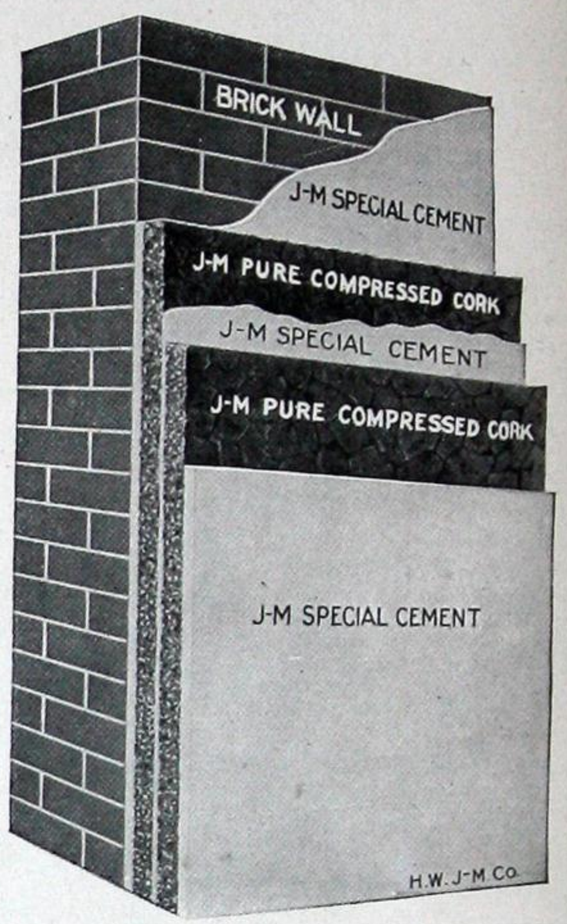
By our process of manufacturing J-M Pure Cork Sheets, the properties of the cork are retained in the finished product.

The pure cork is ground, slightly compressed in moulds, and heated to a temperature sufficient to liberate the natural gum. When cooling, this gum binds the particles together, forming a reconstructed sheet of pure cork.

Advantages.—J-M Pure Cork Sheets are the best commercial non-conductors of heat known. They are unaffected by moisture, and retard the progress of fire.

J-M IMPREGNATED CORKBOARD.

Next in insulating efficiency is J-M Impregnated Corkboard. This is made of granulated cork moulded under pressure with an asphaltic binder. It possesses much of the insulating properties peculiar to cork, has good structural strength, and, being absolutely waterproof, is well suited to locations subjected to excessive moisture, such as floors of ice storage rooms, brewery cellars, under brine and freezing tanks, etc.



METHOD OF APPLICATION OF J-M SHEET CORK INSULATION TO BRICK WALL.

SIZES. J-M Pure Cork Sheets and J-M Impregnated Corkboard are made 12 inches by 36 inches, and 1 inch, 1½ inches, 2 inches, and 3 inches in thickness.

SERVICES. We are prepared to furnish and install insulation for all classes of cold-storage work.

Our refrigerating engineers and cold-storage experts are always glad to offer free to architects their suggestions for the most efficient method of insulating any type of cold-storage building.



J-M VITRIBESTOS LININGS.

Smoke Stack Lining.—Made of pure Asbestos (vitrified), this material is perfectly indestructible, and protects smoke stacks from the destructive action of sulphurous or other gases of combustion. Forms a durable, thin, light lining, firmly attached to the stack, only 2 in. thick, which keeps the outside of the steel stack cool, while the inside, having no exposed iron parts, presents a solid surface, impervious to moisture and absolutely unaffected by sulphurous or other gases of combustion. Two inches of J-M Vitribestos offers more protection than 5 in. of fire-brick; this means 15% more flue space and a lighter stack than would be possible with fire-brick.

For Breeching.—Pipes and conduits conveying hot air, either for blast purposes, as in bustle pipes, or in the connections of boiler to smoke-stack, known as "breechings," to prevent the injurious action of gases, must be lined. J-M Vitribestos Lining is the ideal material. It is held in place by bolts, for which holes are punched into the breeching 18 in. square, between centres. Almost indispensable is this J-M Vitribestos Lining for the top arches of such conduits. The large slabs (3 ft. x 6 ft.) have few joints, and are easily tightened by J-M Vitribestos Cement. They are held in place by ¼ in. or ⅜ in. bolts, with washers and nuts. In ordinary FLAT BREECHINGS the top is punched with ⅜ in. punch holes, laid out in squares with 18 in. distances, centre to centre, the sides with one or two rows, 18 in. apart in the row, 6 in. from top and from bottom; the bottom requires only a few punch holes, 36 in. x 36 in., between centres, arranged in squares. In Arched Breechings the entire surface is panelled into squares, 18 in. x 18 in. by ⅜ in. punch holes at the corners of the squares.

THE STANDARD PAINT CO. OF CANADA, LIMITED

52 Victoria Square,
MONTREAL.

Sales Offices and Warehouses:
Winnipeg. Vancouver. Calgary.
Factory: Highlands, Lachine Canal, Montreal.

PRODUCTS. We manufacture INSULATING PAPERS, DAMP-PROOFING PAINTS, RU-BER-OID ROOFING, Etc. (For full list of our products, see pages 70-73).

"GIANT" PAPER. Both *saturated and coated* with P. & B. Compound. The highest grade of insulating paper made. Absolutely waterproof, air-tight, acid and alkali resisting. Used for sheathing dwellings and insulating cold storage warehouses, packing houses, refrigerator cars, etc. Made in the following weights:

1 ply, weighing 45 lbs. per 1,000 square feet.
2 ply, weighing 60 lbs. per 1,000 square feet.
3 ply, weighing 80 lbs. per 1,000 square feet.
4 ply, weighing 100 lbs. per 1,000 square feet.

"P. & B." PAPER. This paper is *coated only*, and is used for certain kinds of refrigerator work where the thickness of the paper is of principal importance. Made in the following weights:

1 ply, weighing 35 lbs. per 1,000 square feet.
2 ply, weighing 45 lbs. per 1,000 square feet.
3 ply, weighing 55 lbs. per 1,000 square feet.
4 ply, weighing 70 lbs. per 1,000 square feet.

"HERCULES" PAPER. This paper is *saturated only*, and is adapted for the same general purposes as "Giant," but recommended where a coated paper would prove objectionable, as, for example, in the manufacture of felt insulation, etc. Manufactured in the following weights:

1 ply, weighing 35 lbs. per 1,000 square feet.
2 ply, weighing 45 lbs. per 1,000 square feet.
3 ply, weighing 55 lbs. per 1,000 square feet.
4 ply, weighing 75 lbs. per 1,000 square feet.



Wisconsin Telephone Bldg., Milwaukee.
Insulated with P. & B. Paper.

"DURO" PAPER. Made in two styles, Saturated and Single-coated. Put up in rolls 36 in. wide, containing 400 square feet. Average shipping weight:

Saturated	35 lbs.
Single-coated	45 lbs.

A high-grade sulphate paper stock. Either saturated or coated with P. & B. Compound. It is of unusually high tensile strength. Also vermin-proof.

WRAPPING PAPER. "A" Grade, Single-coated. Clean, odourless, moisture-proof, no tar, no oil. Will prevent tarnishing of pianos, furniture, silverware and hardware in transportation. An absolute protection against dampness, salt air or fumes. About 4½ square yards to the pound. Put up in rolls 36 in. wide.

"DOMINION" IMPERVIOUS SHEATHING. Manufactured of highest grade pure sulphate wood pulp stock, the finished material being of an extremely attractive creamy white colour. Put up in rolls 36 in. wide, containing 400 square feet; also in rolls 72 in. wide, containing 800 square feet.

"DOMINION" DRY SULPHATE PAPER. Made of best quality sulphate wood pulp stock. Extremely high in tensile strength. Put up in rolls 36 in. wide, containing 400 square feet.

THE KINNEAR MANUFACTURING COMPANY

MANUFACTURERS OF

STEEL ROLLING DOORS, SHUTTERS AND PARTITIONS,

COLUMBUS, OHIO, U.S.A.

CANADIAN AGENCIES:
MUSSENS LIMITED. HEAD OFFICE: 318 ST. JAMES ST., MONTREAL.
BRANCH OFFICES: TORONTO, WINNIPEG, CALGARY, COBALT.
FOR BRITISH COLUMBIA: WM. N. O'NEIL CO., 550 SEYMOUR STREET, VANCOUVER.

PRODUCTS. STEEL ROLLING DOORS, SHUTTERS AND PARTITIONS.

