

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title on header taken from: /
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
									✓		



Vol. 48.

TORONTO, MAY 6, 1904.

No. 9.

BABCOCK & WILCOX
Limited

**WATER TUBE
STEAM BOILERS**

Over 4 MILL H.P. in use.

The **SAFEST**, Most **ECONOMICAL** and
Most **DURABLE** Boiler in the World.

STEAM SUPERHEATERS.

If you are interested write for our
book "Steam" mentioning this paper.

HEAD OFFICE FOR CANADA:
11 Place D'Armes, - MONTREAL
BRANCH OFFICE: 114 King St. W., TORONTO

"REDSTONE"

HIGH PRESSURE Sheet Packing

MAKES PERFECT JOINTS.

Does not blow out and requires no following up.

Try a sample lot and be convinced of
its merits.

MANUFACTURED SOLELY BY

The Gutta Percha & Rubber Mfg. Co.
of TORONTO, LIMITED

Head Office and Warerooms:
45, 47 and 49 WEST FRONT ST.,
TORONTO, CANADA

... Malleable...
Iron Castings

**XC Plate or Tinned
CASTINGS**

also made to order.

Melanon Dash &
Metal Works Co., Limited
ST. CATHARINES, ONT.

**ELECTRIC LIGHT
AND
POWER CABLES**

FOR UNDERGROUND INSTALLATIONS

The Wire & Cable Company, - - Montreal

"STANDARD of the WORLD"

**OTIS
ELEVATORS**

CANADIAN OTIS ELEVATOR COMPANY, LIMITED

OFFICES

TORONTO HAMILTON MONTREAL

AND ALL PRINCIPAL CITIES

DOMINION

A. G. LESLIE & CO.

Importers of

**SHEET STEEL,
TINPLATES,
Canada Plates; Etc.**

Merchants' Bank Building,
MONTREAL.

JACKSON'S PATENT BELT FASTENERS. SPECIAL BELT DRESSING Free from Resin. Large Stock of these Specialties. BELTS "HAIR" (Solid Woven), and "MAYAVE" (Thin Co.) MANUFACTURED BY M.A.Y. (Solid Woven).

PATENTS COVERED BY FEEDER CASES Regular Solicitor of Patents Notary Public Member of the Council Mutual Union Assn. Glass Cases TEMP BUILT TOWER OVER OTTA AN WASH TOR.

THE RUSSELLDALE BELTING CO. LIMITED 59 TO 63 FRONT ST. EAST. - TORONTO

POINTING OUT A MORAL



Why do 300,000 engineers swear by the



Automatic Injector

Simply because they know it to be the best, most efficient, most durable.

Isn't it just as easy to get the best.

Sold by all dealers, or buy of the makers.



PENBERTHY INJECTOR CO., Limited
Large Injector Manufacturers in the World WINDSOR, - ONTARIO

CAST IRON PIPE

3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers

MONTREAL PIPE FOUNDRY CO., Limited

SUCCESSORS TO

DRUMMOND-McCALL PIPE FOUNDRY CO. Limited

Manufacturers of

Offices:

Canada Life Building,

MONTREAL

ALEX. GARTSHORE, President. J. G. ALLEN, Sec. Treas.
JAS. THOMPSON, Vice-Pres. and Gen. Mgr.

THE GARTSHORE-THOMPSON

Pipe & Foundry Co., Limited

Special Casting and all kinds of WATER WORKS SUPPLIES. HAMILTON, ONT.

FLEXIBLE AND FLANGE PIPE

"Specials," Hydrants, Valves, Etc.



ABRASIVE ANNOUNCEMENT

Our new mill was completed on February 15, 1904, and from now on we shall be able to supply the wants of all our customers. It is the largest abrasive mill ever erected in any country, and has a capacity of from 5,000 to 8,000 tons per year of finished product. This product is absolutely uniform, and we can duplicate your orders indefinitely.

Emery is an iron ore containing 30% to 40% Corundum, it will neither polish nor cut like Craig Mine Corundum which is virtually pure. Write us regarding a yearly contract.

THE CANADA CORUNDUM COMPANY, Limited, - Toronto, Canada

STEAM ENGINES

The long record in engine building of the Goldie & McCulloch Co., Limited, Galt, has gained for their WHEELLOCK and IDEAL Steam Engines the great popularity they now enjoy among engineers, and steam plant owners and operators. Their catalogues will tell you more about them. Send for one.

WE MAKE Wheelock Engines, Ideal Engines, Gas and Gasoline Engines, Boilers, Water Wheels, Pumps, Flour Mill Machinery, Oat Meal Mill Machinery, Oat Meal Steam Pan Kilns, Wood Working Machinery, Iron Pulleys, Wood Rim Split Pulleys, Shafts, Hangers, Gearing, Friction, Clutch Pulleys, Friction Clutch Couplings, etc., Scaffs, Vaults and Vault Doors.

THE GOLDIE & McCULLOCH CO., Limited
GALT, Ont., Canada.

LEONARD - CORLISS Engines

For all power purposes.

CORLISS ENGINE is without question the most economical. Universally acknowledged as the peer of all slow speed engines. All Engines have multiported valves.

The **PEERLESS Self Oiling ENGINE** is the most perfect high speed engine in existence, there is nothing about the engine which has not been a proved success.

Boilers for all powers and purposes. **Heaters, Pumps.**

CORRESPONDENCE SOLICITED.

E. LEONARD & SONS, - Manufacturers
London, Canada

Montreal, P.Q. Winnipeg, Man. St. John, N.B.

THE WELLINGTON MILLS London, England. GENUINE EMERY

Oakey's Flexible Twilled Emery Cloth.

Oakey's Flint Paper and Glass Paper.

Oakey's Emery Paper, Black Lead, Etc

Prize Medal and Highest Award Philadelphia, 1876, for Superiority of Quality, Skilful Manufacture, Sharpness, Durability, and Uniformity of Grain.

Manufacturers

JOHN OAKEY & SONS, Limited, Wellington Mills, Westminster
Budge Road, London, Eng.

Enquiries should be addressed to

JOHN FORMAN, - 650 Craig St., MONTREAL

IF YOU NEED ANY MACHINE ON THIS LIST

and need it right away, here is your opportunity to get it. It is an exceptional opportunity, too, because every machine on the list is a Bertram, and the demand for Bertram tools is so great that it is not often that they can be picked up from stock.

- 2-20" x 12' Engine Lathes.
- 3-16" Engine Lathes.
- 1-12" x 6' Engine Lathe.
- 4-12" x 5' Engine Lathes.
- 1-14" x 6' Brass Lathe.
- 5-M-79 20" Lever Drills.
- 3-30" Back-geared Drills.
- 3-36" Back-geared Drills.

- 1-14" Slotting Machine.
- 3-16" Shaping Machines.
- 5-30" x 30" x 8' Iron Planing
Machines.
- 1-1½" Single Acme Bolt Cutter.
- 1-2" " " " "
- 2-Suspension Drills.

As these machines are certain to be sold rapidly as soon as it becomes generally known that immediate delivery can be made, you had better write or wire us to-day for photographs, prices and particulars of any tools in which you may be interested.

THE JOHN BERTRAM & SONS CO., Limited
DUNDAS, ONT., CANADA.

IRON **STEEL**
 FROM
STOCK **MILL**

THE
 BOURNE-FULLER CO.
 IRON, STEEL,
 PIG IRON,
 COKE,
 Cleveland, Ohio

STEEL RAILS

We are now offering Highest Quality

BESSEMER STEEL RAILS

made by the

ALGOMA STEEL CO., Limited
 OF SAULT STE. MARIE, ONT.

DRUMMOND, McCALL & CO.,
 GENERAL SALES AGENTS

OFFICES:

Canada Life Bldg., MONTREAL. 100 King W., TORONTO.

CANADA IRON FURNACE CO., Limited

Montreal, Radnor and Three Rivers

Manufacturers of the well-known

"C.I.F." Three Rivers
Charcoal

Suitable for Car Wheels, Cylinders
 and Fine Castings, where the ut-
 most strength is required.

Pig Iron

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN
 OR AMERICAN CHARCOAL IRON.

Offices: Canada Life Insurance Building, MONTREAL.

THE NOVA SCOTIA STEEL & COAL CO.

MANUFACTURERS OF

LIMITED

BRIGHT COMPRESSED STEEL SHAFING

FROM $\frac{1}{2}$ TO 5 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN $\frac{1}{32}$ OF AN INCH.

Spring, Reeled Machinery, Tire, Toe Caulk, Sleigh Shoe, Angles, Special Sections
 and all Merchant Bar Steel. Sheet Steel up to 48 inches wide.

RAILWAY AND ELECTRIC RAILWAY CAR AXLES

FISH PLATES, SPIKES AND TRACK BOLTS

3/4" RAILS, 12, 18, 24 AND 28 LBS. PER YARD

..HEAVY FORGINGS A SPECIALTY..

"FERRONA" PIG IRON, For Foundry Use.

Works—NEW GLASGOW, N.S., and FERRONA, N.S.

Head Office—NEW GLASGOW, NOVA SCOTIA

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

NORTHERN ALUMINUM CO., LIMITED

Shawinigan Falls, P.Q. Business Office Pittsburgh, Pa.

ALUMINUM

INGOTS—SHEETS—TUBING, ETC.

Aluminum Stamped, Cast, Spun Articles of any Description to Order.

ALUMINUM WIRE and CABLES (BARE OR INSULATED) for Electrical Conductors.

CAMMELL STEEL RAILS ALL SECTIONS and WEIGHTS

LIGHT RAILS—12, 18, 25 lbs.—in Stock

SUPPLIES—STEAM SHOVELS, LOCOMOTIVES, CARS, DUMP CARS, BALLAST PLOWS

LARGE STOCK of Wheelbarrows, Scrapers, Picks

Shovels, Hammers, Track Tools,

BARRETT JACKS

ESTATE LATE JAMES COOPER, - Montreal.

DODGE

STANDARD

WOOD SPLIT PULLEY

WITH INTERCHANGEABLE
BUSHING SYSTEM.

In use in all leading
factories throughout
the world.



Absolutely a
high grade pulley.

All sizes always in
stock.

Sold Distinctly on Merit.

—SOLE MAKERS—

DODGE MANUFACTURING CO.,

TORONTO.

MONTREAL—Branch, 419 St. James St.

MORISON Suspension Furnaces

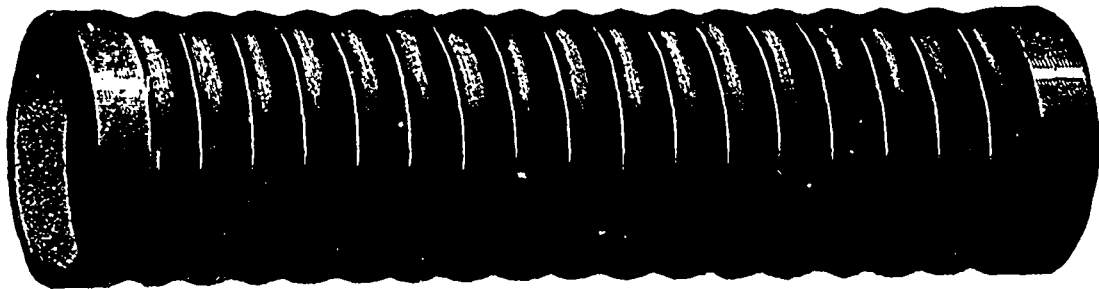


For Land and Marine Boilers

With Plain Ends or Flanged to any required shape.

Uniform Thickness, Easily Cleaned, Unexcelled for Strength, Unsurpassed for Steaming Capacity.

The universally satisfactory record of "THE MORISON" proclaims it the best furnace made.



MANUFACTURED BY

THE CONTINENTAL IRON WORKS, WEST AND CALVER STS., BROOKLYN, N. Y. **New York**
 Sole Canadian Agent—**MR. GEORGE HOLLAND, M. C. Soc. C. E., P. O. Box 529, MONTREAL**



B. GREENING WIRE CO.
 (LIMITED)
 WIRE MANUFACTURERS
 & METAL PERFORATORS
**HAMILTON
 & MONTREAL.**



PERFORATED SHEET METALS
 IN Brass, Copper, Steel etc.
 All sizes of Perforations and thickness of metals for Miners' use. Grain Cleaning Machinery. Bee Keepers. Malt Kiln Floors.

MANUFACTURERS OF
 PHOSPHOR THE PHOSPHOR BRONZE
 BRASS INGOTS NEEDLE METAL TYPE
 METALS ETC. BAR WIRE. DUMBERS
 AND TURNERS SOLDERS. AND ALL
 WHITE METAL MIXTURES.

**SYRACUSE SMELTING WORKS
 RABBIT METAL**

IMPORTERS AND DEALERS IN
 D.D.T.W. D.G. LEAD, TIGOT COPPER
 S.PELTER, ALUMINUM, ANTIMONY,
 NICKEL, BISMUTH

**A Reliable and Durable
 BABBIT METAL**

MANGANESE

Anti-Friction Metal

Possesses these two qualities.

Every pound guaranteed.

Syracuse Smelting Works
 Montreal. Seattle.
 New York.

QUEBEC CENTRAL RAILWAY

THE FAMOUS SPORTSMEN'S AND TOURISTS' ROUTE BETWEEN ALL POINTS.

FROM NEW YORK AND NEW ENGLAND POINTS TO QUEBEC CITY, THE LAKE ST. JOHN REGION, and THE LOWER ST. LAWRENCE

THROUGH PULLMAN CARS BETWEEN BOSTON AND QUEBEC AND NEW YORK AND QUEBEC.

FRANK GUNDY, J. R. WALSH,
 GENERAL MANAGER. GEN. PASS. AND FREIGHT AGENT

HEAD OFFICES—SHERBROOKE, QUE.

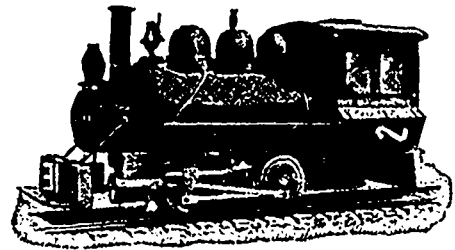


WILLIS SHAW,

CONTRACTORS' MACHINERY
NEW AND SECOND HAND

Steam Shovels,
Locomotives,
Flat Cars,
Stone Crushers,
Rock Drills,
Dump Cars,
Relaying Rail,
Cable Ways,
Air Compressors,
Hoisting Engines,
Travelling Derricks,
Boilers, Pumps, etc.

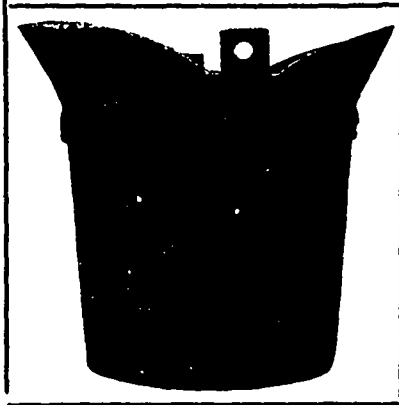
171 La Salle St., Chicago, Ill.



All Classes of Steel Plate Construction

SPECIALTIES

T
A
N
K
S



R
E
F
I
N
E
R
I
E
S
O
I
L

The Petroleum Iron Works Co., WASHINGTON PA.
BRANCH OFFICES—Pittsburgh, Pa.—Beaumont, Texas—New Orleans, La.

The McNaull

SAFETY

WATER TUBE BOILER

Can be used for all purposes requiring a boiler.

It is simple, convenient and safe, and is very economical in fuel, saving its cost in a few years.

It has proved to be the most practical and satisfactory water-tube boiler on the market.

Do not fail to write us about it.

THE WM. HAMILTON MFG. CO., LIMITED

Peterborough, Ontario.

Thomas Carlin's Sons Company

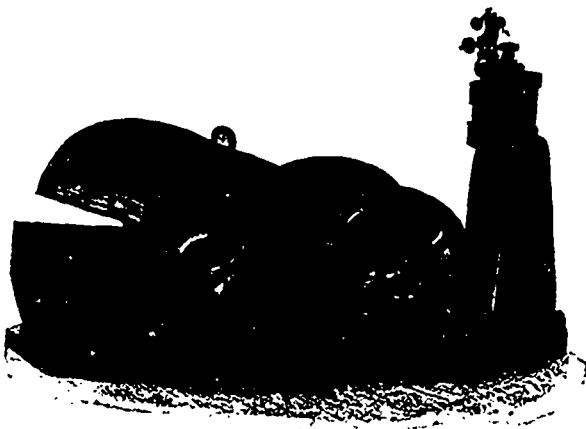
ALLEGHENY, - PA.

Manufacturers of

**SHEARS,
Grinding
Pans**

— AND —

Contractors' Machinery



Write for Catalogue No. 264.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE CANADIAN PORTLAND CEMENT CO. LIMITED

MANUFACTURE "RATHBUN'S STAR" BRAND

THE LEADING CANADIAN PORTLAND CEMENT

Capacity of Works—500,000 Barrels per Year

THE RATHBUN COMPANY,
310-312 Front Street West,
TORONTO, ONT.

SALES
AGENTS

ST. LAWRENCE PORTLAND CEMENT CO.,
202-208 Board of Trade Building,
MONTREAL, QUE.

PORTLAND CEMENT

Samson Brand. Magnet Brand.

Made at SHALLOW LAKE, ONT.

Our Celebrated **Samson Brand** has been before the public for many years, and has made hosts of friends among Contractors and Municipal Corporations until it has become one of the leading Cements on the market to-day, being excelled by none. This year we have decided to place the **Magnet** on the market, and respectfully ask consumers to give it a trial. It will, we think, do its own advertising.

THE OWEN SOUND PORTLAND CEMENT CO., Limited

Works—SHALLOW LAKE, Ont. Head Office—OWEN SOUND, Ont.