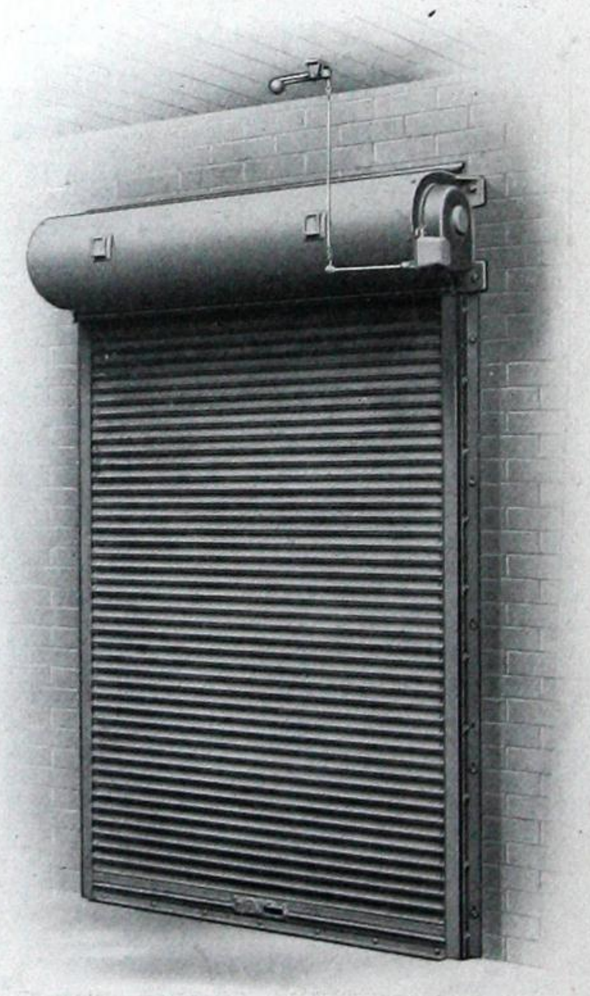
IMPROVED CONSTRUCTION. We are constantly making improvements. A department is devoted exclusively to developments and designing. The following are but a few of the many constructions we are prepared to furnish. We invite correspondence relative to special or unusual requirements.

FIRE PROTECTION. Our Steel Rolling Doors and Shutters are built entirely of steel. They are one of the best types of fire retardents for the protection of window exposures on alleys and light courts, for elevator shaft openings and in many similar situations for buildings of all classes. We are prepared to supply specially constructed doors sold under the trade-name of "Abacus." They are included in the approved list issued by the National Board of Fire Underwriters, and are inspected and labelled under the supervision of the Underwriters' Laboratories, Inc.

INSTALLATION. Any good mechanic can erect our material. Blue prints and instructions accompany every shipment, showing the application and the method of erection.



ABACUS NO. 2.

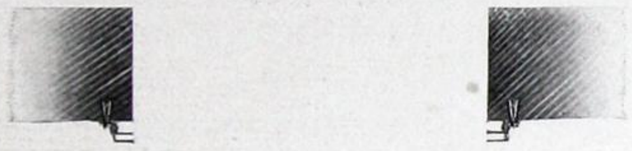


ABACUS NO. 1.

The National Board of Fire Underwriters has approved KINNEAR STEEL ROLLING SHUTTERS for openings in exterior walls, division walls and elevator and stairway shafts. As their specifications vary, it is necessary to know the class of opening for which shutters are desired.

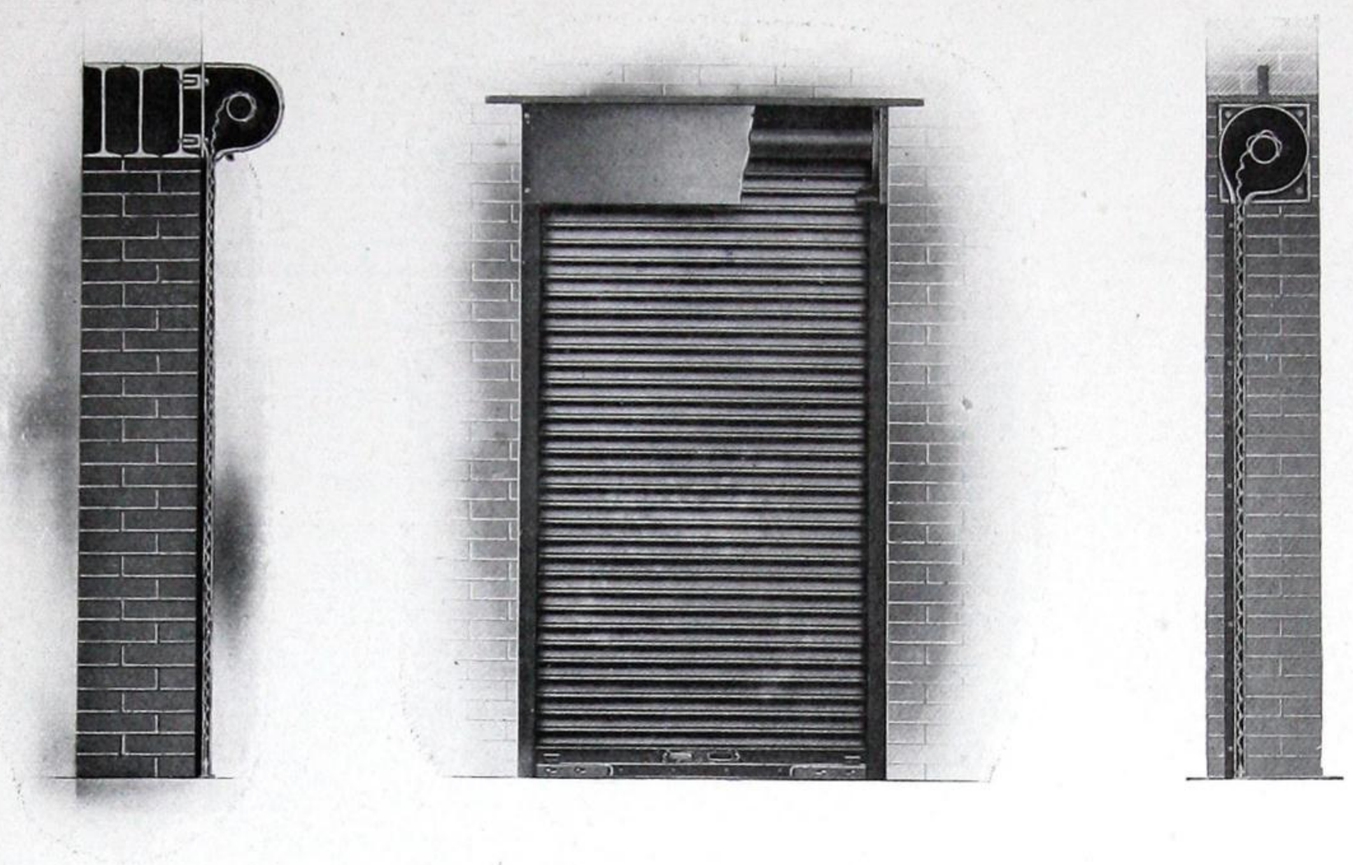
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CONSTRUCTION NO. F.M. 10.

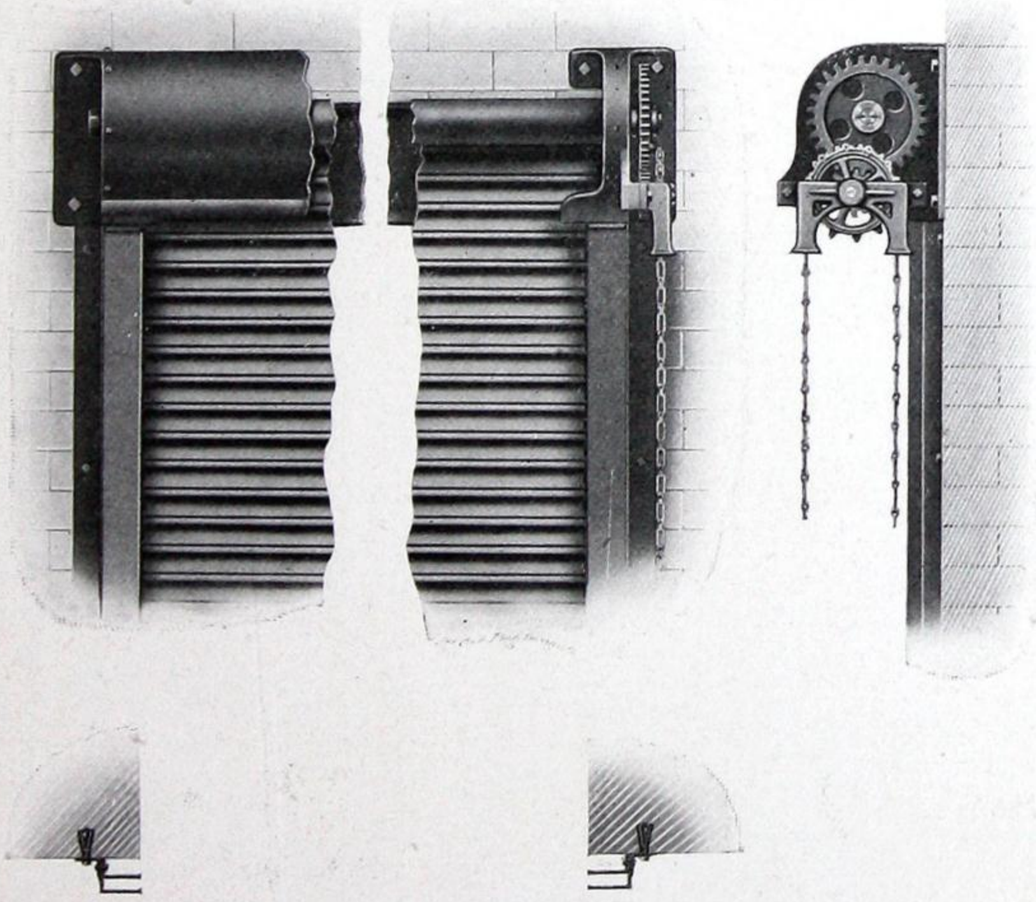
Doors overlap the opening at sides and top. Coil and grooves are placed on face of wall. Door is counterbalanced by springs and operated by means of handle in bottom bar.





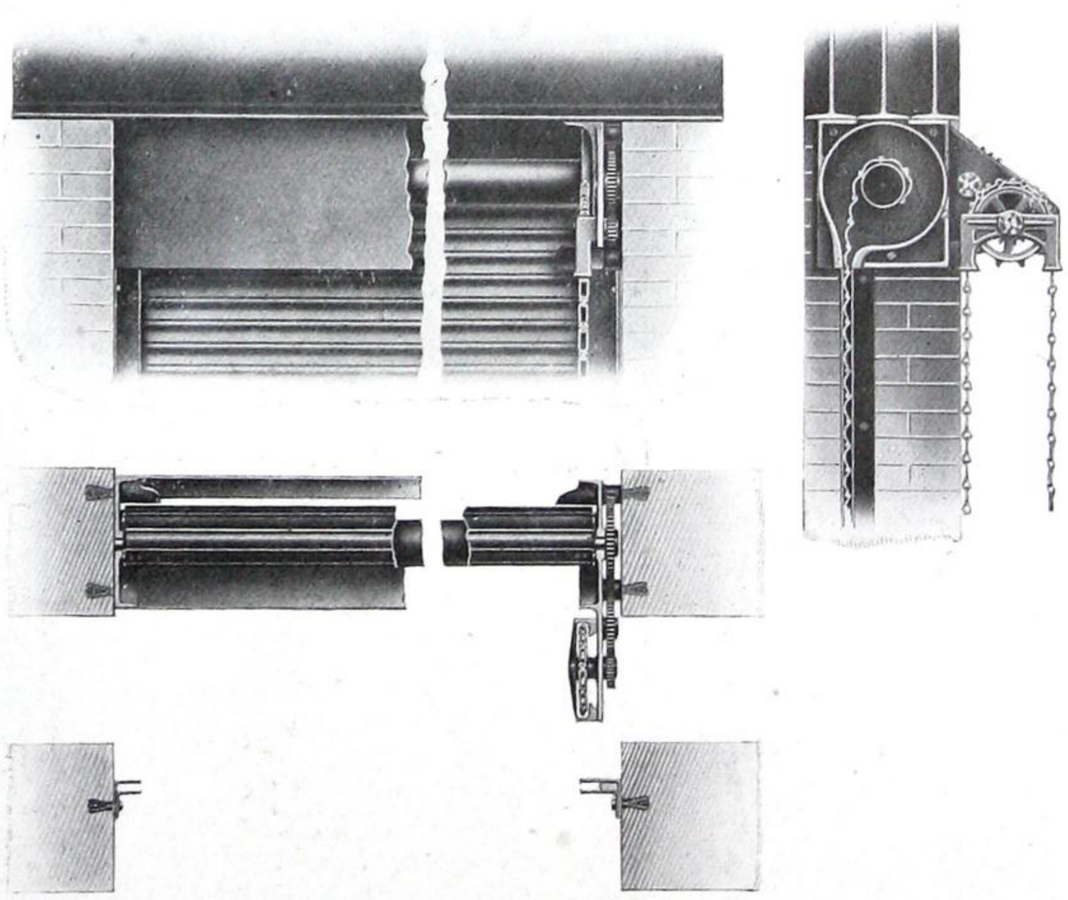
CONSTRUCTION NO. B.M. 10.

Grooves and coil are placed between jambs. The door is counterbalanced by springs and operated by means of handle placed in bottom bar. Coil is enclosed in a plain galvanized hood. For special requirements this can be ornamented if desired.



CONSTRUCTION NO. F.H. 20.

Grooves and coil are placed on face of wall. Door is counterbalanced by springs and operated by means of endless chain, sprocket and gear. When used as a fire-door it can, if required, be equipped with an automatic closing device. Special designs will be furnished on application.



CONSTRUCTION NO. B.H. 20.

Coil and grooves are placed between jambs. Door is counterbalanced by springs and operated by endless chain and gear. Coil is enclosed in plain galvanized hood. Modifications of this design can be furnished.

WINNIPEG CEILING & ROOFING CO., LIMITED

WINNIPEG, MAN.

PRODUCTS. WINDOWS.—We manufacture a complete line of FIREPROOF WINDOWS of the following types: All Stationary, Half Stationary and Half Fixed, Half Stationary and Half Sliding, and Double Sliding. We have been manufacturing Windows during the past nine years, and our Windows are all made according to Underwriters' requirements.

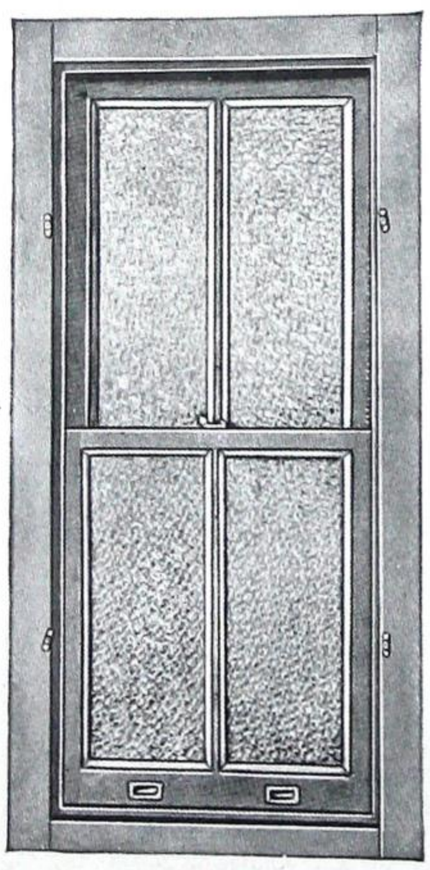
DOORS.—We also manufacture a complete line of FIREPROOF DOORS, including Standard Tin-Clad Doors, Drawn Metal and Corrugated Elevator Doors.

KALAMEINED DOORS. Our Drawn Door, Style No. 1, in Kalameined Iron, is sold in competition with oak doors. Being fireproof, the artistic appearance of the doors, mouldings, etc., the many different designs we can produce, make them in every way superior to the hardwood doors, and with the exception of copper doors they cost no more; they will not swell, shrink or warp, being impervious to the weather. The Copper or Kalameined Iron is drawn on the wood on a powerful drawbench, through steel dies, fastening it firmly to the woodwork without screws or nails, and we feel confident that architects, contractors and the public, when they have once seen our goods, will recognize the immense advantage to be derived in using these goods in preference to hardwood doors, mouldings, etc.

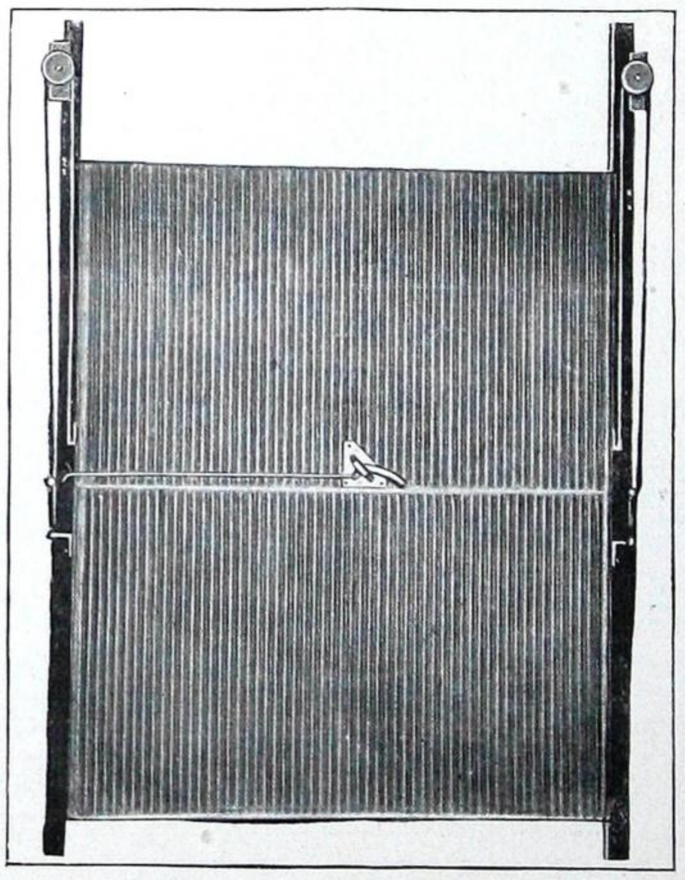
ELEVATOR DOORS (CORRUGATED). Doors hung in the manner shown, inside elevator shaft, are the most satisfactory that can be used for this purpose, and acceptable to the Fire Underwriters.