GEO. S. KILBOURN, Sec'y-Treas.

Correspondence invited.

Albert Manufacturing Co.

MANUFACTURERS OF THE WELL-KNOWN

"Hammer Brand" **Calcined Plaster**

AND

PATENT ROCK WALL PLASTER.

HILLSBOROUGH, N.B., CANADA.

Clyde Steel Works

EDWARD RAMAGE, Manager.

REPAIRING and ALTERING.

Steel and Composite Hulls our Specialty.
Builders of Yachts, Tugs, Launches, Scows, Tanks, Etc.

Office, 267 Wellington St. West, - TORONTO, ONT.

Shipbuilders

CHARLES G. SHEPARD.
PIG IRON & COKE.
401 ELLICOTT SQUARE, BUFFALO, N.Y.

DUNBAR FIRE BRICK CO.

Manufacturers of High Grade FIRE CLAY and SILICA BRICK for Heating and Malleable Iron Furnaces, Glass Works, Cement Works—also Bee Hive and By-Product Coke Ovens, Brick and shapes of all kinds.

Pittsburgh Office : 1504 Arrott Building.

Office and Works : Dunbar, Pa.

"Beech Creek" FIRE BRICK

STRICTLY HIGH GRADE

MADE ONLY BY

PENNSYLVANIA FIRE BRICK CO.,

LOCK HAVEN, PA., U.S.A.

Special Mixtures for use in Rolling Mills, Malleable Iron Works, Steel Works, Blast Furnaces, Glass Tanks, Cement Kilns, Locomotive Blocks, and all High Grade Uses.

Difficult Shapes a Specialty.

Send for Catalogue and Prices.

BRANDS: BEECH CREEK, BEECH CREEK ROOF, BEECH CREEK BUNG.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

C. H. VOGEL

A. M. Can. Soc. C.E.
OTTAWA, CAN. ENGINEER
 Surveys, Plans, Specifications and Supervision
WATER POWER
 PAPER, PULP and SULPHITE FIBRE MILLS

T. A. MORRISON & CO.

202 St. James Street. MONTREAL

Now and Second Hand Contractor's Plant.
 Stone Crushers, Concrete Mixers, Rock Drills,
 1 Baldwin I.C.R. Standard Gauge Locomotive,
 35 ton, cylinder 14 x 22, 110 S.P.
 30 Dump Cars, Narrow Gauge, 2 1/2 yards.
 Boilers, Engines, Steam Shovels, etc.

DR. GEO. ARCHBOLD, M.A.,

TECHNICAL CHEMIST

PRESCOTT, ONT.

Dr. Archbold is technical adviser to three of the oldest firms in U.S.A. Terms on application.

There is Only One Best!



The **KAMN Solid Steel Bar** with concrete for fireproof buildings, bridges, foundations, etc., etc. Write for proposition from our expert Engineers. **ALFRED J. STEVENS**, 19 Canada Permanent Building, TORONTO. Phone Main 1372.

E. VON DER OSTEN & CO.

Consulting Engineers

Industrial Plants. Waterworks.
 Lighting and Power Plants.
 Sewerage and Sewage Disposal.
 Garbage Reduction Plants.
 Municipal Improvements.

73 Queen Street West,
 507 Manning Chambers, TORONTO, ONT.

RODERICK J. PARKE

A.M. AMER. INST. E.E.
 A.M. CAN. SOC. C.E.

CONSULTING ENGINEER

Janes Building, TORONTO
 Long Distance Telephone.

TO MANUFACTURERS:—Advice and specifications covering Industrial Applications of Electricity—Lighting—Power Transmission—Factory Power Distribution—Steam Plants.

TESTS—REPORTS—VALUATIONS.

S. DILLON - MILLS

MINING EXPERT

SPECIALTY:—Examinations, Prospecting and Initial Development of Mining Properties.
 Address correspondence to

588 HURON STREET. TORONTO

R. F. WENTZ ENGINEERING CO.

CONSULTING ENGINEERS AND CEMENT WORK SPECIALISTS—Designing Cement Plants; Specifications and Estimates; Superintendence of Construction; Inspection and Reports of Cement Material and Properties; Analysis and Tests of Raw Material and Cement. Designed and constructed 24 Cement Plants in United States and Canada. 20 years' practical experience Designing, Constructing and Operating Cement Works.
 509-510 Manning Chambers, Toronto, Ont.

"WYNN FIRE BRICK"

For Furnaces, Rolling Mills,
 Steel Works, etc.

W. H. WYNN & CO., WEST DECATUR
 Clearfield Co., Pa.
 U.S.A.

R. S. KELSCH

Mem. Am. Inst. E. E. | Mem. Can. Soc. C. E.

Consulting Engineer
 38 Victoria Square, MONTREAL

LONG DISTANCE PHONE
 OFFICE AND RESIDENCE

Cable Address: "KELSCH, Montreal"

Late General Superintendent and Engineer of The Lachine Rapids Hydraulic & Land Co., Limited.

Design and Construction of Transmission, Lighting and Power Plants of every description. Underground System, Conduit, Estimates, Reports and Arbitrations.
 Twenty years' practical experience.

T. T. SIMPSON

A.M. Amer. Inst. E.E

CONSULTING ENGINEER

DESCHENES. OTTAWA.
 Q.T.E. 55 Sparks Street.

LONG DISTANCE PHONE 1388.

Factory Light and Power Distribution.
 Long Distance Transmission.
 Reports—Tests.
 Specifications—Valuations.

THE PATENT EXCHANGE AND INVESTMENT COMPANY.

ATTORNEYS,
 SOLICITORS AND
 PROMOTERS OF PATENTS.

JOINT STOCK COMPANIES PROMOTED AND ORGANIZED.

Book on Patents. List of Inventions wanted and for sale, mailed to any address free. Address,

Cor. Queen and Victoria Streets
 Toronto, Can.

J. ARTHUR MacMURTRY, Manager.

SPECIAL WORK.

WE are equipped to make any desired machine complete from drawings. We make a specialty of designing new machines for Labor Saving Purposes. We also make a specialty of Special Tools and Die Work, Rubber Moulds, etc. Experimental machines perfected. We can handle any order of reasonable size promptly and economically.

Call or write for estimates.

A. P. HOLDEN, Mechanical Expert.

107 and 109 Adelaide St. West, Toronto, Ont.

ROBERT W. HUNT & CO.
 Bureau of Inspection, Tests and Consultation.
 6 Broadway, New York; 1121 The Rookery,
 CHICAGO; Monongahela Bank Bldg., PITTSBURGH;
 Norfolk House, Cannon St., E.C. LONDON.
 Inspection of Rails and Fastenings, Cars, Locomotives, Pipe, etc.; Bridges, Buildings and other Structures. Chemical and Physical Laboratories. Reports and estimates on properties and processes.

JOHN J. GARTSHORE

88 Front St. W., Toronto.

Rails and SUPPLIES,

Now and Secondhand,
 For RAILWAYS, TRAMWAYS, Etc.
 Old material bought and sold.

Established 1873. Telephone Main 1889.

THOMAS HEYS & SON

CHARLES H. HEYS, Manager.
CHEMICAL and MINING EXPERTS.
 Analyses of all commercial products, etc. Plans and reports on mines and mining locations.
 114 Bay Street, TORONTO, ONT.

THE DELANO-OSBORN ENGINEERING CO.

Consulting Engineers LIMITED

Civil, Mechanical and Electrical Engineering, Power Plants, Manufacturing Establishments. Inspections, Tests and Reports.

Manning Chambers, TORONTO, ONT.

H. D. PETRIE

Barrister, Solicitor, Notary

Spectator Building,
 HAMILTON, ONT.

Companies Incorporated.
 Commercial Law and Collections.

NEFF & POSTLETHWAITE

CHARTERED ACCOUNTANTS

26 Wellington St. East, TORONTO
 Phone Main 1330.

Audits and Investigations a Specialty.

PATENTS

TRADE MARKS, Etc.
HANBURY A. BUDDEN
 NEW YORK LIFE BUILDING,
 MONTREAL.

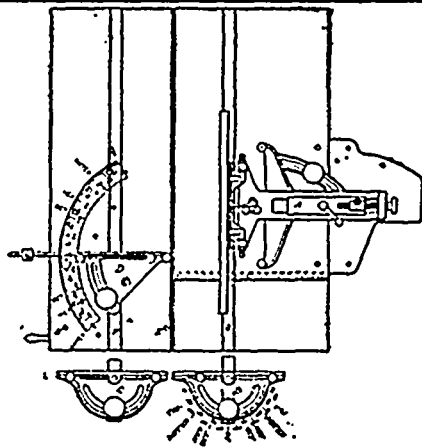
MORGAN CONSTRUCTION COMPANY

Worcester, Mass., U.S.A.

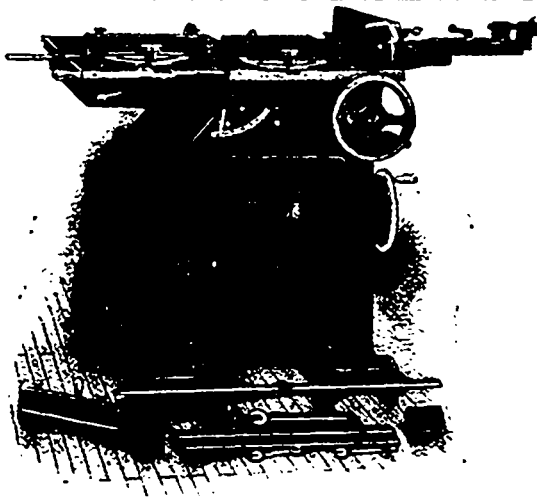
**STEEL PLANTS
 ROLLING MILLS
 GAS PRODUCERS
 WIRE MACHINERY**

Nearly every Important Wire Mill in Canada and the United States uses our Machinery.

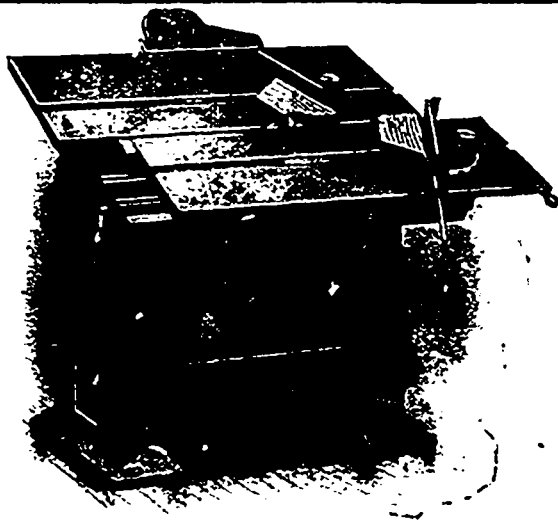
1896
Save Your Scrap
 —By NOT making SO much—
 DO IT BY USING
WIRE DRAWING MACHINERY
 BUILT BY
THE TURNER, VAUGHN & TAYLOR CO.
 Cuyahoga Falls, Ohio,
 U.S.A.
 WRITE US
 1894



OLIVER



UNIVERSAL



SAW BENCH

We show here a few views of the OLIVER SAW BENCH, which is the greatest economizer ever put into a pattern shop, and of equal value to the cabinet shop, or in shops manufacturing interior finish, in fact in any place where perfect work is desired and the saving of expensive hand labor an object.

It is built with all the care and accuracy of the best machine tools and not on the line of ordinary wood-working machinery.

Ask us for catalogue giving further details regarding this machine.

AMERICAN MACHINERY COMPANY

19 MILL STREET,
GRAND RAPIDS——MICHIGAN

Branch Office and Salesroom—
10 DEANSGATE, MANCHESTER, ENG.

Manufacturers of

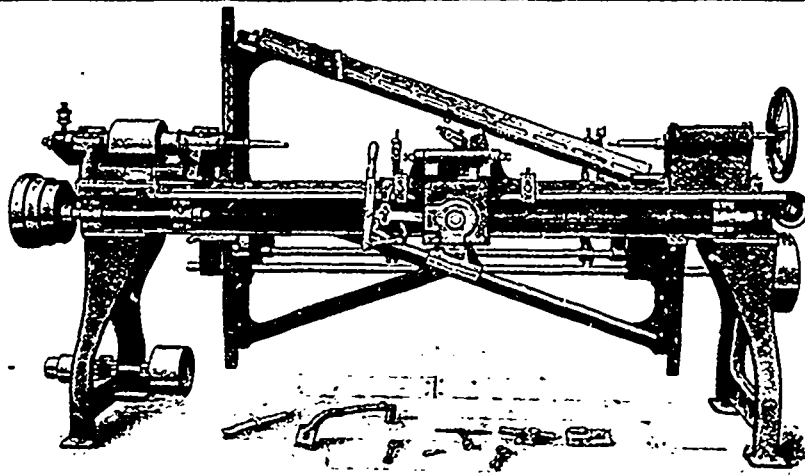
“OLIVER”
Wood Trimmers,
Band Saws,
Wood Lathes,
Hand Jointers, Saw Benches,
Pattern Shop Equipments.

BACK-KNIFE LATHES

Made in three
Standard sizes:

24-inch,
36-inch,
50-inch,

To finish up to
2½ inches in
diameter.



We make
Lathes
to finish
up to nine
inches in
diameter.

Manufactured by

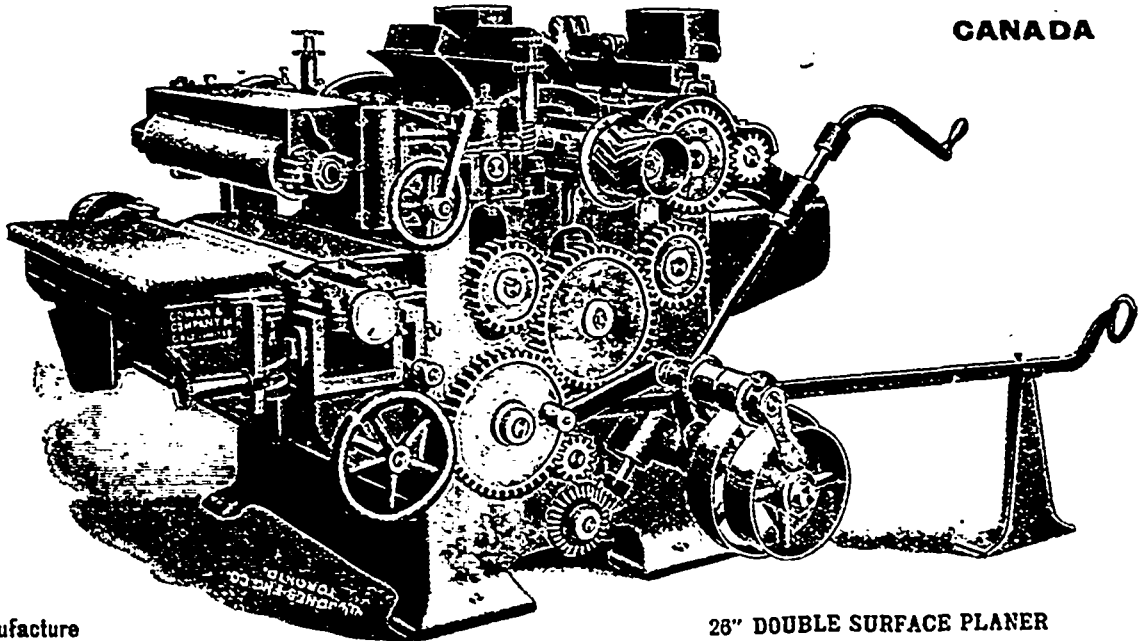
C. H. Cowdrey Machine Works, Fitchburg, Mass., U.S.A.

Send for Catalogue

AGENT—H. W. PETRIE, Toronto, Ont.

COWAN & COMPANY, of GALT, Limited, GALT,

CANADA



We Manufacture

28" DOUBLE SURFACE PLANER

WOOD-WORKING MACHINERY OF ALL KINDS

Up-to-date in Every Particular.

WRITE FOR CUTS AND PRICES.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Hot Blast Heating Systems

— FOR —

Factories, Mills, Schools,
Colleges, Hospitals, Etc.

PERFECT VENTILATION AT AN EVEN TEMPERATURE.

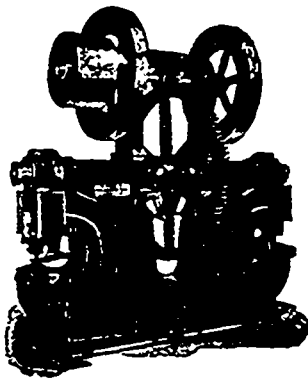
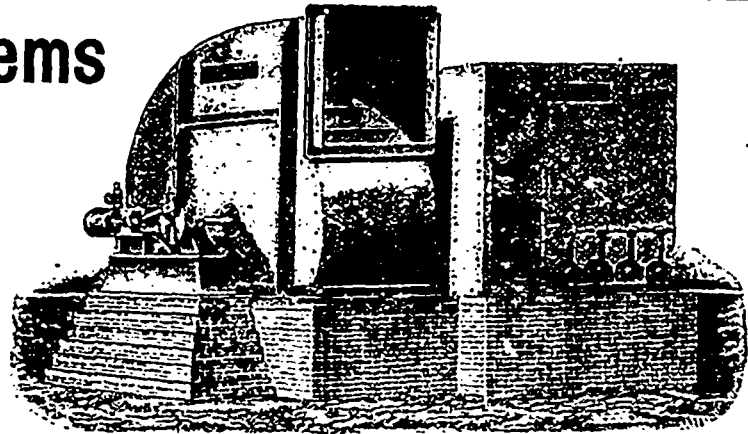
Write for prices and particulars to

SHELDON & SHELDON

GALT, - - ONT.

FORMERLY

McEachren Heating & Ventilating Co.



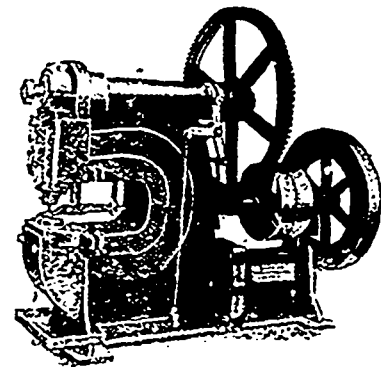
BREMER PUNCHES ^{AND} SHEARS

*Single and Double Punches and Shears
Blacksmiths' Punches and Shears
Foot Power Hammers & Forging Machines*

H. W. PETRIE

GENERAL AGENT FOR CANADA

A Full Line Carried in Stock at **141 Front St. W., Toronto, Can.**
Adjoining Union Station.



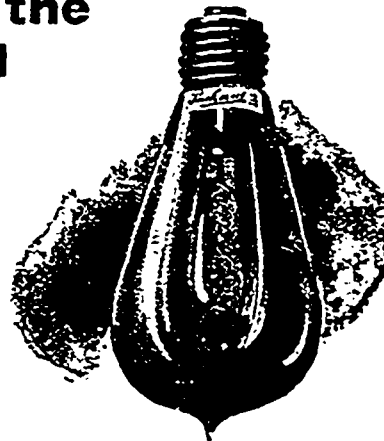
Packard

The Lamp for Lighting Canada is the Packard

There are many lamps sold in Canada which apparently give the users satisfaction. But when these lamps are placed alongside of 'The Packard Lamp' you see that the "Packard" is the peer of all others.

Rigid comparison will prove to you that "Packard" Lamps have the best sustained candle power, the greatest length of life, smallest current consumption, most accurate rating, finest appearance and lowest ultimate cost.

Order a sample barrel to-day.

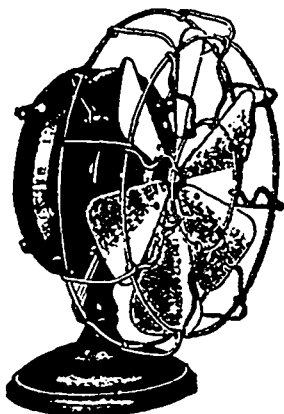


PACKARD ELECTRIC CO., Limited.

ST. CATHARINES, ONT.

MONTREAL, QUE.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



Don't Wait

until the Hot Weather is here to buy a

Send us your order now.

Fan Motor

LARGE STOCK—ALL STYLES.

CANADIAN GENERAL ELECTRIC CO., Limited

Head Office—14 King St. East, TORONTO

DISTRICT OFFICES—Montreal, Halifax, Ottawa, Winnipeg, Vancouver,
Victoria, Roseland.

FACTORIES:
Peterboro and Montreal.

EUGENE F. PHILLIPS ELECTRICAL WORKS

MONTREAL - CANADA - TORONTO LIMITED

Bare and Insulated Electric Wire

Electric Light Line Wire, Incandescent and Flexible Cords,

Railway Feeder and Trolley Wire

Americanite, Magnet, Office and Annunciator Wires,
Cables for Aerial and Underground Use.

LONG DISTANCE PHONE 1103.

The Electrical Construction Company of London, Limited

32-40 Dundas St., London, Can.

Perfection
TYPE

DYNAMOS and MOTORS

Multipolar or Bipolar, Direct-Connected or Belted.

OVER 1500 OF OUR MACHINES
IN USE.

We contract for complete installations, including wiring of factories.

We repair machines of any make.

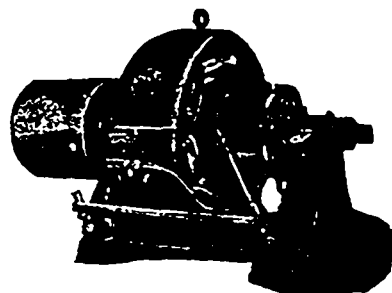
Descriptive matter and estimates furnished on application.

Branches at Vancouver, Winnipeg, Toronto, Montreal, Halifax

The Jones & Moore

ELECTRIC CO., Limited

ELECTRICAL CONTRACTORS



DYNAMOS, TELEPHONES, SLOW
SPEED MOTORS, MOTORS, SUPPLIES,
DIRECT CONNECTED DYNAMOS.

We manufacture Direct Current Machinery in
all sizes and for any purpose.

20 and 22 ADELAIDE W.,
TORONTO.

VOLTA ELECTRIC REPAIR WORKS

D. McCRECOR JOHNSTON, Proprietor.

86 Adelaide Street West,
TORONTO.

OUR SPECIALTY:

ELECTRICAL APPARATUS

OF ALL KINDS

REPAIRED and RECONSTRUCTED.

LONG DISTANCE TELEPHONE
MAIN 4118.

TORONTO and HAMILTON ELECTRIC CO.



MOTORS and DYNAMOS

Moderate and SLOW SPEED OF HIGH EFFICIENCY.
EITHER BELTED OR FOR DIRECT CONNECTION.
REPAIRS PROMPTLY EXECUTED ON ALL
ELECTRICAL APPARATUS.

T. & H. ELECTRIC CO.
99-103 McNab N., - HAMILTON, ONT.

WE beg to announce that we
have employed a chem-
ist, and will analyze any kind
of metal or composition of
metals at reasonable prices.

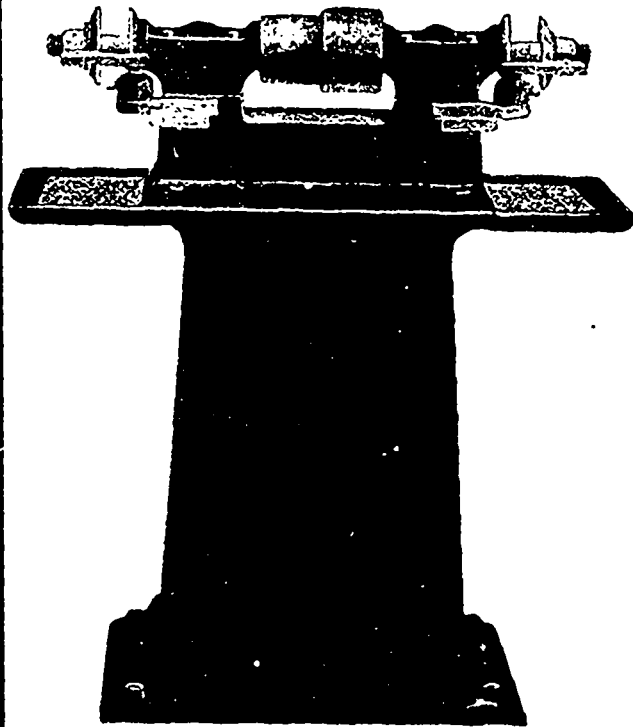
We also supply :

Ingot Copper,
Ingot Brass
and Bronze.

WRITE FOR PRICES.

Syracuse Smelting Works

MONTREAL.
NEW YORK. SEATTLE.



CYCLONE GRINDER

No. 16

BUILT ON SCIENTIFIC PRINCIPLES.
CAN BE USED EITHER ON BENCH OR
PEDESTAL, WITH OR WITHOUT TABLE.

Will carry 2 Wheels, 12 x 3 inches.
Bearings absolutely dust proof Automatic Oilers.
No vibration.
Countershaft has cone pulley 12 and 18 x 3½ inches.
Tight and loose pulleys 6 in. diameter, 4 in. face
and should run 750 revolutions per minute.

Ready for Immediate Delivery

OUR SPECIALTY :

Craig Mine Crystal Corundum Wheels

FOR ALL PURPOSES.

Write for catalogue and prices.

HART CORUNDUM WHEEL CO., LIMITED HAMILTON, CANADA

“Say Friend”

Your aim should be to start up for yourself.

Why Work from morn till night for somebody else instead of pushing a business for yourself, and thus reap the full profit of your labor.

We Will... start men of ability and good character in every county in the Dominion.

WRITE FOR PARTICULARS TO

THE EMPIRE MACHINE & METAL STAMPING CO.

1012 Yonge Street - TORONTO, CANADA

LIMITED

When you are wanting any Electrical Supplies

Such as **TELEPHONES,**

ARC LAMPS,

WRITE

DYNAMOS, Etc.

JOHN FORMAN, - 708-710 Craig Street, Montreal

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



ESTABLISHED IN 1880.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

The Canadian Manufacturer Publishing Co., Limited.

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.

Cable address: "CANAMAN." Western Union Telegraphic Code used.

SUBSCRIPTIONS:

Canada and United States \$1.50 per year. All other Countries in Postal Union ten shillings sterling, including postage.

J. J. CASSIDY, - - - *Editor and Manager.*

Classified IndexPage 48

Index to AdvertisersPage 51

THE CANADIAN MANUFACTURER

Reaches all the Blast Furnaces, Iron and Steel Works, Rolling Mills, Manufacturers of Iron and Wood-working Machinery, Steam Engines and Boilers, Pumping and Mining Machinery, Electric Machinery, Textile, Puip and Paper Mill Machinery, Water Power Plants, Cement, Sewer Pipe and Terra Cotta Works, Dealers in Steam Fitters' and Plumbers' Supplies, and all Hardware Merchants in Canada.

THE TORONTO FIRE.

Fire was discovered in the building occupied by the E. & S. Currie Co., manufacturers of neckwear in Wellington street, west, Toronto, at eight o'clock in the evening of April 19, and before it was subdued it had destroyed buildings and contents to the value of from \$13,000,000 to \$15,000,000. The fire became under control at about four o'clock of the morning of April 20, having raged uncontrolled about eight hours. 123 buildings were totally destroyed, and a large number more or less seriously damaged. In another page is mentioned the names of the different concerns who suffered, and their locations, about 40 per cent. of the losers being manufacturers. A very large proportion of the buildings destroyed were not owned by the tenants, and it is probable that in the reconstruction that is now going on, there will be many changes of occupants. Most of the sufferers, however, who own the land upon which their buildings were, or hold long time leases thereon, are already clearing away the debris and accumulating materials preparatory to rebuilding. It is estimated that about 5,000 persons were thrown out of work, a large proportion of whom were employes in the factories destroyed, mostly women, girls and boys, a great many of whom are being absorbed into other occupations. Insurance experts place the loss of their companies at, approximately, \$8,885,000. Some few manufacturers will possibly re-establish their works elsewhere than in Toronto, and fewer still may drop out of business, but there are others who will quickly fill their places, appreciating the advantages possessed by this city as a manufacturing centre. The area burned over was only about fourteen acres, which, no doubt in an incredibly short time, will be occupied with first-class factories, warehouses, and office buildings which will make Toronto more beautiful and attractive than ever.

THE NATIONAL TRANSCONTINENTAL RAILWAY.

The building of the National Transcontinental Railway, otherwise known as the Grand Trunk Pacific Railway, seems to be an assured fact. In July, 1903, a contract was entered into between the Government of Canada and the Grand Trunk Pacific Railway Company, subject to ratification by the Dominion Parliament, and the discussion of the matter and some preliminary votes in the House of Commons, therein gives

promise that at an early day the Act of incorporation will become law.

There are many who do not fully comprehend what the building of this road means to Canada. The entire length of the main line will be about 3,300 miles, in which is not included hundreds of miles of laterals that will be extended from the main stem in due time; and it is estimated that the cost of the road and its equipment will be at the rate of about \$30,000 per mile. The cost of the Canadian Pacific Railway, which was completed in 1885, was at the rate of \$48,000 per mile, cheaper materials and improvements in methods and machinery for construction accounting largely for the difference. A hundred million dollars will go into the building of the new road; and other millions will go into subsidiary enterprises. Millions of new capital will be brought into the country. Tens of thousands of workmen who are now otherwise engaged, or are not now in Canada, will find employment on the works; and thousand of other people will find remuneration in supplying their needs; and it is safe to assert that the hundred millions to be invested in the road itself will be the measure of many other millions to be invested in other enterprises growing from it. Two hundred million dollars spent in Canada within the next decade cannot but give a wonderful impetus to all productive enterprises. It is said that the construction of the road will be begun simultaneously at a dozen or more points, and that work is to be driven as expeditiously as possible. Passing through the wonderfully rich grain-growing sections of Manitoba and the North-Western Territories, every section of the road, as it is built, will call for saw mills, flour and grist mills, grain elevators, churches, school houses, residences, barns, wire fencing, pumping machinery, and all the other evidences of civilization. The vista is most alluring. Canada has great power of absorption and enormous digestive capacity. The transition from building to operating, and from capital expenditure to the earning of revenue will be easy and rapid.

How much of the requirements of the country under the coming order of things will be "made in Canada" is a matter for the consideration of our manufacturers and producers. How much will be produced in our own manufacturing establishments—how much from abroad. It cannot be expected or even hoped that Great Britain will cut any more of a figure in our imports than she does now. The new sections will, of

course, be a large producer of wool, but unless the British tariff preference is abandoned, or greatly modified, the wool will go elsewhere for manufacture, and Manitoba and the North-West will be as deficient in woolen mills as it is now; and unless our manufacturers, many of them, awake to the requirements of the occasion, they will see the country supplied, in large measure, as it is now, from American sources. It is all well enough in its way to expend large volumes of hot air talking about export trade, but the same amount of energy might be expended to good advantage in supplying the home market that we now have, and preparing for the wonderful extension of it that is so soon to be a feature of our industrial landscape.

THE HOME MARKET.

It is a noble impulse that impels Canadian manufacturers in their associations and organizations, and individually also, to exhibit great interest in the matter of export trade in seeking markets abroad for their surplus products. Some of these, such as pork packers, bacon curers, flour millers and furniture manufacturers, all producers of articles better than which there are none made, expend much thought and energy in their struggle to sell in foreign markets, in competition with the world, but reference to the Trade and Navigation Returns shows that we import all such products, and many others, which can be, to good advantage, produced at home. The idea seems to prevail, even among pronounced protectionists, that it is a good thing for Canada to be a producer of raw materials and foods for the manufacturers and laborers of other countries, while to a certain and large extent other countries are permitted to supply such things to us. Even among manufacturers great delight is displayed in pointing to the returns showing the increase of exports of manufactured articles; and they go so far, some of them, as to operate foreign intelligence bureaus in competition with the Government appointing their commercial agents in foreign trade centres, and instituting systems of reports similar to those that have for years and with great success been operated by Dunn & Co. and Bradstreets.

At the same time it does not appear that some of these manufacturers pay much attention to the requirements of our own great and growing country, particularly to those newer portions which are now attracting the notice of manufacturers of other countries. Far away fields look green; and perhaps it is for this reason that such struggles are made to acquire markets in Europe, Asia and Africa, Australasia, South America, and the Isles of the Sea—in all countries except Canada. No doubt one reason for this grows out of the example set by the United States, the manufacturers of which country, having obtained control of their own home market, are seeking others to conquer. These competitors, wide awake men that they are, keep their fingers upon the pulse of trade in all countries, and see in Canada opportunities of business which many of our own manufacturers fail to observe. American manufacturers appreciate the conditions in Canada better than Canadians do. They seem to know what Canada wants better than Canadians do. They invest liberally in advertising space in Canadian trade journals, thus bringing their products constantly and prominently to the attention of Canadian purchasers, which many Canadian producers do not do. Of course there are many exceptions to this rule. In many respects the business methods of American manufacturers might be followed with good effect by Canadian manufacturers, particularly in the matter of advertising. The conservatism of the Mother Country has had effects in this, and

the sooner the Mother Country habits are abandoned, and American habits and energy adopted, the better it will be for Canada.

American manufacturers are ready and willing to supply the wants of Canadian consumers. In the case of the West they have the advantage of having studied for years the needs of the only similar population in the world, that of the Western wheat-raising States. What difference there is between the Canadian and American West is being continuously obliterated in an economic sense by the influx of Americans. It is urgently necessary that Canadian manufacturers should watch the changes and developments of this market. No reasonable duty is sufficient to prevent the Manitoban buying what he wants from Minnesota so long as Ontario and Quebec will not give it to him.

According to the census of 1901 the population of Manitoba and the adjacent Territories was about one-eleventh that of all Canada, while according to the official returns the imports for consumption of dutiable goods into that section was more than one-seventh of the total of such goods from the United States. The explanation of this condition is largely that our new American population will continue buying in their old markets until it is properly brought to their attention that they can buy the same things in Canada without paying duty. In cases where the Canadian is not answering or cannot answer this demand, American industries are already following the American purchaser across the border. That the exodus of Dakotans and Minnesotans into Canada has had much to do with the erection here of branches of American industries cannot be doubted. Such an invasion will not benefit the country if it merely displaces Canadian industries which could fill the demand; yet some of those industries seem to be inviting it. It is an invasion from which no amount of protection can altogether save them. The ultimatum is, and must be, the action of Canadian manufacturers themselves.

ELECTRIC STEEL MANUFACTURE.

Dr. Haanel and the Commission sent to Europe by the Dominion Government to investigate steel making by electricity, have returned, and, it is reported, are well satisfied with their investigations. It will, however, be well to wait until their report is published before jumping to conclusions about the cost of producing iron or steel by this process which may vary according to the conditions at each plant, the most important of which are the cost of ore and electric power.

There is no doubt that this report will be thorough and comprehensive, and should be of great value to this country.

The electric plant mentioned as likely to give the best results in Canada is that of Charles A. Keller, of Paris, described as a double electric and continuously operating metallurgical furnace, in which the upper one formed as a stack furnace is designed for the reduction of metal from the ore, and in which the lower furnace of the ordinary kind, pierced at its upper part by a conduit located below, and in the prolongation of the charging column of the upper furnace, is designed for refining and purifying the metal, or for alloying it with other metal.

Keller's furnaces are now operating successfully in producing high grade steel and are employed to their full capacity.