The manner of operating is simple. Being made in two parts, the lower half counterbalances the top, so that raising the lever handle unlocks the door and permits them to slide (the top half up and the bottom half downward) in the track on either side of opening.

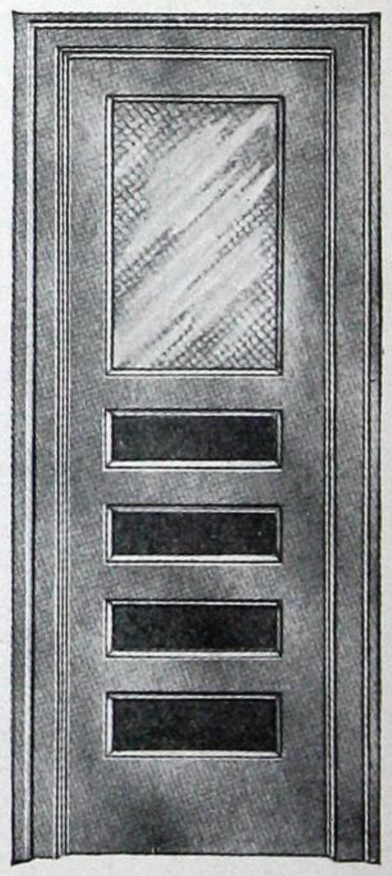
They do away with the necessity of guards at openings, and acting as a fire retardent, reduce insurance rates.



Sliding Sash.



Corrugated Elevator Fire Door.



Style No. 1.—Kalameined Iron and Copper Door.

SHEET METAL BUILDING MATERIALS.—We have the only factory in Western Canada manufacturing Metal Ceilings, Roofing and Siding, and will be pleased to send upon request our catalogue illustrating the various lines we make.

ESTIMATES. We will be pleased to furnish estimates on request, and, when shipping, we furnish full drawings and information, making installations easy.

THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. WINNIPEG.

ASSOCIATED WITH

THE METAL SHINGLE & SIDING CO., LIMITED,

PRESTON, MONTREAL, SASKATOON, CALGARY, REGINA, EDMONTON.

VAN KANNEL PANIC-PROOF REVOLVING DOORS.

We now have exclusive manufacturing rights for this door in Canada and are equipped to give the best delivery.

Van Kannel Revolving Doors speak volumes as a money-maker for all users.

At all times they protect health by excluding the varying elements and maintaining an even temperature.

NOTE.—Van Kannel Revolving Doors are the very best coal economizers ever devised.

Knowledge of above essentials will prompt all owners and lessees of buildings to insist on the Best—Van Kannel Revolving Doors.

Always closed, yet always open, Van Kannel Revolving Doors regulate traffic with greater capacity than any other door system.

Noiseless in action, Van Kannel Revolving Doors exclude all noise.

No other existing type of door equals Van Kannel Revolving Door in convenience, adaptability and safety.

Every set of Van Kannel Revolving Doors is thoroughly constructed in a most workmanlike manner, using only the best of material. They revolve easily, collapse easily, move to side of vestibule easily.

LAST. Van Kannel Revolving Doors are manufactured in many types and styles. They are the most useful, greatest saving device and greatest safety device of modern building construction.

UNDER-WRITERS' FIRE DOORS.

Ormsby Underwriters' Fire Doors are inspected and labelled under supervision of the Underwriters' Laboratories.

Doors are fitted with special Fire-Door Hardware.

Absolute fire protection for factory openings.

Doors made for every purpose.

Special catalogue issued.

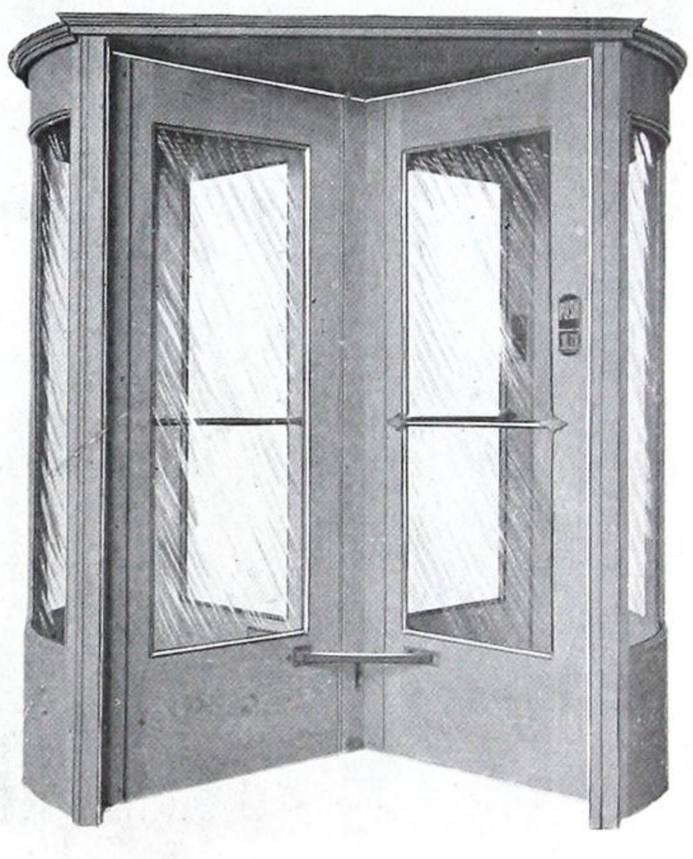
ORMSBY ROLLING STEEL DOORS, SHUTTERS OR CURTAINS.

We are now prepared to manufacture Rolling Steel Doors in Canada under improved Kinnear Patents.

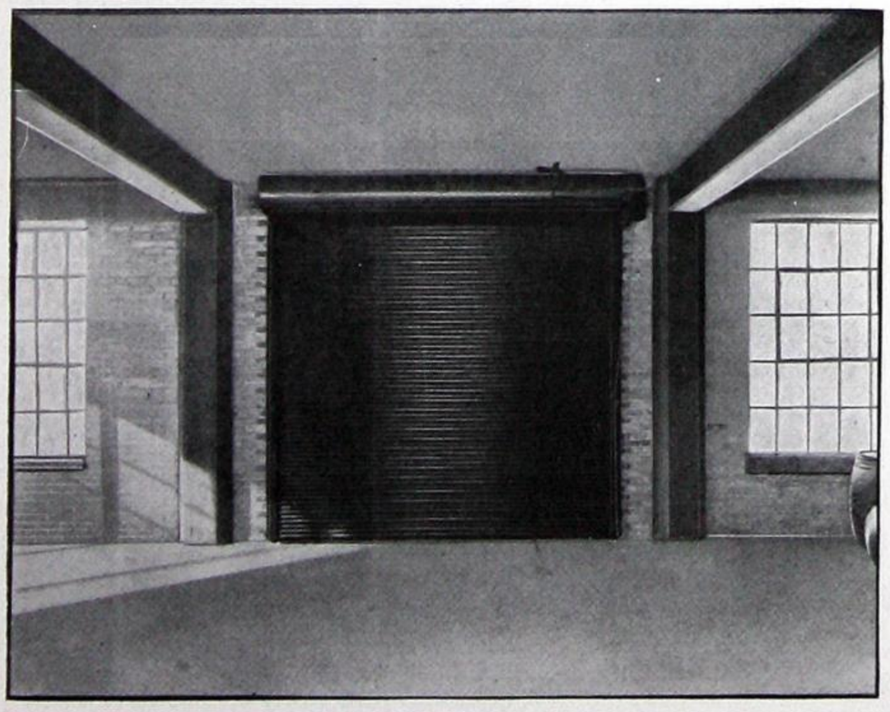
The construction is entirely of steel and is absolutely fireproof.

Shutters may be used in freight houses, warehouses, train sheds, shipping platforms, docks, car barns, dry kilns, in exterior window openings as an added protection, or in any opening requiring protection against fire.

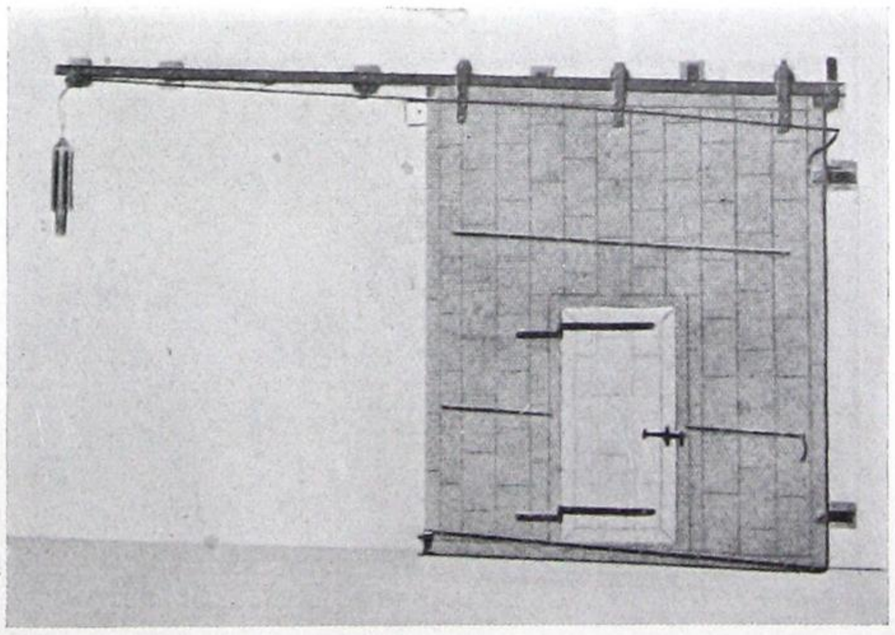
The Shutter is closed automatically at 160 deg. by the release of a fusible link. Fire cannot travel through the closed shutter.