In view of the electric process being applicable to Canadian ores, of which there seems to be no doubt, it would be wise for the Government to extend aid to get such an industry started. The difficulty is in starting new enterprises, and it is in their initial stages that Government aid is most needed.

The simplest form of aid, would, we think, be for the Canadian Government to grant bounties for iron and steel making, only when such products are made entirely from Canadian ores. It may have been necessary at first to give bounties to iron and steel made in Canada from any ores, but it now having been proved that we possess abundance of our own ores, it would be only right to give them the preference.

COMMERCIAL INTELLIGENCE

The Commercial Intelligence Committee of the Canadian Manufacturers' Association, have, as recorded in Industrial Canada, reported to the Executive Council regarding correspondent membership of the Association in foreign markets as follows:

After a somewhat lengthy discussion it was moved by Mr. J. P. Murray, seconded by Mr. W. K. George, that this committee recommend to the Executive Council of this Association that the services of a number of correspondent members in important foreign trade centres should be secured for the benefit of the members of the Association, at a salary of \$50 each per annum, in consideration of which monthly trade reports are to be furnished to the Association for publication in Industrial Canada; and further, that individual enquiries should be made through the Association, and paid for by the firms receiving the information at a rate not less than \$2 nor more than \$10 each, to be determined in each case by the foreign correspondent; reports to be kept on file in the Association office to form a bureau of confidential information. In making this recommendation the Committee desire to state to the Executive Council that only a few appointments will be made at the present time, and the total expense, without their further consent, will not exceed \$500 per annum.

At a subsequent meeting of the Executive Council the matter of appointing foreign agents, on terms previously discussed, was brought up, when it was definitely decided to locate such at the following places:

Calcutta, Hong Kong, Smyrna (Asia Minor), Yokohama, Cairo, Cape Town, Buenos Ayres, Valparaiso, Rio de Janeiro, Melbourne, Sydney, Paris, Copenhagen, Amsterdam, Brussels, Christiania, Vienna, Rome, Constantinople, Madrid, Berne, St. Petersburg, Glasgow and Belfast.

In the April 15 issue of this journal was published the names and addresses of the twenty-four commercial agents employed by the Dominion Department of Trade and Commerce, located in some of the most important trade centres of the world. These agents are paid for their services by the Dominion Government, some of them as much as \$3,000 a year, with liberal allowances for office help, stationery, furniture and incidentals, none but first-class men being employed, whose services are worth all they cost. It is included in their duties to give prompt and intelligent responses to all enquiries made of them by Canadian manufacturers, exporters and importers, which service is rendered without charge; nor is it necessary for any enquirer to forward his communication in other manner than by a direct address to the agent. Ever since the Department of Trade and Commerce established its Commercial Intelligence Bureau it has been understood that, wherever it was found that the Bureau was lacking in a greater number of representatives, to be stationed in other trade centres abroad, suitable appointments would be made.

It is exceedingly gratifying, then, to learn that the Canadian Manufacturers' Association has determined to supplement the Government's Intelligence Bureau by the appointment and support of an equal number of agents.

It is also to be observed that the cost to the Association will be infinitesimal as compared to the expense incurred

by the Government. A salary of \$50 per annum—less than fourteen cents per day—with no incidental expenses, not even stationery or postage—is certainly not expensive. Of course none but experienced and competent business men will be employed by the Association, and this makes desirable situations for aspiring college graduates and others, who will no doubt, be well qualified by knowledge of the language and habits of the countries to which they are to be accredited, for the duties they are to perform. Of course the reports of these foreign agents of the Association are to be secured for the benefit of the members only, and are to be published monthly in Industrial Canada; while the opposition concerns at Ottawa, with an equal number of agents, publish their reports weekly, and distribute them regularly without charge to any manufacturers who apply for them.

COMPETENT AGENTS REQUIRED.

United States Consul Monaghan at Chemnitz, Germany, reporting to his Government regarding the linguistic training required of German foreign commercial agents, says:

In spite of the fact that the Germans as a nation have a reputation for their linguistic capacity and attainments, it is not infrequent that one reads of a deplorable lack of linguistically trained agents in certain branches of German foreign industry. This lack, it is said, is manifested to no appreciable degree among the general commercial representatives of the Empire, but prevails to an unfortunate extent in the ranks of technical agents, who, for the most efficient conduct of their business, require a ready speaking knowledge of the language of the country in which they are stationed, and in addition to this must possess thorough familiarity with the special foreign terminology of their profession. The lack of this latter accomplishment is very commonly regretted among German business men who are interested in the more technical departments of foreign trade. A writer in the Export Revue calls attention to the splendid opportunities which are offered in this field to young men who complain that all professions and all walks of life are overcrowded. One export firm is reported to have long sought a young man well versed in the technical terminology of the engineering profession to represent the interests of its machine trade in a large English colony, but to have sought in vain. While the writer does not believe that the scarcity of young men of this class is as widespread as this example might lead one to infer, he nevertheless concurs in the idea that the German system of industrial education is still weak in the education of young engineers, electricians, miners, etc., in the foreign technology of their trade. He urges that hereafter special provision ought to be made to offer an opportunity to young Germans who contemplate entering foreign commercial service as salesmen or technical representatives for a thorough linguistic training—one which will endow them with more than a purely mechanical control of the technical vocabulary involved in their profession, and which will empower them to readily converse with business men in their field. To attain this end special optional or elective courses are desirable, for it would be a useless waste of time for home engineers, who plan for permanent residence in the country, to devote themselves to as thorough a linguistic education as is requisite to attain a perfection or even a fair knowledge in foreign speech. An elementary training is in all cases beneficial, and provision for such a training has already been made in most of the advanced industrial schools. But it is in the field of specialized, technical linguistic training that considerable room for improvement still remains.

TRADE WITH MEXICO.

United States Consul Gunsaulus, at Toronto, reports to his Government as follows re Canada's plan for enlarged trade with Mexico:

As the result of a recent visit to Mexico by Sir William Mulock, postmaster-general of Canada, interest has been

awakened in the trade opportunities to be found in that Republic for Canadian products. This has taken definite form in a subsidy of \$50,000 voted by the Dominion Government for the establishment of a steamship line from Canada to Mexico, and, according to D. A. Insell, the consul-general of Mexico, immediate advantage will be taken of this subsidy for the purpose mentioned.

Consul-General Insell, in an interview, says of this project: Immediate advantage will be taken of the subsidy of \$50,000 voted by the Dominion government for the establishment of a steamship line from Canada to Mexico. Three different lines are already anxious to take advantage of the subsidy. These include the Canadian Pacific and Elder Dempster lines. As the result of the visit of Sir William Mulock, the Mexican Government has become so anxious to bring about these relations with Canada that it has decided to at once place consuls in every port of Canada. At the outset the new line will run in summer from Montreal to Progreso and Veracruz by way of Havana. Canada will be easily able to send a full cargo of coal and manufactured goods, and we will be able to always supply full cargoes from Mexico. After a few years there will not be any further need for a subsidy.

In case this steamship line is established, as now seems probable, Canada may prove quite a strong competitor of the United States in certain lines of trade of which the latter country now has practical control. In this connection it must not be forgotten that the Canadians are very much alive to the importance and advantages of increasing their export trade, and in their effort to do so the government is offering substantial assistance, as is instanced in the steamship subsidy alluded to above.

For the fiscal year ended June 30, 1903, the total exports to Mexico of strictly Canadian products amounted to only \$105,365, while the imports, free and dutiable, were \$125,575. By the establishment of a steamship line, as is now contemplated, and by other vigorous and well-directed efforts, it is expected to largely increase the trade with Mexico.

MEETING OF THE SHAREHOLDERS

OF THE

CANADIAN MANUFACTURER PUBLISHING CO., Limited.

The Shareholders of the Canadian Manufacturer Publishing Co., Limited, are hereby notified that a General Meeting of the Company will be held on Monday, the 6th day of June, 1904, at the hour of 11 o'clock in the forenoon, at the Head Office of the Company, Room 408 Mc Kinnon Building, corner Jordan and Melinda Streets, Toronto, for the purpose of receiving and considering a report from the Directors upon the affairs of the Company, to elect a Board of Directors for the ensuing year, and to consider, generally, such other business of importance to the Company, as may be presented.

ARTA CASSIDAY,

Secretary.

Dated at Toronto, this 6th day of May, A.D., 1904.

EDITORIAL NOTES.

Those of the members of the Canadian Manufacturers' Association who are interested in foreign trade realize the necessity of being better represented in the commercial centres of foreign countries. The association has therefore recently determined to appoint agents in twenty-four of the principal commercial centres of the world, to whom are to be paid salaries at the rate of \$50 per year, or about fourteen cents per day in consideration of their making monthly reports to the home office, which are to be published in *Industrial Canada*. It is expected that competent busy business men in the commercial centres indicated, will be glad to avail themselves of the opportunity to turn fourteen honest pennies in obtaining valuable information regarding the opportunities for trade in

their respective localities and reporting thereon regularly to the home office.

The Baltimore fire department authorities are convinced that the conflagration which wrecked the business portion of the Maryland metropolis originated in an explosion of smoke in the Hurst buildings. Exhaustive experiments along the same line as those conducted at Philadelphia a couple of years ago, have left no doubt as to the fact that smoke under certain conditions will explode like dust, and have created a strong presumption that the Hurst buildings, where the fire originated, were destroyed in this way. The smoke must be confined, heated to a temperature between 160 and 200 degrees and fire applied, before the conditions for explosion are present. Dust-producing establishments, like flour mills, therefore, are not the only ones where the danger of explosion exists. Almost any concern in flames is liable to explode under such conditions. No doubt some explosions credited to dust have been due to smoke, and some explosions considered mysterious, or due to gas or explosives stored on the premises, find a plausible explanation. The flour mill is no less liable to dust explosion to-day than it was yesterday; but the fact that almost any burning building is also liable to explosion from smoke, removes, or rather broadens, the distinction of being extra-hazardous because of the possibility of explosion. The insurance companies have always overworked the dust explosion hazard. The smoke explosion hazard will give them something else to think about.—American Miller.

Hon. E. J. Davis, Commissioner of Crown Lands of the Ontario Government, included in which is the Bureau of Mines, of which Mr. T. W. Gibson is director, has arranged to hold a series of summer mining classes in the mining districts of the province at which instruction in the elements of mineralogy and geology will be afforded to those actually engaged in digging out the mineral wealth of the country as well as to the hardy prospectors who make a business of looking for new deposits. The tuition will be given by Dr. W. L. Goodwin, Director of the School of Mining, Kingston, and Mr. J. W. Bain, B.A.Sc., Lecturer in Applied Chemistry in the School of Practical Science, Toronto. Both these gentlemen are thoroughly qualified and practical men. The list of places at which classes are to be held and the approximate dates are as follows: Bannockburn Pyrite Mine, May 2-9; Olden Zinc Mine, May 10-17; Radnor Iron Mine, May 19-26; Craig Corundum Mine, May 26, June 3; Haileybury and New Liskeard, June 6-18; Creighton Mine, June 16-23; Massey Copper Mine, June 25, July 3; Superior Copper Mine, July 5-12; A. L. 282, July 15-22; Gold Rock, July 24-31; Sultana, August 3-10.

One of the factors which undoubtedly assisted the Toronto firemen in checking the progress of the recent big fire eastward along Wellington Street was the automatic sprinkler system in Kilgour Bros' warehouse. While this building itself was badly damaged, the sprinklers served to dampen the ardor of the flames, and the firemen were able to prevent the flames spreading further than the west side of the Union Bank, which adjoins the Kilgour property on the east. The sprinklers in this case probably saved an additional loss of several millions of dollars, as, had the fire advanced to Yonge Street on Wellington, it is difficult to say where it would have been checked. The building of the W. R. Brock Co., at corner of Wellington and Bay Streets, was also equipped with the sprinkler system, and to this fact is attributed its stout resistance to the flames and the comparative slowness with which the building was consumed.

HYATT FLEXIBLE ROLLER BEARING.

The distinctive feature of the Hyatt flexible roller bearing is the roller, which is made from a strip of steel wound

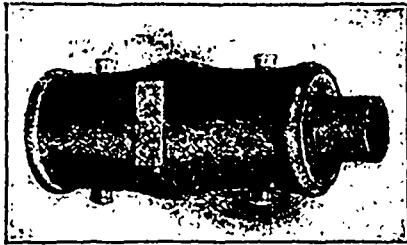


Fig. 1. Hyatt Roller Bearing.

into a coil or spring of uniform diameter. The great advantage of a roller of this construction lies in its flexibility, enabling it to present at all times a bearing along its entire length, resulting in a uniform distribution of load on the roller itself,

Some of the advantages claimed for the Hyatt roller are:

There are no conditions of speed or load under which it cannot be successfully used.

It does not require mechanically perfect conditions in order to give good service. Conforms to commercial requirements. The rollers, being hollow, foreign matter has a tendency to collect inside rather than on the bearing surfaces.

The rollers, being hollow, act as an oil reservoir. The spiral acts as an oil carrier, the result being that when once properly charged, the bearing can be operated for long intervals of time without attention.

Of interest here should be a few particulars regarding the wide range of sizes in which this bearing is made. The smallest roller coiled is $\frac{1}{2}$ inch diameter and $1\frac{1}{2}$ inches long; it is used in a law-mower bearing, the axle for which is $\frac{3}{4}$ inch in diameter. Next in size come automobile bearings, the smallest roller made for this work being $\frac{3}{4}$ inch in

bearings with these flexible rollers have been constructed to operate at all rates up to 3,000 turns per minute. It will be understood that as the rollers increase in diameter with the size of the bearings they are made from heavier stock of dimensions to suit the load, the cross-section and diameter of rollers of all sizes being so proportioned as to give, with maximum flexibility, ample strength to resist crushing. The flexibility of the roller allowing it to conform to the surfaces with which it comes in contact, the load is uniform throughout the roller length and the contacting surfaces, although these are all left soft, are maintained in good condition.

Fig. 1 is a view of the Hyatt roller bearing as in use supporting a shaft. Fig. 2 is a longitudinal and cross-section view; and Fig. 3 shows a group of finished bearings in which are grouped a number of the different styles of bearings equipped with the flexible roller. The largest is 24 inches diameter by 12 inches face, and is of a type used on pulverizing machinery; the half-dozen in the foreground are regular shafting bearings of various sizes; and the one in the pulley, as well as those to the left, are of the bushing type.

The cost of fuel for power is a most important item in the expense account of every manufacturer, and any saving in the consumption of coal adds directly to the profits of the business. The greatest loss of power in all manufacturing establishments is in its transmission from its source to the point of application.

Following are the names of some prominent Canadian manufacturing concerns whose works are equipped with the Hyatt roller bearings, supplied and installed by the Pittsburg Shafting Co.; 39-41 East Atwater street, Detroit, Mich.

Cockshutt Plow Co., Brantford, Ont.;

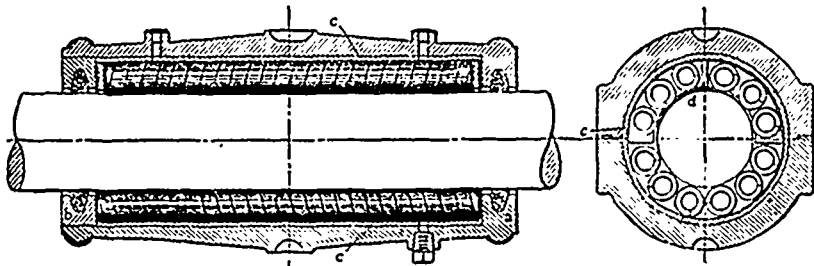


Fig. 2. Longitudinal and Cross Sections.

as well as the surfaces on which and in which it is operated. All tendency to distortion of these surfaces is entirely eliminated, for the roller will adjust itself to any irregularities that may be present, and there is no necessity for hardening the various parts of the bearing—any soft steel surface satisfactorily answering all requirements. It will also be seen from its construction that the roller essentially acts as an oil reservoir, while the spiral and roller together perform the function of an oil carrier, thereby assuring perfect lubrication of all parts at all times, making it possible to operate the bearing for considerable intervals without attention. By varying the diameter of the roller, as well as the thickness, width and character of the stock from which it is made, it is possible to so vary its nature as to enable it to operate under the most varied conditions, from the heaviest load on one hand to the highest speed on the other.

A bearing, having as a foundation a roller of this description, possesses the features that we have found to be most essential in an anti-friction device, namely, the fullest extent of contact with uniform distribution of load. With balls, there is the minimum amount of distribution, increased somewhat with the solid roller on account of the greater number of points of contact, but at the same time not presenting a line of contact on account of its rigidity, whereas the Hyatt flexible roller, on account of its flexibility, is able at all times to present contact along its entire length.

diameter. The largest pair of bearings turned out support a 9-inch shaft 42 inches in length. The largest rollers are 2 inches diameter, the stock for these measuring $\frac{1}{2} \times 7-16$ inch. As to speeds,

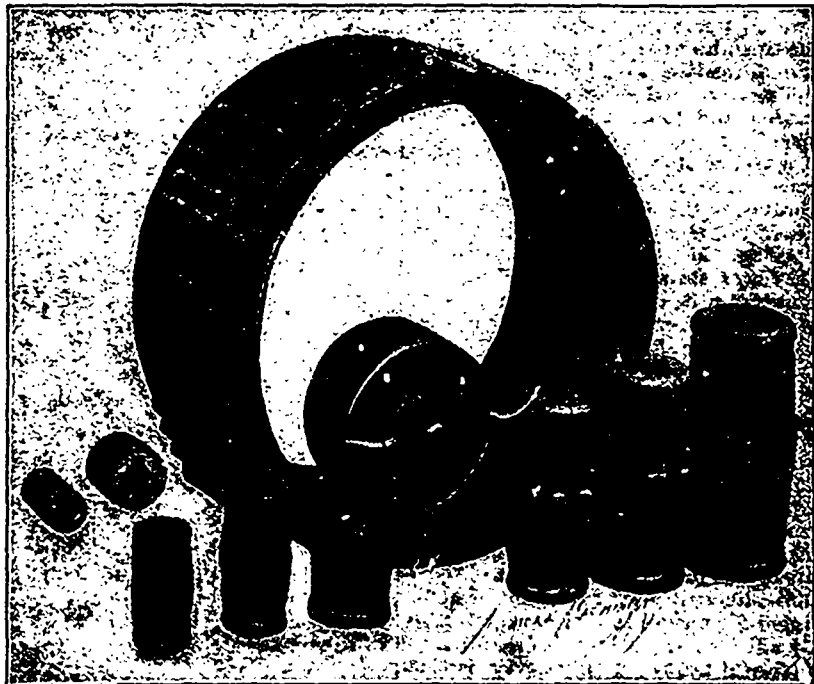


Fig. 3. A Group of Finished Bearings.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Wm. Gray & Sons Co., Chatham, Ont.; C. E. Naylor, Essex, Ont.; McClary Mfg. Co., London, Ont.; London Builders'

Supply Co., London, Ont.; Nowell-Higel Co., Toronto; Toronto Brass Mfg. Co., Toronto.

SINCLAIR'S PATENT SHAFT COUPLER.

The accompanying illustrations are of a safety shaft coupler manufactured by Messrs. G. S. Sinclair & Sons, Wiarton, Ont. It is the invention of Mr. D. S. Sinclair, a student of the School of Practical Science, Toronto; and has been patented in Canada, Great Britain, United States, France, Germany and other countries.

Fig. 1 shows a longitudinal section with the parts connected.

Fig. 2 is a sectional elevation showing the disconnected parts.

The shafts to be connected have on their adjacent ends, a tapered sleeve. A

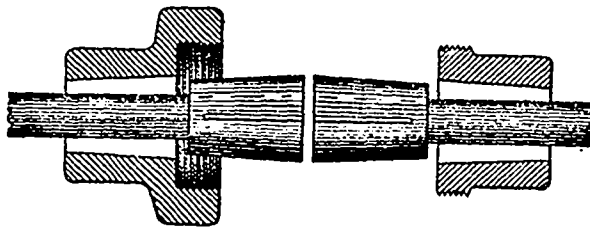


Fig. 2.

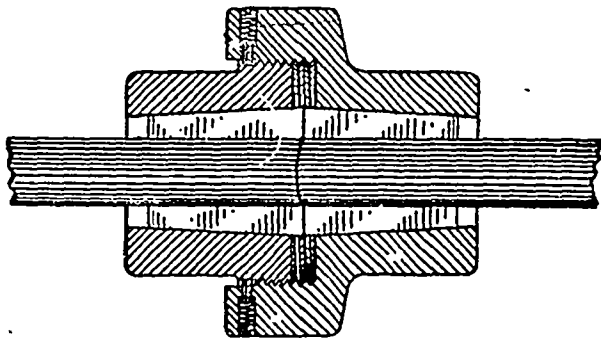


Fig. 1.

split or cut is made in the sleeve from one end almost to the other, and a similar split is made at a right angle to the first, from the other end of the sleeve. The sleeve is thus compressible, and at the same time the parts are held in working position relative to each other. The couplings are male and female, and are threaded and tapered internally to correspond with the sleeves.

The screw threads of the coupling members are cut right or left handed, according to the direction in which the shaft will rotate. The sleeves are placed in position as in Fig. 1 and the muffs placed over them and screwed together, compressing the sleeves against the shaft. This frictional grip will tighten up the coupling as the shaft is set in motion and power transmitted.

By the use of this coupler, line shafting of all sizes and varying sizes may be quickly and easily connected together without the use of bolts or keys. The holding power of it is increased as the strain on the shaft is increased. Its grip is automatic. It will, at all times, maintain its integrity under strain until the shaft breaks or is twisted in two.

Two different sizes of shafting can be coupled together with it, and it automatically adjusts itself to any size shafting.

A special feature of this device is that it is made for use on shafting revolving to either the right or left.

The salient features of the Sinclair

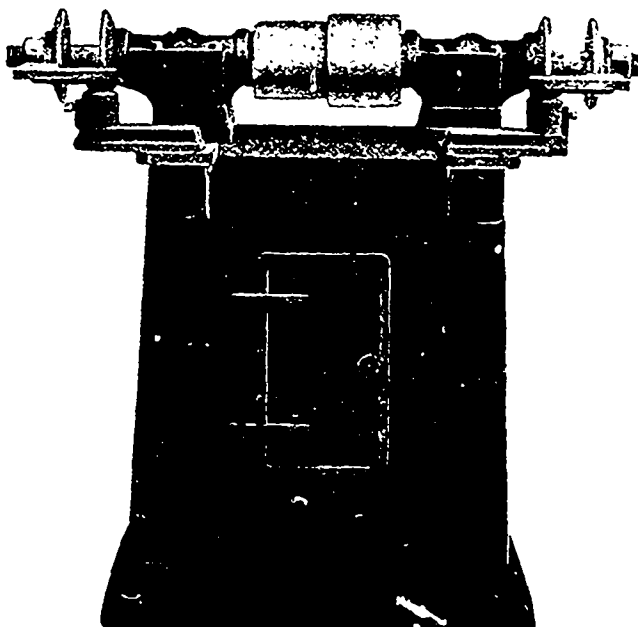
patent shaft coupler include safety, simplicity and neatness of appearance. No bolts or keys, and it can never slip. Messrs. G. S. Sinclair & Sons are in receipt of some very flattering testimonials

from manufacturing concerns in Canada who have the coupler in use, including the Globe-Wernicke Co., Wiarton, Ont.; Hepworth Mfg. Co., Hepworth, Ont.; Canada Furniture Manufacturers, at their works at Wiarton, Ont., and George Paul, proprietor of the steam laundry at Wiarton.

The Ontario Department of Public Works have ordered a number of pairs of the Sinclair couplings for use on the shafting to be installed in the new milling building in connection with the mining department of the School of Practical Science, Toronto.

GRINDING MACHINERY.

Among the numerous types of improved power grinding machines placed on the market by the Hart Corundum Wheel Co., Hamilton, Ont., is Cyclone Grinder,



Cyclone Grinder, No. 17.

No. 17. This machine is built on scientific principles with absolutely dust proof bearings and automatic oilers. It is built to carry two wheels, 12 to 16 inches diameter and 3 inches thick. The counter-shaft has cone pulleys, 15x16x4 1/2 inches face. The tight loose pulleys are 8 inches diameter and 5 inches face with a speed of about 650 revolutions per minute.

The crucible steel arbor of the machine is 42 inches in length and with a diameter of 1 1/2 inches between collars, and a distance of 30 inches between wheels. The bearings are 8x1 9-16 inches; size of cone pulley on arbor is 5 inches and 6x4 1/2 inches; diameter of collars, 6 inches; height from floor to centre of arbor, 35 inches, and size of base, 23x27 inches.

This machine, one of the type exhibited at the Toronto exhibition last fall, represents the highest perfection in this line of machinery, and has come into wide use by the manufacturers, machinists and others requiring such appliances. The Hart Corundum Wheel Co. have a number of other types of power grinders, all of which have become popular with users.

A NEW WELDING MATERIAL.

In an interesting and successful demonstration on the uses of aluminothermics in modern industrial processes, in Toronto last Friday, the properties of "thermit," a newly invented welding material, and its value in this line of work, were fully shown. By the new material and process, a street car rail was welded on the Front Street line in the presence of a number of officials of the Toronto Street Railway and representatives from other street railways, as well as engineers and others interested. The test was made by Mr. William Abbott, of Montreal, who has been appointed sole agent for Canada for thermit, and was successful in every particular, although conducted under unfavorable conditions. The street railway and other officials present expressed the greatest interest in the new

process, in this as well as in other tests made at the street railway shops on Sherbourne Street. Other tests will be made soon in Montreal and other Canadian cities, and the material placed on the market at once. THE CANADIAN MANUFACTURER will publish in an early issue, an illustrated article describing the new material and operations.

Advices from Dawson City, Yukon, state that Mr. J. J. Rutledge, who lately made an investigation into the output of the Canadian Klondike, estimates the total amount of gold shipped south from there this season at \$125,000,000.

CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser on these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, bolting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalies, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The M. Campbell Fanning Mill Co., Chatham, Ont., have changed their name to the Manson Campbell Co., Limited.

H. W. Petrie, Toronto, supplied a new steam boiler for the Palmer House for heating and other purposes.

The Canada Wheel Works, Merriton, Ont., have been incorporated with a capital of \$100,000, to manufacture shafts, poles, spokes, etc. The provisional directors include F. N. Hara, J. S. Hara, Merriton, and H. H. Collier, St. Catharines, Ont.

The Alvinston, Flax Co., Alvinston, Ont., have been incorporated with a capital of \$25,000, to manufacture flax straw, flax fibre, etc. The provisional directors include T. A. G. Gordon, A. S. Harkness and A. B. Connor, Alvinston.

The Grand Trunk Railway Co. will erect a new station at Walkerville, Ont., at a cost of about \$10,000.

Work is now well under way on the new paper mill of the Cornwall Paper Co., at Mille Roches, Ont., on the St. Lawrence River, at a cost of about \$125,000.

The Standard Portland Cement Co. have contracted with the R. F. Wentz Engineering Co., Toronto, for the building at Edgerton, near Frankfort, Mich., of a Portland cement mill with a capacity of 1,000 barrels daily.

The Roblin Milling Co., Roblin's Mills, Ont., have been incorporated with a capital of \$25,000, to carry on a general flouring and milling business. The provisional directors include W. H. C. Roblin, Ameliasburg, Ont., D. E. Roblin, Portland, Oregon, and D. Roblin, Belleville, Ont.

The St. Thomas Gas Co., St. Thomas, Ont., have increased their capital from \$100,000 to \$180,000.

The Niagara Falls Machine & Foundry Co., Niagara Falls, Ont., have increased their capital from \$10,000 to \$50,000.

The Ottawa Furnace & Foundry Co., Ottawa, Ont., have increased their capital from \$40,000 to \$250,000.

It is reported that through the influence of President Palma, Sir William Van Horne of the Canadian Pacific and President of the Havana & Santiago Railroad is about to close a deal for the purchase of the old Viebac Penitentiary, located

opposite Moro Castle, at the entrance of Havana harbor, for the erection of a hotel that will cost \$1,000,000.

The Gutta-Percha & Rubber Mfg. Co. Toronto, are enlarging their machine shop, having just purchased a 24 inch Cincinnati shaper and a heavy lathe from H. W. Petrie, Toronto.

A by-law has been passed at Midland, Ont., to raise \$10,000 for electric light and waterworks improvements.

A modern dairy building will be erected by the Western Fair Board at London Ont.

The Board of Control at Toronto, have authorized the preparation of plans for a new pavilion in the Allan Gardens to cost about \$60,000.

J. S. Hill, Toronto, has purchased a Lodge & Shipley lathe through H. W. Petrie, Toronto.

The Queen City Concrete Paving Co., Toronto, have been incorporated with a capital of \$40,000, to carry on the business of contractors for paving and road construction, the erection of houses, etc. The provisional directors include W. L. Purvis, R. J. Moyes and Thos. Cosburn, Toronto.

The John A. Lang Leather Co., Ottawa, Ont., have been incorporated with a capital of \$200,000, to manufacture leather, leather goods, etc. The provisional directors include J. A. Lang, Berlin, Ont., J. A. McGrail, Acton, Ont., and D. Murphy, Ottawa.

H. Gagnier, Limited, Toronto, have been incorporated with a capital of \$100,000, to carry on a general printing and lithographing business. The provisional directors include H. T. Gagnier, W. R. P. Parker, and E. H. Bickford, Toronto.

A veneer plant including a Jewel engine is being installed for C. B. Janes, Thoronton, Ont., by H. W. Petrie, Toronto.

The Grand Trunk grain elevator with a capacity of 500,000 bushels, at Midland, Ont., was destroyed by fire April 24.

The Blonde Lumber Co., Chatham, Ont., have been awarded the contract to erect the new Roman Catholic Church in Windsor, Ont., at a cost of \$25,448.

H. W. Petrie, Toronto, is supplying the Electric Development Co., Niagara Falls, Ont., with three 100 h.p. Erie

portable boilers and some large direct connected centrifugal pumps.

The Speight Wagon Co., Markham, Ont., have been incorporated with a capital of \$200,000, to manufacture wagons, sleighs, railroad carts, etc. The provisional directors include F. H. Speight, G. A. Speight, Markham, and Thos. Heys, Toronto.

The Anderson Langstaff Co., Kemptonville, Ont., have been incorporated with a capital of \$60,000, to acquire the business of Anderson & Langstaff, and to manufacture dairy produce, etc. The provisional directors include W. H. Anderson, A. Langstaff and N. C. Parish, Kemptonville.

The new plant which is being constructed by the Rainy River Lumber Co., at Rainy River, Ont., is nearing completion. It is expected that operations will commence shortly. It will have a capacity of 400,000 feet per day, and will employ 600 men. About fifty dwellings will be required immediately for homes for the men employed.

The Kilgour Mfg. Co., Hamilton, Ont., are installing a very large and modern box making plant purchased from H. W. Petrie, Toronto.

The Milner Petrolea Wagon Co., Petrolea, Ont., have an up-to-date factory, second to none in Canada. They are turning out strictly high class goods. Mill men and lumber men will be interested in getting particulars of saw dust dump wagons, heavy log trucks and lumber trucks. Correspondence solicited.

The Ontario Wind Engine & Pump Co., Toronto, have recently made a shipment of two of their well-known airmotor outfits to Paris, France, which is only a part shipment of order received from their representative in that city. This is the result of their exhibit made at the Paris Exhibition in 1900, where they were awarded a medal for their goods. This company have also received an enquiry from Labrador for their goods. Truly, "the sun never sets on the Canadian airmotor."

S. Pomeroy, Orillia, Ont., has had a large boiler supplied by H. W. Petrie, Toronto.

The Electric Development & Securities Co., a United States incorporation have been licensed to manufacture machinery and generate electricity, etc. in Ontario with a capital of \$100,000. F. K. Foster, Toronto, is their attorney.

The Anglo-American Medicine Co., a United States incorporation, have been licensed to manufacture medicines, drugs, etc. in Ontario, with a capital of \$10,000. F. Huckins, Toronto, is their attorney.

Messrs. S. F. Bowser & Co. a United States incorporation have been licensed to manufacture self measuring oil tanks, wash-boards, etc. in Ontario, with a capital of \$40,000. S. H. Rodgers, Toronto, is their attorney.

H. W. Petrie, Toronto, is supplying the Knechtel Furniture Co., Hanover, Ont., with a 300 h.p. Erie water tube boiler for their works.

The Avon Hoisery, Limited, Stratford, Ont., have been incorporated with a capital of \$40,000, to manufacture hosiery and knitted goods. The provisional directors include D. MacC. Ferguson, B. M. Williams, Stratford, and R. L. Baker, Toronto.

The Crown Cork & Seal Co., Baltimore, Ind., have been licensed to manufacture bottles, jars, stoppers, etc. in Ontario with capital of 40,000. Robt. Boyd, Toronto, is their attorney.

H. W. Petrie, Toronto, shipped a large boiler recently for Ellis Bros. mill at Kleinberg, Ont.

The Gilchrist Clothing, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture clothing etc. The provisional directors include C. McLeod Gilchrist, Jas. Constable and J. H. Denton, Toronto.

Mr. D. Dashwood, Dunnville, Ont., is remodelling his machine shop, having purchased a large Gap lathe and other machines from H. W. Petrie, Toronto.

The Tomstown Lumber Co. Ingram, Ont., have been incorporated with a capital of \$10,000, to manufacture timber, lumber, etc. The provisional directors include I. Allan, Robt. Allan, Palmerston, Ont., and F. J. Allan, Perth, Ont.

The Smokeless Fuel Saving System, Limited, Toronto, have been incorporated with a capital of \$100,000, to manufacture smoke consumers, etc. The provisional directors include D. Donald, M. P. Vander Voort and C. H. McArthur, Toronto.

The Purity Mfg. Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture soaps, washing compounds, etc. The provisional directors include I. L. Wilson, C. E. Sullivan and A. H. Pritchard, Toronto.

The Star of the East Mining Co., Peterboro, Ont., have purchased a new boiler and other machinery from H. W. Petrie, Toronto, to handle their increased business.

The McLachlan Gasoline Engine Co., Toronto, will increase their capital from \$39,000 to \$100,000.

The Stratford Clothing Co., Stratford, Ont., will increase their capital from \$40,000 to \$100,000.

The Ontario Pipe Line Co. have increased their capital from \$40,000 to \$500,000.

F. W. Doty, Goderich, Ont., has purchased some direct connected generators from H. W. Petrie, Toronto, for installation in the Upper Lake steamers.

The Whitten Drummond Co., Toronto, have been incorporated with a capital of \$10,000, to acquire the business of W. J. Whitten & Co., and to manufacture hardware, etc. The provisional directors include J. H. Whitten, Wm. A. Drummond and John Drummond, Toronto.

The Cement Block Machine Co., Limited, Toronto, have been incorporated with a capital of \$40,000, to acquire the business of the Cement Block Machine Co., and to manufacture cement, artificial stone, etc. The provisional directors include P. W. Stanhope, C. E. B. Adams and John Lavelle, Toronto.

The Dominion Concrete Co., Kemptville, Ont., have been incorporated with a capital of \$10,000, to manufacture concrete, building material, supplies, etc. The provisional directors include W. H. Anderson, A. Langstaff and W. Dillane, Kemptville.