REVOLVING DOOR.



ROLLING STEEL DOOR.



FIRE DOOR.

VARIETY MANUFACTURING COMPANY

MANUFACTURERS OF ALL KINDS OF FIREPROOF DOORS,

SACRAMENTO AND CARROLL AVENUES,
CHICAGO, ILL.

CALGARY, ALBERTA:
CANADIAN EQUIPMENT AND SUPPLY CO.,
514 ELEVENTH AVENUE WEST.

MONTREAL, QUE.:
JAMES WALKER HARDWARE CO.,
252 ST. JAMES STREET.

AGENTS, CANADA:

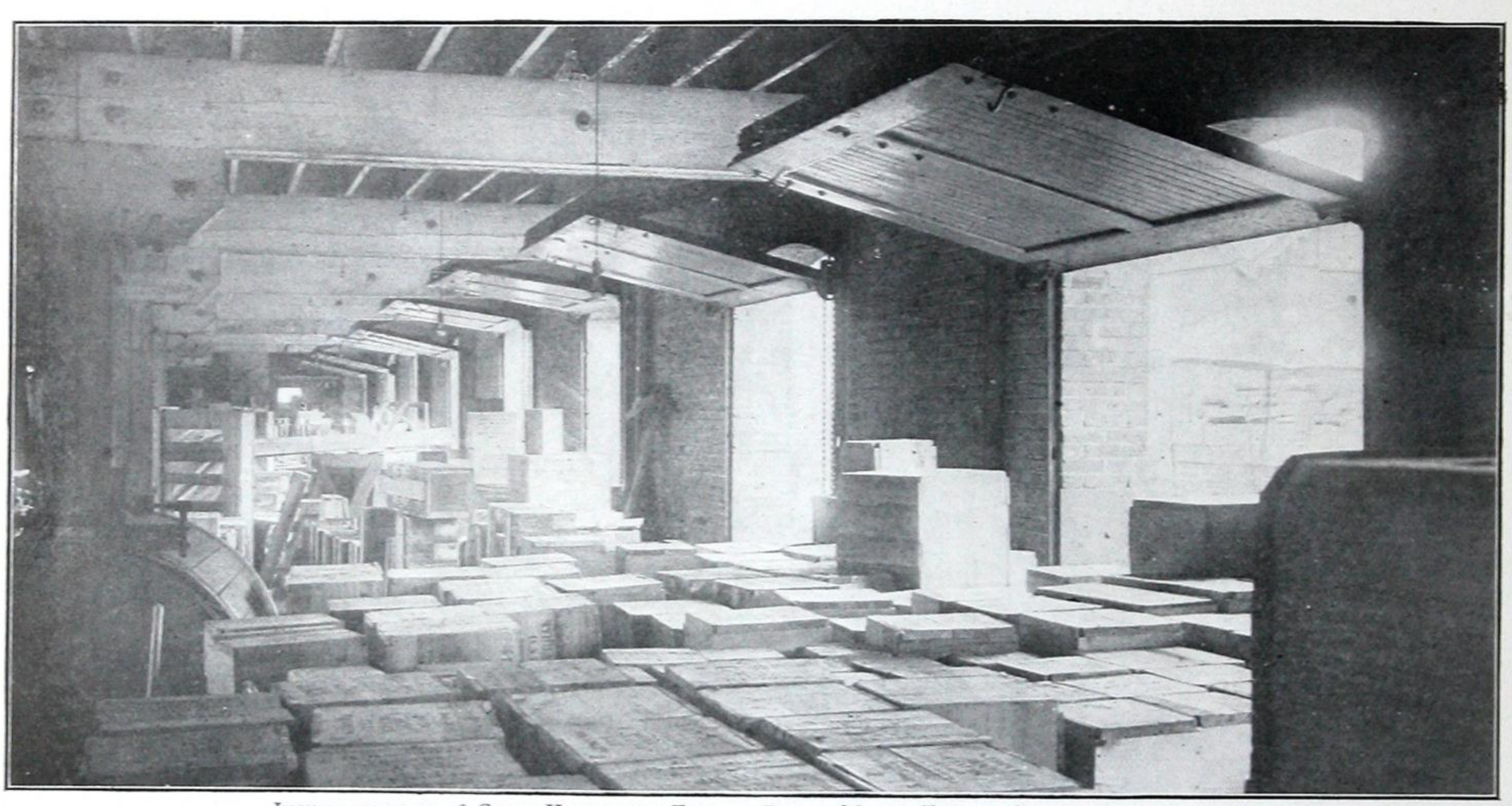
VANCOUVER, B.C.:
JOHN SUTHERLAND,
528 PENDER ST. WEST.

WINNIPEG, MAN.:
W. T. GROSE,
905 ELECTRIC RAILWAY CHAMBER.

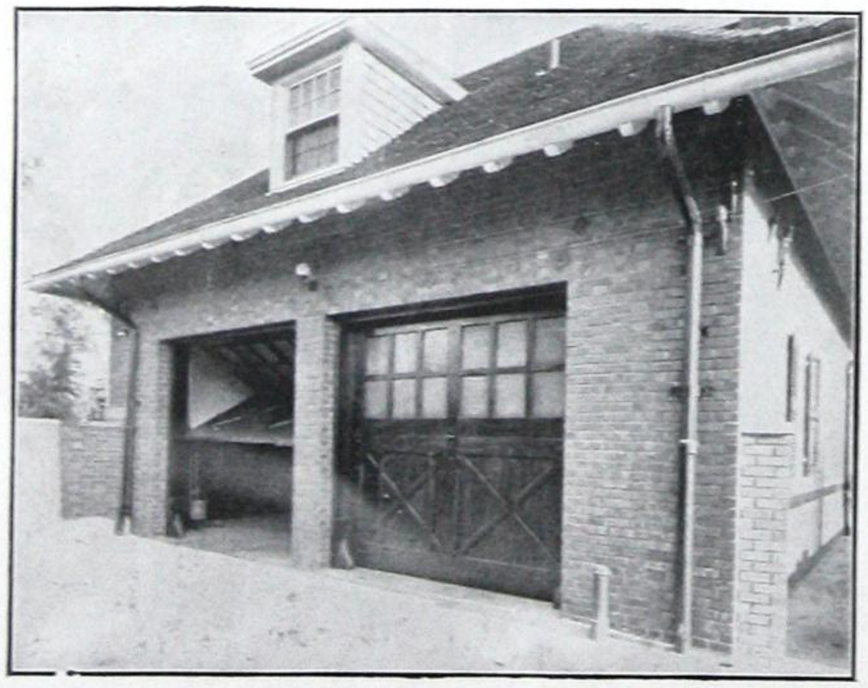
PRODUCTS. CROSS HORIZONTAL FOLDING DOORS, VAMANCO FREIGHT ELEVATOR DOORS, VARCLAD FREIGHT ELEVATOR DOORS, STEEL ROLLING DOORS AND SHUTTERS, UNDERWRITERS' IRON FIRE DOORS, ART METAL DOORS AND FRAMES, SEMI-ART METAL DOORS AND FRAMES, TIN-CLAD FIRE DOORS (all kinds), HARDWARE FOR ALL FIRE DOORS, BLACKSMITH AND WROUGHT IRON WORK, CONTRACTORS FOR LIGHT STRUCTURAL WORK.

APPROVAL. Many of the above doors carry the Label of Approval of the Underwriters' Laboratories of the National Board of Fire Underwriters. We have a department devoted exclusively to improvements in design and manufacture.

CROSS HORIZONTAL FOLDING DOORS. For use in garages, railway freight houses, car shops, warehouses, docks, power plants, etc. *Advantages.*—Simple; easily operated. Made of any material or combination of materials. No limit to size or weight. Glass, installed in upper panel, takes place of transom. Entire mechanism in full view. Can be repaired by any mechanic. Cost of maintenance practically nothing. Occupy no valuable space, either opened or closed.



INSTALLATION OF 48 CROSS HORIZONTAL FOLDING DOORS, MONON FREIGHT HOUSE, LOUISVILLE, KY.
Doors are clear of floor, affording free space for the handling of goods.



One Door partially open, other closed. Glass in upper half takes place of transom.



Doors fully opened, and easily, though Automobile is near. No valuable space occupied either opened or closed.

GARAGE EQUIPPED WITH CROSS HORIZONTAL FOLDING DOORS.

CONTINUED ON NEXT PAGE

STEEL ROLLING DOORS AND SHUTTERS.

Our Steel Rolling Doors and Shutters are made entirely of steel. They are composed of steel interlocking slats that coil above opening, being counterbalanced by springs. End of slats travel up and down in grooves bolted at each side of opening.

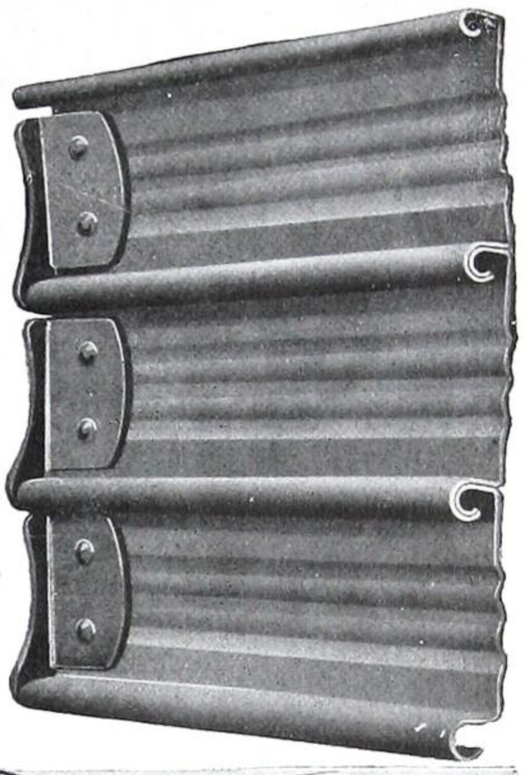
Installation.—Doors are placed to coil above the opening or under the lintel. They require 3 inch to 5 inch side-room and 15 inch head-room for openings 12 feet 0 inches high or less, and 1 inch head-room additional per foot of height above this.

Operation.—Doors may be operated by hoist, gearing, or simply by hand, to suit any conditions. If used as fire doors, they can be equipped with automatic closing device, when specified.

Advantages.—These doors are classed among the best fire retardants for window, door, partition, elevator-shaft, and fire-wall openings. They are neat in appearance, occupy very little room, and, if properly cared for, will last for years. Doors are easily erected. Blue-prints and instructions are sent with each shipment.

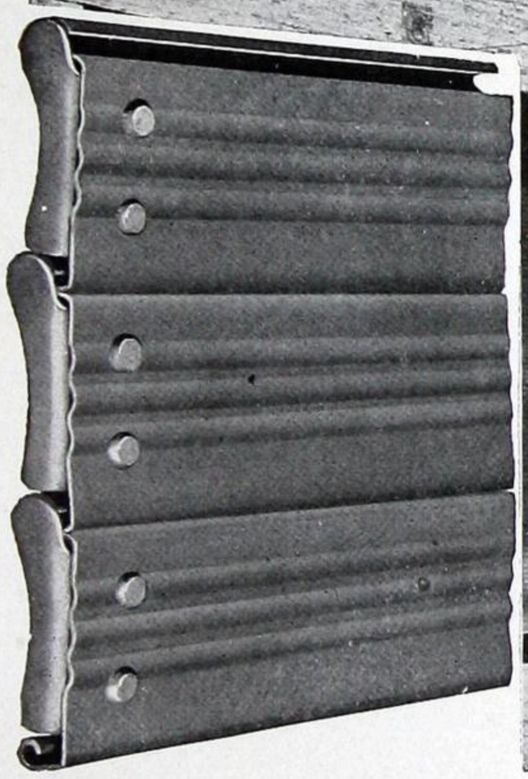
Approval.—Our doors and shutters are included in the approved list issued by the National Board of Fire Underwriters, and are regularly inspected and labelled by the Underwriters' Laboratories, Inc.

Illustrations.—The illustrations, herewith, show only a few of our many installations and constructions. We shall be pleased to furnish information for special requirements.



Flanged Side of No. 2 Interlocking Slat.

Two-fifths full size.

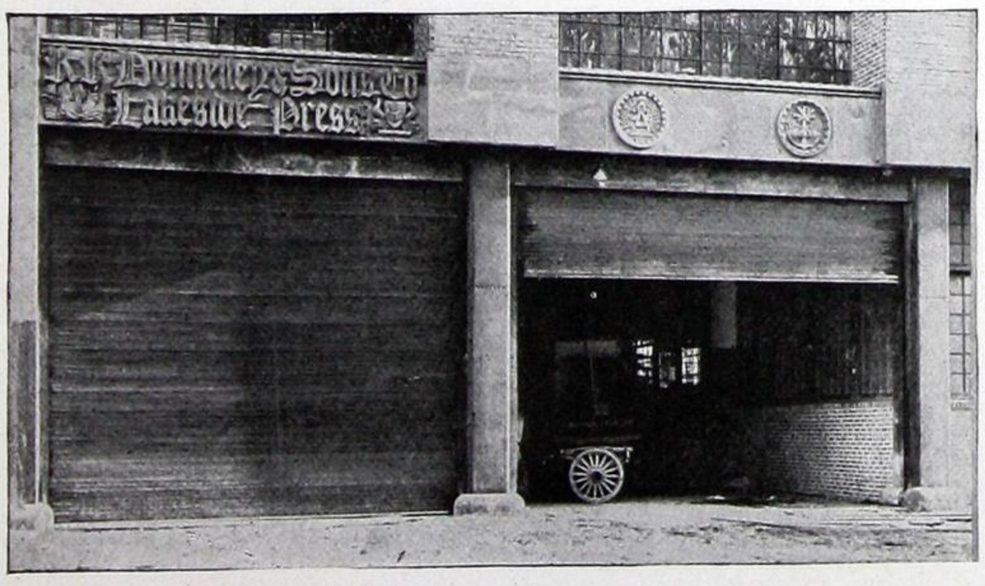


Smooth Side of No. 2 Interlocking Slat.

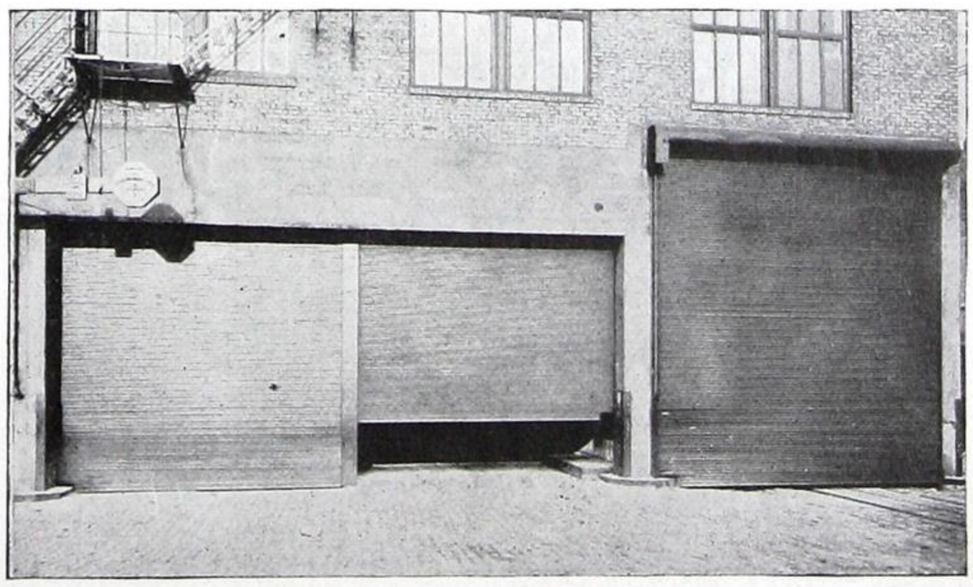
Line of Rolling Doors on Street Railway Barn.
Total, 24 doors, each 11′ 0″ wide by 18′ 0″ high.

The above slats are rolled channel-shaped, affording greatest strength with least material; and have a close, tight joint that is practically smoke, fire, and weather proof. Ends of slat are reinforced with end lock, which prevents longitudinal separation, takes the wear, and reduces friction in grooves. Note that either side of slat sheds water.

No. 2 slats are constructed of No. 20 or 22 gauge steel, either galvanized or black and No. 4, a much heavier slat, of No. 16 or 18 gauge steel.



Two Rolling Doors, 24′ 0″ Wide by 16′ 0″ High, Placed under Lintel and Operated Inside of Building.



Three Rolling Doors, Two Openings.

One door, 17′ 0″ wide by 18′ 0″ high operated on outside of building. Two doors, 15′ 0″ wide by 13′ 0″ high, placed and operated inside building, have hinged pilaster at centre, which can be swung up, giving clear opening 30′ 0″ wide.

CONTINUED ON NEXT PAGE

VAMANCO AND VARCLAD ELEVATOR DOORS.

Our Vamanco Counterbalanced Doors (Patented) are *all-steel fire doors* for freight elevator shafts.

Our Varclad Elevator Doors are counterbalanced *tin-clad fire doors* for freight elevator shafts.