H. W. Petrie, Toronto, has installed a Cincinnati milling machine for the R. Bell Engine & Thresher Co., Seaforth, Ont.

The Galt Art Metal Co., Galt, Ont., have been incorporated with a capital of \$100,000, to manufacture sheet metal, ceilings and cornices, etc. The provisional directors include Dr. Spiers, F. H. Hayhurst and Hugh McCulloch, jr., Galt.

The Dominion Canning Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture canned and preserved goods, etc. The provisional directors include P. A. Barry, W. H. Millman and W. J. L. McKay, Toronto.

H. W. Petrie, Toronto, has just shipped some new machine tools for Albert Bell's shop at Dunnville, Ont.

The Jackson Wagon Co., St. George, Ont., have been incorporated with a capital of \$100,000, to manufacture wagons, carts, sleighs, etc. The provisional directors include S. G. Kitchen, D. Jackson and J. R. Hutchison, St. George.

The Laidlaw Lumber Co., Toronto, have been incorporated with a capital of \$300,000, to acquire the business of Geo. H. Belton, London, Ont., and the R. Laidlaw Lumber Co., Sarnia, Ont., and to manufacture lumber, etc. The provisional directors include R. Laidlaw, W. C. Laidlaw, Toronto, and G. H. Belton, London, Ont.

The W. R. Brock Co., Toronto, have secured the property next to their burned building, upon which the Rolph, Smith Co.'s building stood, and will erect on the same a factory with a four-story front upon Wellington Street. The new warehouse upon the old site will be a four instead of a six-story building. A. R. Denison is the architect.

Because of the refusal of the Dominion Government to impose a duty on the products of the Canadian Electro Chemical Co.'s mills at the Canadian Soo, it is proposed to remove the industry to the American side of the river. The electro-lytic manufacture of caustic soda and bleaching powder has been carried on at the Canadian Soo and on the American side at Niagara Falls. The American duty on bleaching powder is \$4 per ton, and on caustic soda \$5. Both of these commodities are admitted free into Canada. The works at the Soo cost \$300,000, and have been operated for two years. The raw material used is salt from the Goderich and Windsor fields and lime from Ontario quarries. The operation of the plant to its full capacity has resulted in the annual distribution of some hundreds of thousands of dollars for Canadian labor and Canadian material, but the alkali works are closed now, and if Ottawa does not give the relief demanded this session they will be removed to where they will have protection in the American markets, as well as free entry into the Canadian markets.

The Hamilton Steel & Iron Co., Hamilton, Ont., enjoys the distinction of having bought and re-worked the iron in the Great Eastern, which long held the record as the largest ship in the world; the iron in the Niagara suspension bridge, which for years was the only bridge over the Niagara river; the iron in the unique Victoria tubular bridge at Montreal, which was 9,144 feet long; and the iron in the once famous Atlantic liner, the City of Rome. The iron was worked up into bar iron, the bulk of which went into the construction of agricultural implements. What could better illustrate the unselfish materialism of the present generation than the reduction of these famous products of engineering into prosaic merchant bars?

The proposed extension of the Temiskaming Railway from New Liskeard to Lake Abitibi is taking definite shape, and more than 30 miles north from the former town have been accurately surveyed and the route located, whilst the try lines for an additional 45 miles have been laid out. Mr. W. B. Russell, C.E., who is the resident engineer of the road, says the whole 80 or 90 miles from the present terminus at New Liskeard to where the new Grand Trunk Pacific will cross, near the Abitibi, will be located, and everything ready, so that the commissioners may, if they so decide, call for tenders for the extension some time next month. Mr. Russell says that after reaching the height of land north of New Liskeard, and near to the source of the Blanche River, the grade is very easy, less even than the Grand Trunk Pacific engineers find in their western extension.

Messrs. W. Richardson & Sons, Toronto, have been incorporated with a capital of \$40,000, to carry on a cold storage and warehouse business. The provisional directors include D. Gunn, A. Gunn and F. M. Moffat, Toronto.

The National Herb Co., Toronto, have been incorporated with a capital of \$25,000, to manufacture medicines, etc. The provisional directors include J. J. Lindsay, Toronto; G. H. Lindsay and C. E. Lindsay, Lindsay, Ont.

The works of the Alabastine Co., Paris, Ont., were destroyed by fire April 14. Loss about \$10,000.

Mr. J. M. Kirkwood, Toronto, will probably establish works in Winnipeg, Man., for the manufacture of wire nails.

F. A. Knapp, the inventor of the roller boat, will start a new shipyard at Prescott, Ont.

The Canadian Tinplate & Decorating Co., London, Ont., will remove their works to Hamilton, Ont. The company will employ about 100 hands.

A grain elevator will be erected at Collingwood, Ont., with a capacity of 1,000,000 bushels. The structure will be of steel and concrete, to consist of 18 circular bins 30 feet in diameter, 90 feet high, with a steel cupola containing two 1,500 bushel scales and garners. Tenders will be invited shortly.

The contract for the erection of the new Roman Catholic University at Ot-

tawa, Ont., to cost \$1,000,000, has been awarded to P. Tyall & Son, Montreal.

Contracts have been awarded for the erection of the Woodstock Lumber Co's. new factory at Woodstock, Ont.

Mr. J. E. Webb, Toronto, has been awarded contracts for the erection of a pair of warehouses for the Merchants' Dyeing & Finishing Co., and Messrs. Garside & White, wholesale shoe dealers, Toronto.

A by-law has been carried at Listowel, Ont., granting an additional \$10,000 to complete the municipal waterworks plant.

Mr. Geo. Lawrence, formerly Messrs. Lawrence Bros., bakers, Toronto, has purchased a site 154x126 feet upon which he will erect a modern bakery, etc., at a cost of \$75,000.

The Eckardt Casket Co. and the Eckardt Silver Plate Co., Toronto, whose works were recently destroyed by fire, will erect new buildings. The main building will be 196x80 feet, four stories high.

The St. Louis Reduction Co., Toronto, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include G. E. Kingsley, St. Louis, Mo.; C. B. Jackes, Toronto; and R. Forbes, Duluth, Minn.

The Toronto City Council have awarded the contract for 6,000 feet of 72-inch steel pipe to the James McNeil & Bros. Co., Pittsburg, Pa.

The ratepayers of Niagara-on-the-Lake, Ont., have passed a by-law granting a bonus of \$15,000 and exemption from taxation for 20 years to the Niagara, Queenston & St. Catharines Railway Co., to aid in the construction of an electric railway from St. Catharines to Niagara-on-the-Lake, thence along the bank of the Niagara River to Queenston.

The Canadian Pacific Railway Co., in addition to double tracking their line from Parkdale to the Toronto Junction, will build a new bridge, to cost about \$25,000, over Black Creek.

The Cyclone Woven Wire Fence Co., Toronto, have been incorporated with a capital of \$75,000, to manufacture wire fences, fence machines, etc. The provisional directors include H. Buckel, Toronto; J. P. Mabee, Stratford, Ont.; and E. G. Law, Eglington, Ont.

The Goldie & McCulloch Co., Galt, Ont., will erect large new boiler shops. Contracts for the buildings have been awarded and work will be proceeded with at once. The shops will be over 300 feet long, and will be built largely of structural steel, and will be equipped with the most modern machinery for the manufacture of boilers.

Fruitatives, Limited, Ottawa, Ont., have been incorporated with a capital of \$500,000, to manufacture medicines, etc. The provisional directors include A. McLaren, Buckingham, Que.; G. F. McCormick and A. Rogers, Ottawa.

The Petrie Mfg. Co., Guelph, Ont., whose works were recently destroyed by fire, will probably remove to Hamilton, Ont.

The Mansfield Glass Works, Lockport, N.Y., are considering the establishment of a branch works at Hamilton, Ont. The company will be capitalized at \$200,000, and will employ 150 hands.

The Galt, Ont., Hospital Board, will ask the town council for a loan of \$10,000 towards the enlargement of the hospital.

The Barber & Ellis Co., stationers, Toronto, whose works were recently destroyed by fire, will remove their factory to Brantford, Ont.

The Post Office Department of the Dominion Government will acquire a site near the Union Station, Toronto, for a power house to operate the pneumatic tube system of mail delivery to be established in this city.

The Canadian Pacific Railway Co. have awarded the contract for the construction of the road from Sudbury to Toronto to Messrs. Foley Bros., also for the construction of 25 miles east from Wetaskiwin, N.W.T., 25 miles east from Lacombe, N.W.T., and 40 miles from Pheasant Hill, N.W.T., known as the Lost Mountain section. These works are to begin at once, and will be completed this year.

The Temiscaming & Northern Ontario Railway Commission have awarded the contract for the steel bridge over the Montreal River, 94 miles north of North Bay, to the Dominion Bridge Co., Montreal. The bridge will consist of three spans 125 feet long, and will cost \$20,000. A contract for the construction and supply of six 40,000 gallon water tanks has been awarded to Messrs. O'Boyle Bros., Sault Ste. Marie, Ont. The contract for passenger equipment has been awarded to the Crossen Car Mfg. Co., Cobourg, Ont., and calls for three first-class and four second-class coaches and two baggage, mail and express cars. The 100 flat cars, 60,000 pounds capacity, contracted for with Rhodes, Curry & Co., Amherst, N.S., have all been completed and shipped to North Bay.

The Grand Trunk Railway Co's. grain elevator at Midland, Ont., was destroyed by fire April 24.

E. Shultz, Hamilton, Ont., will establish a lantern factory in that city.

Wm. Griffiths, contractor, Woodstock, Ont., has been awarded the contract for the erection of the administration building in connection with the epileptic asylum.

The Frost Wire Co. will move from Welland, Ont., to Hamilton, Ont., and will erect a plant in that city. The building will be 150x80 feet, two stories high.

The Imperial Steel & Wire Co., Collingwood, Ont., are in the market for a complete equipment for a 50-ton wire plant, including cleaning house, drawing frames and galvanizing plant, also for a 25-ton unit wire nail plant. The plant will have a capacity of from 50 to 100 tons daily of finished wire goods.

The Galt Art Metal Co., Galt, Ont., have received a carload of machinery from Canton, Ohio, to be installed in their new works. The main building of which will be 150x60 feet, with power

plant, offices, etc., in separate buildings, contracts for which will be invited shortly. At a recent meeting of the company the following directorate was elected. President, D. Spiers; vice-president, Hugh McCulloch, jr.; sec.-treasurer and managing director, F. H. Hayhurst.

Messrs. Lytle & Co., Toronto, will erect a new vinegar & pickle factory at a cost of about \$20,000.

The Union Brewery, Limited, Montreal, have been incorporated with a capital of \$150,000, to acquire the business of the Union Brewery and to carry on a malting and brewing business. The provisional directors include P. F. Lari-viere, Wm. Wainwright and J. J. Ryan, Montreal.

The Berliner Gramophone Co. of Canada, Montreal, have been incorporated with a capital of \$10,000, to manufacture gramophones, etc. The provisional directors include E. Blout, C. G. Keddie and R. Shaw, Montreal.

The British American Fish Corporation, Limited, Montreal, have been incorporated with a capital of \$500,000, to carry on a fish packing business and to manufacture fish and animal products, etc. The provisional directors include F. H. Markey and K. G. Robertson, Montreal, and W. H. E. Jackson, London, England.

The Hemming Mfg. Co., Limited, Montreal, have been incorporated with a capital of \$45,000, to acquire the business of the Hemming Mfg. Co., and to manufacture jewelry, fancy goods, etc. The provisional directors include H. K. S. Hemming, A. McFee and H. K. Danford, Montreal.

The White Rock Brewing Co., Ste. Therese de Blainville, Que., have been incorporated with a capital of \$50,000, to carry on a brewing and malting business and to manufacture pickles, etc. The provisional directors include R. Douglass, J. L. Gagnon, Montreal, and J. A. R. Bedard, Quebec City.

The Henry R. Worthington Hydraulic Works at Brooklyn, N.Y., are shortly to be removed to Harrison, N.J., to occupy the new \$2,000,000 plant of the International Steam Pump Co., now nearly completed. The Brooklyn site consists of two city blocks, or about four and one-half acres, while the Harrison plant is located on a 35 acre tract and contains 18 acres of floor space. The Worthington Co. is one of the oldest and largest manufacturing concerns of Brooklyn, having been founded in 1843 by Henry R. Worthington, the inventor of the duplex steam pump and other hydraulic devices. About 2,000 men are employed in the South Brooklyn Works, and many will undoubtedly go to the new plant at Harrison, which will accommodate from 5,000 to 6,000 men. The Brooklyn Works will probably be sold, the company having already disposed of its large foundries at Elizabethport, N.J.

In view of the serious floods that have caused so much loss of property in certain sections of Montreal, Hon. Raymond Prefontaine, Minister of Marine and Fisheries, says that, in his opinion, if

ice-breaking boats were operated between Montreal and Quebec, beginning about March 15 every year, the danger of floods would be greatly reduced. He explained that jams occurred only at a few points, and, therefore, the boats would not need to operate all over the river. The Government appreciated the difficulty and would do all they could to alleviate it.

Messrs. T. A. Morrison & Co., Montreal, recently appointed agents for the Province of Quebec for the Roman Stone Co., Toronto, have secured a contract for several thousand dollars worth of Roman stone for the new building of the Montreal Athletic Association.

The Wire & Cable Co., Montreal, have just received two large orders for telephone line equipment, the one from the New Westminster & Burrard Inlet Telephone Co. of British Columbia, and the other from the Nova Scotia Telephone Co. of Halifax. These two important orders from the extreme ends of the Dominion, both received the same week, fully illustrates the vast scope of territory covered by this company. The Wire & Cable Co. have recently completed important improvements in their plant.

The new Mount Royal Club, Montreal, will be erected at a cost of \$160,000.

The Montreal Coal Co., Montreal, has been incorporated with a capital of \$20,000, to manufacture charcoal, etc. The provisional directors include A. Duclos, R. J. Demers and C. A. Leveille, Montreal.

The Moore Carpet Co., Sherbrooke, Que., have been incorporated with a capital of \$100,000, to manufacture carpets, rugs, etc. The provisional directors include H. A. Moore, Worcester, Mass., H. D. Lawrence and L. A. Bayley, Montreal.

The Canadian Bullock Electric Mfg. Co., Montreal, have increased their capital from \$1,000,000 to \$1,200,000, and have changed their name to The Allis-Chalmers-Bullock, Limited.

The Montreal Star Publishing Co., Montreal, have been incorporated with a capital of \$750,000, to acquire the Montreal Star and The Family Herald and Weekly Star, and to manufacture pulp, paper, etc. The provisional directors include Hugh Graham, T. McL. Graham and H. M. Marler, Montreal.

Fisk, Limited, Montreal, have been incorporated with a capital of \$125,000, to acquire the business of H. J. Fisk & Co., and to manufacture leather, boot and shoe findings, etc. The provisional directors include H. J. Fisk, A. A. Macdonald and H. Cobb, Montreal.

The Imperial Hotels, Limited, Montreal, have been incorporated with a capital of \$100,000, to construct and operate hotels, etc. The provisional directors include R. S. Logan, A. G. Ross and S. B. Townsend, Westmount, Que.

The Canadian Pacific Railway Telegraph Co. have placed an order with the Dominion Wire Mfg. Co., Montreal, for 1,400 miles of copper wire, weighing 210 pounds to the mile.

The Sovereign Bank of Montreal will erect a ten-story office building in that city.

The Decoration, Marble & Tiling Co., Amherst, N.S., have been organized with a capital of \$100,000, and the following officers have been appointed,—President, C. A. Lusby; manager, E. M. Hutt; secretary-treasurer, H. W. Rogers.

The Cape Breton Iron & Steel Co., Sydney, N.S., is being organized with a capital of \$250,000. They will erect two steel buildings 150x100 feet with metal sides, to be used as a foundry and a machine and forge shop; and will employ about 300 men. The officials are president and general manager, K. J. Morrison; vice-president, P. R. Bentley; secretary-treasurer, F. A. Hatfield.

The Dominion Government have awarded contracts to I. Matheson & Co., New Glasgow, N.S., and the Pictou Foundry & Machine Co., Pictou, N.S., for the construction by each of a large steel scow to be used in connection with the dredge "Cape Breton." The cost of each scow will be about \$10,000.

The Woodstock Lumber & Mfg. Co., Woodstock, N.B., have been incorporated with a capital of \$5,000, to manufacture lumber, etc. The provisional directors include J. N. W. Winslow, H. W. Bourne, Woodstock, and H. Post, Grafton, N.B.

The Saint John Ladder Co., St. John, N.B., have been incorporated with a capital of \$10,000, to manufacture ladders, implements, etc. The provisional directors include A. G. Staples, A. I. Staples and J. H. McRobbie, St. John.

The Roman Catholic Church, Independent Order of Forrester's Hall, post-office and Junction House at McAdam Junction, N.B., were destroyed by fire April 21. Loss about \$25,000.

Thos. Malcolm, railway contractor, Campbellton, N.B., and other capitalists, are applying to the New Brunswick parliament for a charter to build a bridge over the Restigouche river at Campbellton, N.B. The bridge will be 3,400 feet long, and will cost about \$500,000.

The Dominion Iron & Steel Co., Sydney, N.S., have commenced the manufacture of steel billets with success. The mill was erected by the Morgan Construction Co., of Worcester, Mass.

The James Robertson Co., Limited, St. John, N.B., have been incorporated to acquire the business of the James Robertson Co., and to manufacture barbed wire, lead pipe, etc. The provisional directors include J. M. H. Robertson, C. M. Robertson, and A. A. McMichael, Montreal.

The Madawaska Lumbering & Milling Co., Clair Station, N.B., have been incorporated with a capital of \$20,000, to manufacture lumber, etc. The provisional directors include Thos. Clair, Jos. Long, and R. Tobin, Clair, N.B.