They are approved and labelled by the Underwriters' Laboratories of the National Board of Fire Underwriters.

(FACSIMILE OF UNDERWRITERS' LABEL)

UNDERWRITERS' LABORATORIES, INC.
INSPECTED
FIRE DOOR FOR OPENING IN VERTICAL SHAFT
No. S 2232

GENERAL DESCRIPTION.

Construction.—Door is mounted in guides secured to inner face of the wall of the elevator shaft, and operates up and down in small space between elevator car and wall. It is made in two parts, or panels, connected with steel chains, which travel over ball-bearing sheaves housed in steel brackets that are bolted to the guides. Each panel of Vamanco Door is corrugated sheet steel, riveted to an angle frame, the frame being reinforced with special shaped vertical channels. Each panel of Varclad Door is wood, tin-clad, mounted in a frame of steel angles.

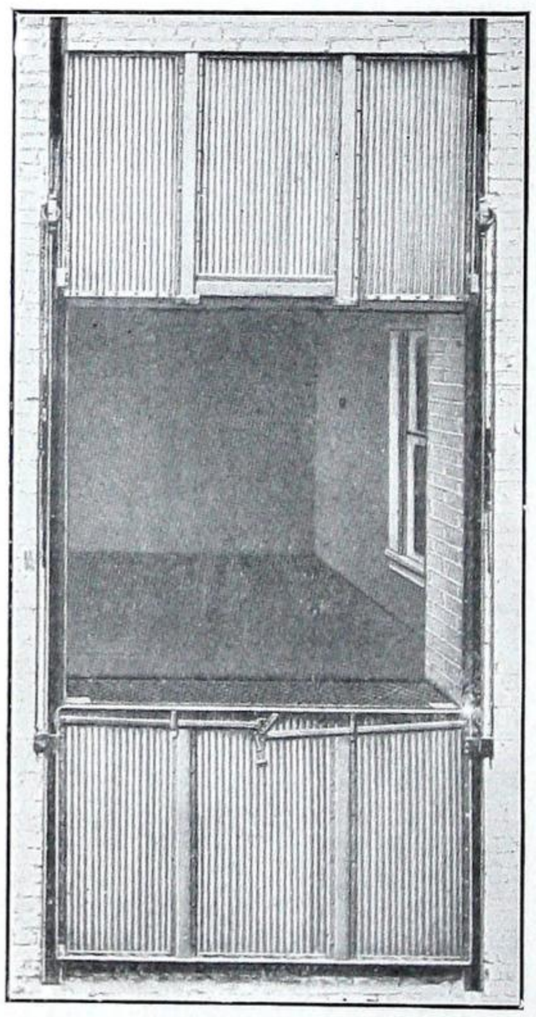
Guides.—These are built of heavy steel angles mounted on face of wall inside shaft, one at each side of opening, where they are secured by through bolts.

Latch.—The latch is placed on inside of door, and it automatically engages catches on guides when door is closed. Door cannot be opened from floor side, making accidents impossible.

Operation.—The operation is manual from elevator *car only*. In opening, top panel moves up and lower panel down. Since the two panels are connected by chains, the weight of one panel is counterbalanced by the other, eliminating springs or counterweights. Slight friction of moving parts is the only resistance to be overcome in operating.

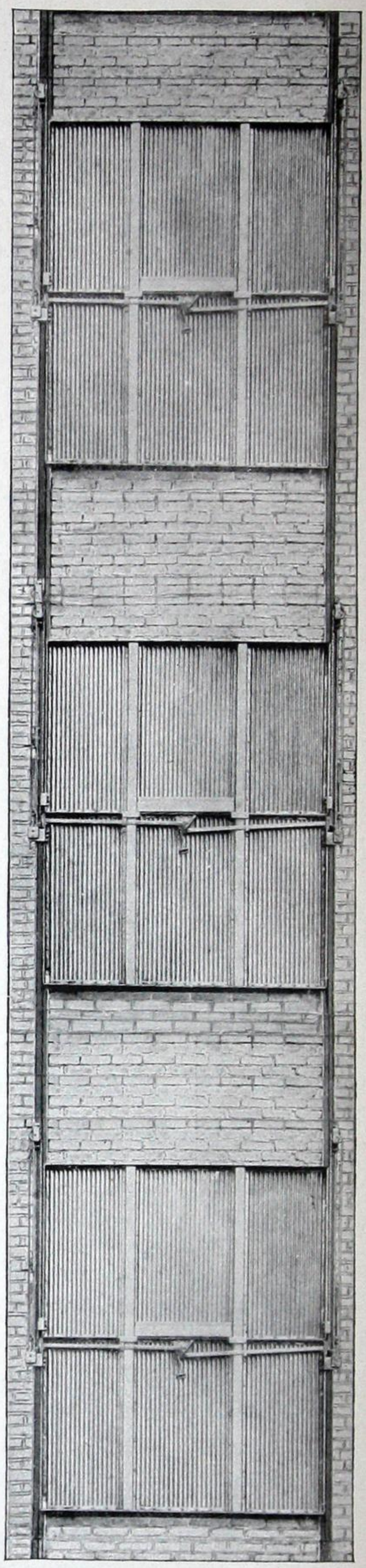
FLOOR HEIGHTS REQUIRED FOR VAMANCO ELEVATOR DOORS.

Height of Door Opening.	Distance, Floor to Floor.
ft. in.	ft. in.
5 0	8 2
5 3	8 6½
5 6	8 11
5 9	9 3½
6 0	9 8
6 3	10 0½
6 6	10 5
6 9	10 9½
7 0	11 2
7 3	11 6½
7 6	11 11
7 9	12 3½
8 0	12 8
8 3	13 0½
8 6	13 5
8 9	13 9½
9 0	14 2



VAMANCO DOOR IN OPEN POSITION, SHAFT SIDE.

Note top of lower panel is flush with sill, affording smooth surface for trucking. Trucking angles shown at each corner resting on sill.



LINE OF VAMANCO DOORS IN ELEVATOR SHAFT, ALL CLOSED.

Guides are continuous from top to bottom, making erection easy.

Details.—All doors lap, opening 3½ inches above and below opening.

Distance between floors must equal 1½ times height of opening plus 8 inches.

Explanation: For an opening 7 feet high, add 3 feet 6 inches; then add 8 inches, which equals 11 feet 2 inches, distance between floors.

Space required at sides of opening for guides is 5 inches.

Sills furnished only when specified.

CONTINUED ON NEXT PAGE

GENERAL DESCRIPTION —CON.

Automatic Closing Device.—When it is specially ordered, this door can be equipped with an automatic device that will close the door as the car leaves the floor. This will keep the shaft closed at all times, regardless of the elevator operator, thus protecting the shaft against fire and guarding against injury to persons on floor side.

Trucking Device.—This device engages sill when door is open, and spans the small space between the elevator car floor and sill. It receives and sustains any jar or shock of passing trucks, making it possible to take trucks on or off the car, with load of any size.

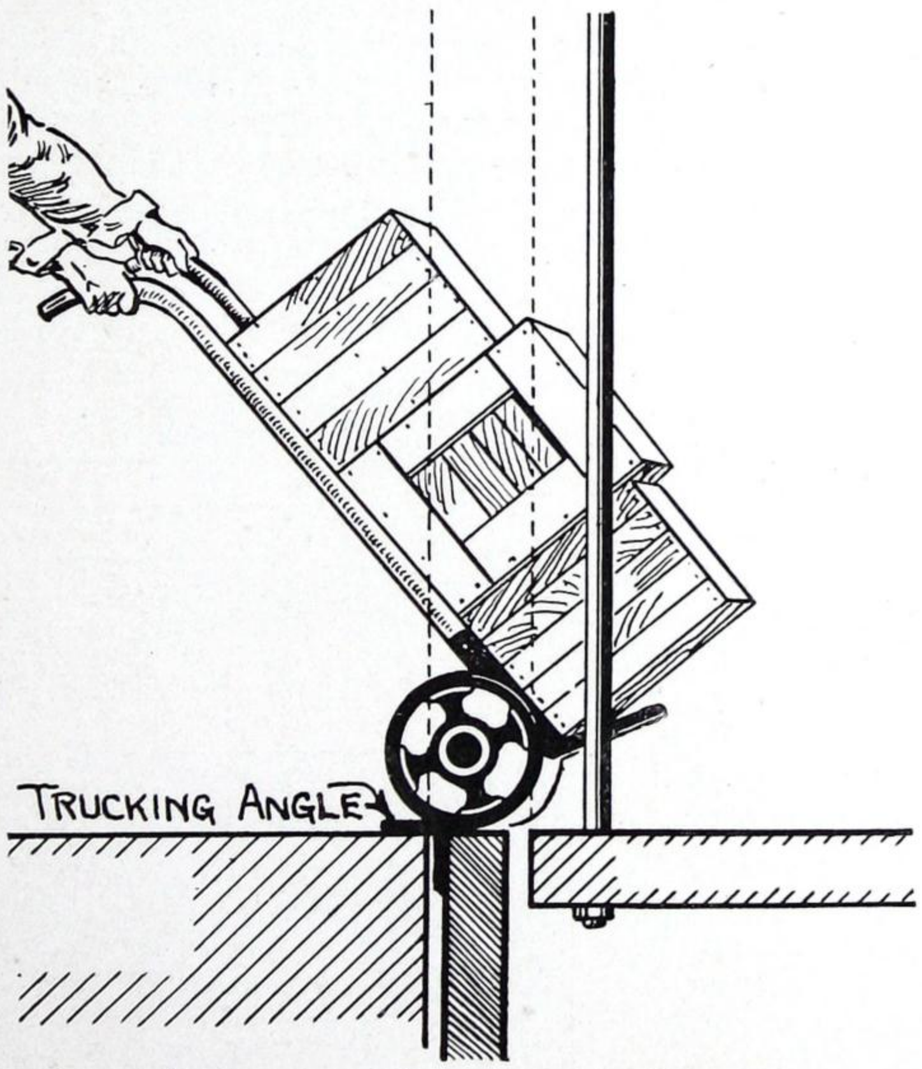
Advantages of Vamanco and Varclad Doors.—Obtain lowest insurance rate. Simply constructed; easily operated; erection or repairs done by any good mechanic. Not expensive. Have no springs or counterweights. Occupy but small space in shaft. A safety gate and fireproof door combined. Automatic feature insures closed shaft at all times. Absolutely fireproof.