The New Brunswick Publishing Co., St. John, N.B., have been incorporated with a capital of \$95,000, to carry on a printing and binding business. The provisional directors include T. McAvity,

H. A. McKeown and C. J. Milligan, St. John.

J. Sutton Clark, Limited, St. George, N.B., have been incorporated with a capital of \$150,000, to acquire the business of J. Sutton Clark, at Letang, N.B., and the Edinburgh Fish Co., at New Edinburgh, N.S., and to manufacture fish oils, fishing supplies, etc. The provisional directors include J. S. Clark, St. George; J. E. Moore, St. John, N.B., and J. D. Chipman, St. Stephen, N.B.

Messrs. Kirk & George are erecting a large hotel at Grenfell, N.W.T.

J. Stearns is erecting a hotel at Maple Creek, N.W.T.

Messrs. Endelland & Paysen are erecting a hotel at Neudorf, N.W.T.

O. C. Simonson will erect a Scandinavian hotel in Winnipeg, Man.

The Mining Department of the Canadian Pacific Railway Co., are opening up at Banff, N.W.T., a large anthracite coal mine. Tenders have been invited for driving a tunnel about 1,200 feet long. It is proposed to install compressed air haulage and to include in the colliery equipment a modern anthracite breaker.

The Neepawa Hotel Co., Neepawa, Man., have been incorporated with a capital of \$50,000, to erect a hotel in that city. The provisional directors include J. H. Howden, R. H. Fusee and J. McFectors, Neepawa.

The Red Deer Lumber Co., Winnipeg, Man., have increased their capital from \$500,000 to \$800,000.

The Morden Woolen Mills Co., Morden, Man., have been incorporated with a capital of \$30,000, to acquire the Morden Woolen Mills and to manufacture blankets, yarns, tweeds, etc. The provisional directors include H. A. St. Geo. Gray, F. Schneider, and A. C. D. Pigott, Morden.

The Free Press Building Co., Winnipeg, Man., have been incorporated with a capital of \$130,000 to erect buildings, etc. The provisional directors include J. W. Sifton, E. H. Macklin and T. G. Mathers, Winnipeg.

The Ontario Wind Engine & Pump Co., Winnipeg, Man., will erect a two story warehouse in that city.

The St. Boniface, Man. Council, are inviting tenders for the erection of a pump house and other buildings, also for the laying of pipes for the new water-works.

The Cement Building Block Co., Winnipeg, Man., have supplied the following with Palmer concrete building block machines: J. E. Campbell, Carman, Man.; D. E. Stewart, Deloraine, Man.; G. Robinson, Ninga, Man.; A. E. Clendenin, Edmonton, N.W.T.; Johnson & Pope, Melita, Man.; W. M. Cross, Medicine Hat, N.W.T.; W. P. Richardson, Hartney, Man.; T. A. Matchett, Treherne, Man.; J. W. Clendenin, Strathcona, N.W.T.

Messrs. W. A. Sheppard & Co., Winnipeg, Man., are negotiating with Minneapolis and St. Paul parties for the erection of a four story apartment block in that city.

Mr. C. O'Connell, proprietor of the Tecumseh House, Winnipeg, Man., will erect a new hotel.

Mr. V. Couture will erect a 40 room hotel on the site of the Quebec House at St. Boniface, Man.

The Massey-Harris Co., Toronto, are considering the erection of warehouses in Stirling and Magrath, N.W.T.

Messrs. Carrod & Casseell, Moose Jaw, N.W.T., will erect and operate a machine shop.

The town of Edmonton, N.W.T., are considering the erection of a new town hall.

The Northern Iron Works Co., Winnipeg, Man., are busy getting out cornices and structural work for some of the new buildings to be erected in that city. This company's plant has recently been rebuilt and new machinery installed, thus enabling them to turn out high class work in larger quantities.

The Alaska Feather & Down Co. are installing new machinery in their mattress factory at Winnipeg, Man., which will increase the capacity considerably.

The Winnipeg Supply Co., Winnipeg, Man., have been incorporated with a capital of \$50,000, to manufacture lime, stone, gypsum, cement, etc. The provisional directors include D. Robertson, Thos. Christie and D. Bowman, Toronto.

The Miniota Lumber & Grain Co., Miniota, Man., have been incorporated with a capital of \$50,000, to manufacture flour, etc., and to operate saw mills. The provisional directors include J. B. Ross and Wm. Howard, Miniota, and W. J. Lindsay, Brandon, Man.

The Jackson Building Co., Winnipeg, Man., have received the contract for the erection of two modern dwellings for Mr. D. Stewart, Rosenfeld. They have also commenced operations on some of their new modern houses. This firm expects to put up a large number of houses of this class in different styles of architecture during the coming season.

John Cook will build a machine shop at Qu'Appelle, N.W.T.

R. Steele will erect a planing mill at Treherne, Man.

A steam laundry building will be erected at Moosomin, N.W.T. For further information apply to the mayor.

W. A. Elliott, architect, is inviting tenders for the erection of two school buildings to be erected in Brandon, Man.

Plans are being prepared by architects A. & W. Melville for the following buildings: A brick and stone hotel in Prince Albert, N.W.T. for D. Pollock, cost \$40,000; a \$30,000 modern hotel for the city of Winnipeg, Man.; a brick and stone business and apartment block, cost \$25,000; a business and apartment block, cost \$8,000, Winnipeg.

W. J. O'Connor, Winnipeg, Man., will erect a large hotel in that city at a cost of about \$40,000.

Ninety-nine building permits were issued at Winnipeg, Man., for the month of March representing one hundred and fifty-five buildings at a cost of \$697,000.

The Alberta Railway & Coal Co., the Canadian Northwest Irrigation Co., the St. Mary's River Railroad Co., and the Lethbridge Land Co. will be amalgamated under the firm name of the Alberta Railway & Coal Co., with head office at Lethbridge, N.W.T.

The Manitoba Cement Building Block Co., Winnipeg, Man., intend putting on a force of men for the manufacture of cement blocks, and will shortly be in a position to supply any demands made upon them.

The Commercial Club, Winnipeg, Man., will enlarge their building at a cost of about \$40,000.

A building will be erected at Edmonton, N.W.T. for the manufacture of cement blocks. For further information apply to the mayor.

F. Crossman, Kirkella, Man., is inviting tenders for the erection of a new school building at that place.

The Gallagher, Holman Lafrance Co., Winnipeg, Man., have been incorporated with a capital of \$300,000, to acquire the business of P. Gallagher & Sons, and the Holman Meat Co., of Winnipeg, Rat Portage Meat Co., Rat Portage, Ont., and Port Arthur Meat Co., Port Arthur, Ont., and to carry on a cold storage and dairy produce business. The provisional directors include J. Q. Gallagher, B. H. Holman and A. McLean, Winnipeg.

John Gault, Winnipeg, Man., will erect a residence building at a cost of \$35,000.

Robert Watson, contractor, Winnipeg, Man., is making improvements to the Bank of Montreal at a cost of \$10,000.

Geo. Pensechini, Winnipeg, Man., has awarded the contract for the construction of a four story tenement building 69x45 feet, to cost about \$60,000, to Messrs. Douglas Bros., that city.

The German Society, will erect a building at a cost of \$15,000 in Winnipeg, Man.

Messrs. R. Kenny & Bro., Gladstone, Man., will erect a brick veneer storehouse, 100x49 feet, two stories high; and they will also enlarge their planing mill by an addition of one story.

The town of Griswold, Man., is offering a bonus of \$12,000, to secure the erection of a grist mill there.

Messrs. Wm. Williams and H. Mustard, Gladstone, Man., are installing a plant for the manufacture of a self-acting gate, and other patents which they control.

The Northern Fish Co., Selkirk, Man., have increased their capital to \$55,000, and changed their name to The Northern Fish Co., Limited.

The Bentley Portrait Co., Winnipeg, Man., have been incorporated with a capital of \$10,000, to manufacture pictures, picture frames, medallions, etc. The provisional directors include W. D. Bentley, J. H. Irvine and D. Fieldman, Winnipeg.

Messrs. Smith & Sharp, Winnipeg, Man., will erect an apartment block at a cost of \$40,000, in that city.

A Presbyterian church will be erected

at Calgary, N.W.T., at a cost of \$30,000, also a Presbyterian manse to cost \$4,000.

A Methodist church will be erected at Calgary, N.W.T.

The contract for the new English church building to be erected at Manitou, Man., has been let.

The ratepayers of Wetaskiwin, N.W.T., have passed a \$25,000 by-law for the purpose of erecting a large school.

The Griffith Couch Co., Toronto, are considering the erection of a couch factory at Edmonton, N.W.T.

A grist mill will be erected at DuRac, Man. For further particulars apply to the mayor.

Messrs. Hall & McNab, Rosthern, N.W.T., will build a 100-barrel mill at Melfort, N.W.T.

J. Lawrence will instal a pump factory and dry kiln at Maple Creek, N.W.T.

The Western Mfg. Co. are making extensive alterations to their factory at Indian Head, N.W.T.

Messrs. Cushing Bros.' planing mill at Edmonton, N.W.T., will be enlarged.

A new hospital will be erected at Moosomin, N.W.T. For further information apply to the mayor.

A new public school building will be erected at Belmont, Man.

The Arden Cement Block & Building Co., Arden, Man., are applying for incorporation with a capital of \$20,000.

Plans are being prepared for the erection of a public school building at Baldur, Man., to cost about \$8,500.

The following buildings will be erected at Boissevain, Man.: F. Davis residence, \$2,000; Presbyterian manse, \$2,700; Wm. Armstrong, residence, \$11,000; Geo. Armstrong, residence, \$2,600; and A. A. Campbell, residence, \$2,000.

G. M. Laing, architect, Calgary, N.W.T., has prepared plans for the erection of a mercantile block 142x25 feet, three stories high, for A. McBride of that place.

Architect Elliott is inviting tenders for the erection of a public school building at Braudon, Man.

The Waterloo Mfg. Co., Waterloo, Ont., will erect a threshing machine factory at Regina, N.W.T.

Messrs. Adams & Co., wholesale leather merchants, Toronto, will erect a five story building in Winnipeg, Man.

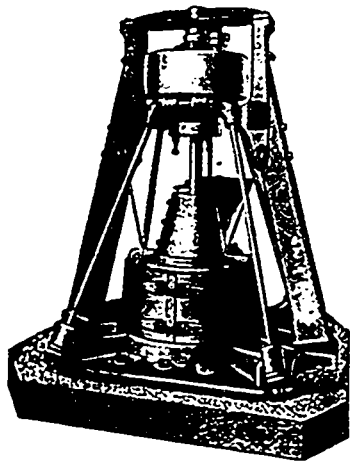
The Brandon Pump Works, Brandon, Man., are in the market for machinery for boring, turning and other labor-saving machinery, used in pump manufacture.

A large opera house will be built at Virden, Man.

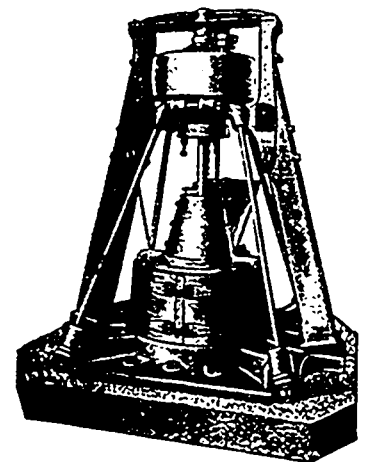
The Great Lakes & Northwest Transportation Co. have applied to the Dominion parliament for power to construct canals and improve the navigation between Lake Superior and the Red River at Winnipeg, Man., and thence by Lake Winnipeg or other channels of the Saskatchewan River, and on to the Northwest, to improve the navigation of the Saskatchewan and its branches, to provide a transportation route from the

THE "GRIFFIN" BALL AND TUBES

VERSUS



Not exactly WHAT WE SAY, but what the "GRIFFIN MILL" DOES, should determine



your choice. Where words fail, **FACTS** speak.

Practical use, extending wherever Portland Cement is made, has developed the fact that the "GRIFFIN MILL" is

THE WORLD'S BEST PORTLAND CEMENT CLINKER PULVERIZER.

That's a strong statement, but no stronger than the facts. In proof of this we have only to state a few of the many instances where the "GRIFFIN MILL" has supplanted Ball and Tube Mills.

THIS IS A POINTER WORTH NOTING.

We shall be glad to give you more

BRADLEY PULVER

BOSTON, 92 State Street.

TH
TH
TH
TH
TH
LE
AM
WO
MIL
the
mak
was
posi
than

“GRIFFIN MILL”

VERSUS

TUBE MILLS

THE ALPHA PORTLAND CEMENT COMPANY :

Installed Ball and Tube Mills in their No. 2 Mill, after using “Griffin Mills” in No. 1 Mill for eight years. After two years trial, they took out the Tube Mills in the clinker room in plant No. 2, and installed 21 Griffin Mills. Their output of 5,000 barrels a day is ground wholly by Griffin Mills.

THE VULCANITE PORTLAND CEMENT COMPANY :

Equipped their No. 3 Mill with Ball and Tube Mills. (They had used Griffin Mills before). After the second season they took out the Tube Mills in their clinker room and substituted Griffin Mills. Their output of some 5,000 barrels a day is now ground entirely by Griffin Mills.

THE MARTIN'S CREEK PORTLAND CEMENT COMPANY :

Replaced the Tube Mills in their clinker room with 18 Griffin Mills, and their product is now ground wholly by Griffin Mills.

THE WHITEHALL PORTLAND CEMENT COMPANY :

After using Ball and Tube Mills in their No. 1 plant, installed 24 Griffin Mills in No. 2 plant, which do the entire grinding.

THE NORTHAMPTON PORTLAND CEMENT COMPANY :

After using Ball and Tube Mills in their plant, has ordered 60 Griffin Mills for their new Mill, “Quaker.”

LEHIGH PORTLAND CEMENT COMPANY :

Entire finished product (nearly 10,000 barrels per day) of the six mills of this company is ground in the Griffin Mill.

AMERICAN PORTLAND CEMENT COMPANY :

All the mills of this company, producing some 5,000 barrels per day, are entirely equipped with the Griffin Mill.

WORTH CONSIDERING :

The Griffin Mill has been adopted by the Associated Portland Cement Manufacturers (1900) Ltd., London, for use in all their new works. Large sales of this Mill have been made to German cement manufacturers; among others—a large number to the celebrated Dyckerhoff & Sohne, Germany, who have adopted the Griffin Mill to the exclusion of Ball and Tube Mills.

THE LOGIC OF IT. - Do you think these shrewd concerns would have substituted the GRIFFIN MILLS for Ball and Tube Mills (which represented a large cash investment), if the GRIFFIN MILL wasn't the most perfect Portland Cement Clinker Pulverizer in the world, or if it wasn't the best money-making Mill in its line? Figure it out a bit, please? It's all a question of dollars and cents. That was their sole object in selecting the “GRIFFIN.” Surely such evidence can but show clearly and positively that all Portland Cement Works can make more money by using the “GRIFFIN MILL” than by using any other make.

For more facts, if you write for them.

PULVERIZER COMPANY

LONDON, 37 Walbrook.

head waters of the Saskatchewan down to Lake Superior, with the right to charge tolls and to do a general manufacturing and merchandising business. They ask the proposed undertaking to be declared "for the general advantage of Canada," which would give it expropriation and other rights. The promoters of this enterprise are John Arbutnot and Douglas C. Cameron, Winnipeg; William Chaplin, St. Catharines, Ont.; Walter M. McGee, Plainfield, N.J.; Theodore D. Dale, Mountclair, N.J.; Walter H. Dodd, Chas. D. Pullen and W. W. Jackson, New York City; Chas. E. Loomis, Attica N.Y.; Jas. S. Williams, Glastonbury, Conn.; Thomas W. Gleason, Buffalo, N.Y.; Thomas Conlon, Thorold, Ont., and Welland D. Woodruff, St. Catharines, Ont.

The Vulcan Iron Works Co., Winnipeg, Man., will enlarge their works by an addition 165x64 feet to be used for blacksmith and machine shops.

Messrs. Peters & Schneider, will erect a flour mill and elevator at Morden, Man., at a cost of about \$18,000.

Messrs. Telfer Bros. & Co., Collingwood, Ont., are inviting tenders for the erection of a five story brick and stone warehouse to be built in Winnipeg, Man.

The Canadian Northern Railway Co. will erect a new station at Portage la Prairie, Man.

President William Mackenzie has let contract for the construction of 500 miles of the Canadian Northern line to Edmonton, N.W.T. The successful contractor is J. D. McArthur, Winnipeg, Man.

The Winnipeg Street Railway Co. will make extensive additions to their car plant.

The Mutual Co-operative Building Society, Winnipeg, Man., will erect a large brick hotel in that city and they will also establish a brick works.

O. E. Lightcap, Winnipeg, Man., will erect a four story brick and stone office building.

Geo. Thompson is constructing a large implement warehouse of cement blocks at Indian Head, N.W.T.

John Hunter is establishing a cement brick manufacturing business with a capacity of 10,000 bricks per day at Indian Head, N.W.T.

The Forestry Department at Indian Head, N.W.T. are inviting tenders for the erection of a large stable and brick residence.

The Manitoba Bag Co., Winnipeg, Man., have been incorporated with a capital of \$100,000, to manufacture jute, cotton and paper bags, etc. The provisional directors include H. L. Rutherford, Westmount, Que.; C. A. Smart and A. W. P. Buchanan, Montreal.

The town of Manitou, Man., will install a waterworks system for fire protection and domestic purposes.

Mr. A. Watson, boat builder, Victoria, B.C., will commence construction work at once at Prince Albert, N.W.T., on a fleet of light draught stern wheel steamers for the Hudson's Bay Co.