Catalogue.—Send for our Vamanco Catalogue "B" and Varclad Catalogue "C," which fully describe these doors.

FLOOR HEIGHTS REQUIRED FOR VARCLAD ELEVATOR DOORS.

Height of Door Opening.	Distance, Floor to Floor.
ft. in.	ft. in.
5 6	8 10
5 9	9 3
6 0	9 7
6 3	10 0
6 6	10 4
6 9	10 9
7 0	11 1
7 3	11 6
7 6	11 10
7 9	12 3
8 0	12 7
8 3	13 0
8 6	13 4
8 9	13 9
9 0	14 1

2 inches allowed for clearance.

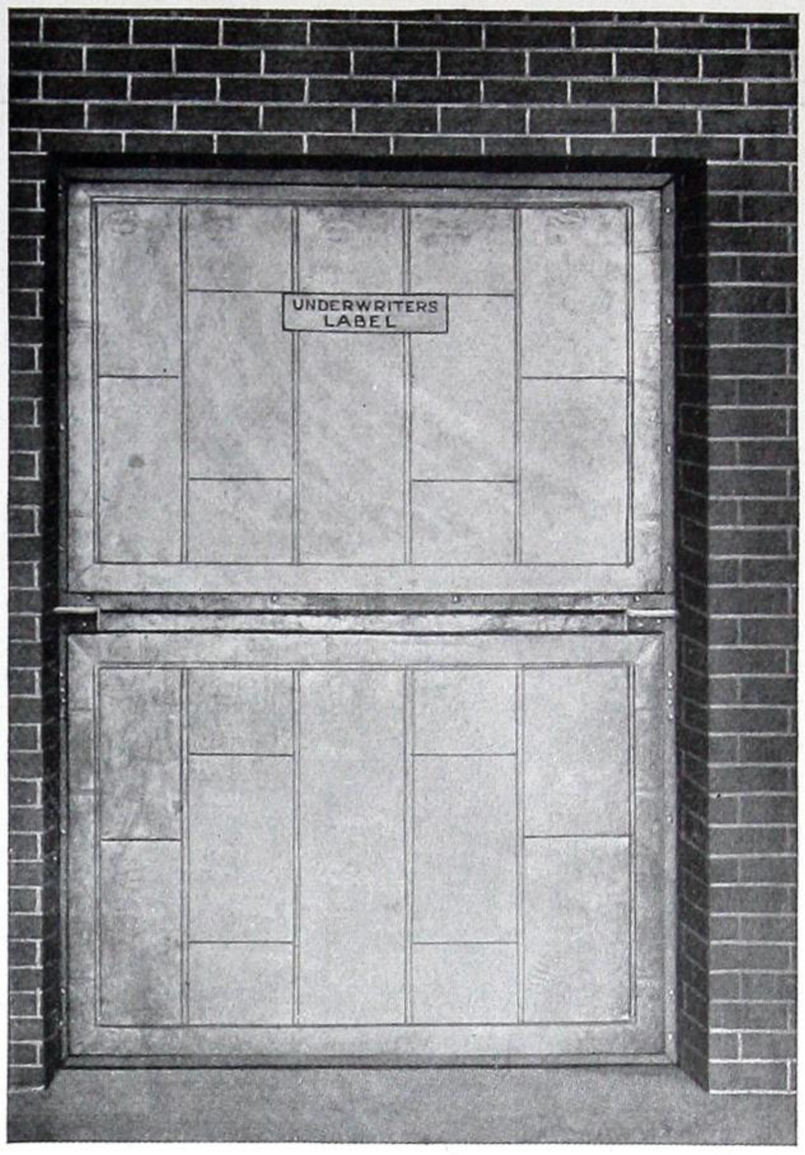


TRUCKING ANGLE SHOWN SUPPORTING DOOR.

TRUCKING ANGLE.

The view above illustrates value of trucking angle, which supports door directly from sill independently of guides. This relieves the guides of any jar that would displace or loosen them by trucking over door. Door is held flush with sill, giving smooth surface to truck over and preventing noise, spilling of load, etc.

NOTE.—Angle is short length at each side of door, and so does not interfere with smooth passage of trucks. However, if unusual strength is desired, angle may run across entire opening, sill being recessed to receive it.

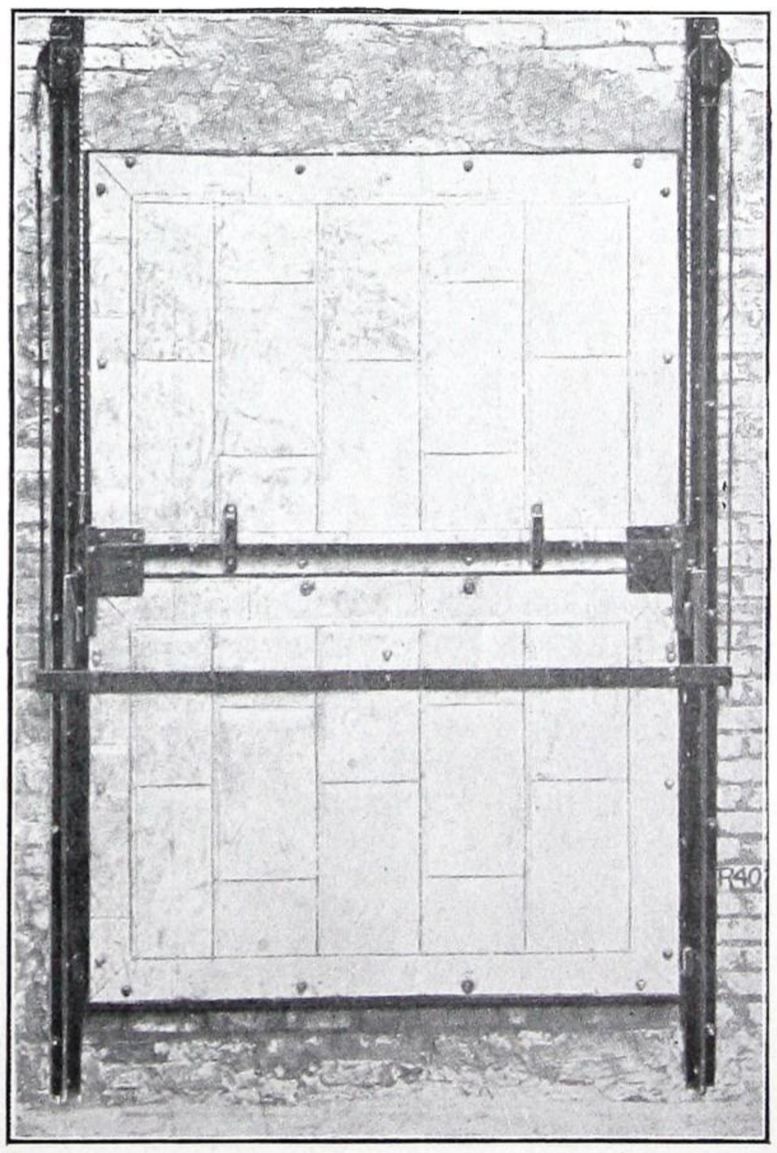


VARCLAD ELEVATOR DOOR INSTALLED.

Meeting line at centre is covered by an astragal strip, so that door cannot be forced open. Trucking angles that support door when open are shown at each side in the centre.

Details.—All doors lap, opening 3 inches above and 2 inches below opening, and occupy 3½ inches in shaft. 1 inch or 1¼ inches should be allowed for clearance of elevator car.

Distance between floors must equal 1½ times height of opening plus 7 inches. See table, "Floor Heights Required for Varclad Elevator Doors." Space required at sides of opening for guides is 6 inches. Sill furnished only when specified.



VARCLAD DOOR, ELEVATOR SIDE.

Latch is placed on upper panel, and worked entirely by gravity.

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