The Winnipeg City Council will purchase a water tower and an aerial ladder, increase the apparatus at the halls, and build a new fire hall at a cost of \$17,000.

The Bank of Commerce will erect a large office building at Elkhorn, Man.

A company has been formed at Edmonton, N.W.T., for the manufacture of pianos, and will erect a factory at once. For further information apply to the mayor.

The Calgary Brewing Co., have awarded the contract for the erection of a cold storage warehouse at Edmonton, N.W.T., to Hugh McClelland.

The British Columbia Government are preparing plans for a new jail at Fernie, B.C.

The Crescent Oyster Co. have been incorporated at Victoria, B.C., with a capital of \$20,000, to carry on an oyster packing and canning business.

The Imperial Coal & Coke Co., Montreal, have been licensed to do a coal mining business in British Columbia with a capital of \$4,500,000. J. A. Harvey, Cranbrook, B.C., is their attorney.

The Steveston Land & Oil Co. have been incorporated at Victoria, B.C., with a capital of \$250,000, to refine petroleum, oil, gas, coal, etc.

A new public school building will be erected at Vernon, B.C.

The Vancouver County Orange Hall Co., Vancouver, B.C., have been incorporated with a capital of \$40,000, to erect buildings, etc.

The Capital City Packing & Canning Co. have been incorporated at Victoria, B.C., with a capital of \$100,000, to carry on a fish canning and packing business.

The Gulf of Georgia Fish & Curing Co. have been incorporated at Victoria, B.C., with a capital of \$10,000, to carry on a fish curing and packing business.

The John Steptoe Shaper Co., manufacturers of machine tools, etc., Cincinnati, Ohio, inform us that they are working overtime with a larger force than they have ever before employed.

As in the drying of all material air movement is essential, so it is in the drying of soap. In the process of soap drying the soap is placed in kilns into which heated air is forced by means of a fan. An even distribution of the air results, the moisture from the soap is absorbed and the moisture laden air is then discharged to the outside. With this system the quality and quantity of the air and its temperature can be varied at will and the drying is entirely independent of the weather. The Fels Co., manufacturers of Fels Naphtha soap, recently fitted up their factory at Philadelphia with a fan system for drying soap. The B. F. Sturtevant Co., Boston, Mass., specialists in the drying of all materials, designed, manufacture and installed the complete equipment.

The Bristol Co., Waterbury, Conn., are installing an exhibit at the World's Fair at St. Louis, which will be located in Electricity Building. Their booth will be located by the main entrance and will show a complete line of their recording

instruments for pressure, temperature and electricity. These instruments will be shown in various styles and sizes which the company manufacture, and in different finishes. The construction and operative parts will also be shown and a large number of the instruments will be in actual operation, enabling visitors to observe the manner of operation and the records the instruments make; also the extreme simplicity of the different instruments and the delicacy and accuracy which it is possible to obtain without sacrificing any of the necessary elements which are essential in a commercial form of a recording instrument. There will also be shown a complete line of specimens of Bristol Patent Steel Belt Lacing which comprises over 150 different sizes for all kinds of belting from the thinnest to the heaviest that is manufactured, such as is used for conveying belts, etc. As soon as the exhibit is installed, illustrations will be made and detailed descriptions of the different instruments exhibited will be published.

THE TORONTO FIRE LOSERS.

Following is a list of the more important Toronto manufacturing and commercial concerns whose premises were destroyed by the great fire of April 19-20, and the premises they occupied. It is, of course, impossible to give a detailed list of individual losses, or of insurance. Some of the concerns have already secured premises where they will be permanently located, others have secured office accommodations apart from their temporary warehouses, and some are not yet accommodated in that way.

The Standard Cap Co., 14 Front W.
Bradshaw, Macdonald & Co., 18 Front W., whol. tailors' trimmings.
F. Robertson & Co., 20 Front W., whol. fancy goods.
Prime & Rankin, 22 Front W., whol. dry goods.
Jenner, Sauer, Bannerman Co., 24 Front W., whol. dry goods.
Caulfield, Burns Co., 17-19 Front W., whol. clothing.
Cuthbertson, McCann & Co., 25 Front W., whol. fancy goods.
Wm. Bryce, 31 Front W., whol. fancy goods.
H. E. Bond & Co., 51 Front W., whol. clothing.
Johnston & Sword, 55 Front W., mfrs. neckwear.
Anderson & Macbeth Co., 36 Front W., whol. hats.
Robert Darling & Co., 44 Front W., whol. woollens.
Gordon, Mackay & Co., 48-50 Front W., whol. dry goods.
Novi-Modi Costume Co., 13 Front W.
Charles Cockshutt & Co., 57-59 Front W., whol. woollens.
Wm. Croft & Sons, 61-63 Front W., smallwares.
Hachborn & Sheridan, 65-67 Front W., whol. clothing.
Minerva Mfg. Co., 10-12 Front W., mfrs. ladies clothing.
R. B. Hutchinson & Co., 80 Bay street, wholesale woollens.
Dignum, Moneypenny & Co., 70 Bay street, wholesale woollens.

Maurice Helpert, 69 Bay street, clothing contractor.
 Garland Mfg. Co. 76 Bay street, mfrs. clothing.
 E. & S. Currie, 58-60 Wellington W., mfrs. neckwear.
 R. M. Slater & Co., 88 Bay street.
 W. R. Brock & Co., 64-68 Bay street, whol. dry goods.
 Mark Fisher, Sons & Co., 60 Bay street, whol. woolens.
 John C. Green & Co., 56 Bay street, whol. millinery.
 Drake, Hambly, & Cockburn, 58 Bay street, whol. fancy goods.
 Boulter & Co., 56 Bay street, whol. woolens.
 Charles M. Home, 54 Bay street, whol. tailors' trimmings.
 Greenshields, Limited, 50 Bay street, whol. dry goods.
 Mann, Byars & Co., 50 Bay street, whol. dry goods.
 Belding, Paul & Co., 50 Bay street, mfrs. silk and ribbon.
 Canada Veiling Co., 50 Bay street.
 Cockburn & Rae, 46 Bay street, whol. millinery.
 Atkinson Bros., 44 Bay street, whol. fancy goods.
 Tooke Bros., 47-49 Bay street, mfrs. shirts.
 W. E. Sandford Mfg. Co., 47-49 Bay street, whol. clothing.
 Toronto Cap Mfg. Co., 51 Bay street.
 The Wyld-Darling Co., 61 Bay street, mfrs. clothing.
 A. Bradshaw & Son, 25 Wellington W., whol. dry goods.
 H. S. Howland, Sons & Co., 37-39 Front West, whol. hardware.
 McClary Mfg. Co., 14-18 Bay, mfrs. stoves.
 M. & L. Samuel, Benjamin & Co., metal, 27 Wellington W.
 The Merrick Foundry Supply Co., 50 Esplanade W.
 Brereton & Manning, 52 Front W., whol. furs.
 A. A. Allan & Co., 51 Bay street, whol. hats and furs.
 Carter, Crume Co., 28 Front W., mfrs. counter check books.
 W. J. Gage & Co., 54-58 Front W., whol. books.
 Book Supply Co., 62 Front W.
 Copp, Clark Co., 64 Front W., printers.
 Warwick Bros. & Rutter, 68-70 Front W., whol. stationers, printers, etc.
 Canada Paper Co., 15 Front W.
 E. Barber & Co., 6-8 Bay street, printers.
 Davis & Henderson, 84 Bay street, mfrs. stationery.
 Ritchie & Ramsay, 80 Bay street, paper warehouse.
 Kinleith Paper Co., 80 Bay street, paper warehouse.
 Brown Bros., Limited, 51-53 Wellington W., mfrs. stationery.
 Barber & Ellis Co., 43-49 Bay street, mfrs. paper boxes, etc.
 Harris Lithographing Co., 6-8 Bay street.
 Buntin, Reid & Co., 29 Wellington W., paper mfrs.
 Kilgour Bros., 21 Wellington W., mfrs. paper bags.
 T. J. Weston & Sons, 14 Front W., whol. shoes.
 Ames, Holden & Co., 60 Front W., whol. shoes.

McLaren & Dallas, 11 Front W., whol. shoes.
 Garside & White, 33 Front W., whol. shoes.
 Haly & Boyd Shoe Co., 29 Front W., whol. shoes.
 D. D. Hawthorne & Co., 71 Front W., whol. shoes.
 Irving Umbrella Co., 20 Front W.
 J. L. Morrison Co., 26 Front W., bookbinders' machinery.
 E. W. Gillett Co., 32-34 Front W., mfrs. powders, etc.
 The E. B. Eddy Co., 38 Front W., whol. matches, paper, etc.
 Merchants' Dyeing & Finishing Co., 42 Front W.
 McMahon, Broadfield & Co., 9 Front W., whol. crockery.
 Northrop & Lyman Co., 21 Front W., mfrs. medicines.
 Evans & Sons, 23 Front W., whol. druggists.
 Pratt Storage Co., 29 Front W.
 R. Simpson Co., 43 Front W., clothing factory.
 Gutta Percha & Rubber Mfg. Co., 45-49 Front W.
 Scott & Browne, 55 Front W., chemists.
 Geo. E. Boulter, 69 Front W., whol. boots and shoes.
 Verrall Storage Co., 10-12 Bay street.
 Toronto Pharmacal Co., 22 Bay street.
 Eckardt Casket Co., 21-25 Bay street, mfrs. caskets, etc.
 Andrew Muirhead, 82 Bay street, whol. paints.
 Pugsley, Dingman & Co., 50-52 Wellington street W., mfrs. soaps.
 Toronto Coffee & Spice Co., 2 Bay street.
 International Stock Food Co., 4 Bay street.
 Alcock, Laight & Westwood Co., 78 Bay street, fishing tackle.
 Ontario Neckwear Co., Limited, 67 Bay street.
 Embroidery & Quilting Co., 67 Bay street
 Office Specialty Mfg. Co., 77 Bay street.
 Dodds Medicine Co., 72 Bay street.
 Western Steamship Co., 72 Bay street.
 E. & T. Corset Co., 72 Bay street.
 C. H. Westwood & Co., 72 Bay street, fishing tackle.
 Rothschild Bros. & Co., 78 Bay street, button mfrs.
 C. W. Bongard & Co., 78 Bay street, brokers.
 Wm. Jessop & Sons, 80 Bay street, steel.
 E. W. Gilmore & Bros., 86 Bay street, silverware.
 W. H. Payne & Co., 86 Bay street, commission agents.
 Rowland Orr, 86 Bay street, adv. agent.
 International Brokers, Limited, 88 Bay street.
 Price Mfg. Co., 88 Bay street, pro. med.
 Addison & Mainprice, 49½ Wellington W., printers.
 Merchants' Office Building, 50-54 Bay street.
 Rolph, Smith & Co., 49 Wellington W., lithographers.
 Consolidated Plate Glass Co., 73-75 Wellington W.
 M. McLaughlin & Co., Bay street, flour mill.
 Royal Dominion Mills, 21 Bay street.
 D. Morrice, Sons & Co., 48 Bay street, mfrs' agents.

A. A. Alexander, Wm. M. Trout, J. P. Breen, A. J. Patterson, Walter Moore, James A. Grant, M. T. Lester & Co., A. H. Clemmen, H. C. Cooch, John Lillie, Geo. Livingston, C. H. Forster.
 The above were all in the same building, 50-54 Bay street, mfrs' agents.
 F. A. Turner, 60 Bay street, mfrs' agent.
 Turner & Hamilton, 60 Bay street, mfrs' agents.
 McClung & Burns, 58 Bay street, mfrs' agents.
 The J. T. B. Lee Co., 50-54 Bay street, commission agents.
 F. C. Davidge Co., whol. wall papers.
 New Idea Pattern Co.
 Edward Musgrave & Co., com. mers.
 L. J. Thomas, stereoscopic views.
 Ryrie Paper Co.
 J. M. Davis, stereoscopic supplies.
 Shingsby Mfg. Co., blankets.
 Major J. A. Carlaw (office).
 J. Adams & Co., linens.
 J. A. Paquet, furs.
 The above were established at 50-54 Bay street. Their losses are small.
 H. V. Cowie, 67 Bay street, mfrs' agent.
 Sandy Thompson, 69 Bay street, mfrs' agent.
 Richard L. Baker Co., 72 Bay street, mfrs' agents.
 Clark & Ross, 72 Bay street, mfrs' agents.
 F. H. Cragg, 78 Bay street, mfrs' agent.
 Thomas Haskin, 80 Bay street, mfrs' agent.

DAMAGED BY SMOKE AND WATER.

Crown Hotel, 75 Bay street.
 Canada Screw Co., 69 Bay street.
 Evening Telegram Building, 81 Bay street.
 D. J. Sinclair, florist, 69 Bay street.
 Abraham Hines, 90 Bay street—cartage.
 Toronto Engraving Co., 92 Bay street.
 H. F. Sharpe & Co., photo supplies, 73 Bay street.
 Canada Paint Co., 90 Bay street.
 Maloney & Son, 90 Bay street, merchant tailors.
 Geo. H. Hees, Son & Co., upholsterers, 71 Bay Street.
 Higgins & Saunders, tailors, 92 Bay street.
 Wood, Vallance & Co., 94 Bay street, wholesale hardware.
 J. H. Ames, tailor, 96 Bay street.
 National Club, 98 Bay street.

INTERIOR CONDUITS.

Many of the most disastrous fires of recent times having been attributed to defective electrical wiring, whether justly or unjustly, the question naturally arises; Cannot some system be devised to overcome this difficulty?

Working along this line THE CANADIAN MANUFACTURER has instituted enquiries among many expert electricians and prominent architects and they are unanimous in their views that should all electrical wires be run in iron conduits all danger from this source would be eliminated.

Following up this line The Richmond Conduit & Mfg. Co's plant at 15, 17 and

19 Jarvis Street, Toronto, was visited with the view of obtaining more definite information on this important subject and our representative was shown through their large factory and the many processes their product is put through before being placed on the market.

The Richmond electro-galvanized conduit tubing is well known to the electrical trade and has been manufactured in Canada for about two years. It is a steel tubing of standard weight, each length of which after being reamed to ensure absolute smoothness on the interior is then electro-galvanized, after which the interior is enameled, this enamel acting as more or less of an additional insulation and being composed of the highest grade of japan baked on the interior. The exterior on account of the heavy deposit of zinc is absolutely rust proof and no amount of hard usage can in any way injure it.

This system, it was learned, is installed somewhat after the manner of a gas system. The wires being run throughout in this steel conduit or raceway and being made of heavy steel cannot be punctured as many of the flexible types are by driving nails into the walls, thereby causing short circuits and innumerable troubles or perhaps a serious fire.

As to the cost of installation, all agree that although perhaps in a very small equipment such as an ordinary dwelling, the cost may exceed that of the old style of knob and tube work with which we are all familiar, yet in the larger class of buildings it is no higher and in many cases lower, the difference in cost of labor being sufficient to overcome the cost of the tubing.

In many of the larger cities in the United States it is now compulsory to run all wires in conduits, and it would seem that in view of the many losses by fire in Toronto, some action should be taken to prevent a reoccurrence of such disasters.

Among the claims made by this company for their product are: Absolute protection from fire; cheapness of installation; approval of the Board of Fire Underwriters; permanently and effectually grounded; made in Canada.

In using this tubing both wires of the same circuit are placed in the same tube. In flexible conduits two tubes are required, thus almost doubling the cost with no additional protection. It will also be found that where a complete system is installed, the saving in insurance rates will soon more than make up for its cost.

Among the many large buildings in Canada equipped wholly or in part with Richmond conduit may be mentioned: the King Edward Hotel, the W. A. Murray Co.'s departmental store, the Majestic Theatre, the City Hall, the St. Lawrence Market, the Canada Foundry Co.'s plant, the Toronto Electric Light Co.'s plant, the Bank of Nova Scotia, the residences of Messrs. Osler and Flavelle, the Robert Simpson Co.'s store, the P. Jamieson Co.'s clothing store, the Alexandra Apartments, the Confederation Life Building, Toronto; the steamer Tadousac and the Government Light Ship, Lurcher; the Collingwood Shipbuilding Co.'s plant, Collingwood; the American Cereal Co.'s plant; the Nicholls Hospital, Peterboro; the C.P.R. Hotel, Banff; the Raven Lake Cement Co.'s plant, Coboconk; the Dominion Coal Co.'s mines; the Winnipeg Street Railway's power house; the General Hospital, Winnipeg; the Colored Cotton Co.'s plant, Cornwall; the Goldie & McCulloch Co.'s plant, Galt; the C.P.R. car shops; the London and Globe Insurance Buildings in Montreal; the Deering Harvester Co.'s plant, Hamilton; the McClary Mfg. Co.'s plant, London; the Orillia Asylum, and in fact nearly all the principal mills, office buildings, stores and hotels recently built in Canada.

One great drawback in the use of conduit in Canada has been that it had to be imported and with duty and freight it

was a trifle high, but at the present time it is being sold in Toronto 5 per cent. cheaper than in the United States.

Those contemplating the erection of new buildings or the re-wiring of existing buildings would do well to look into the merits of this system before deciding definitely on their electrical equipment. Any information in reference to this system will be cheerfully furnished by addressing the above mentioned company.

INDUSTRIAL PUBLICATIONS.

(The publishers of THE CANADIAN MANUFACTURER solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.)

Boiler Catalogue No. 3, Goldie & McCulloch Co., Galt, Ont., gives specification and illustrations of the extensive line of boilers, heaters, pumps, condensers, etc., manufactured by this well-known firm. This and other catalogues to hand are the work of Mr. F. B. Utley in charge of the advertising department and are highly artistic productions. A short treatise in setting up and testing boilers appears in this catalogue.

"Steel Planing Mill Exhaustors" is the title of the latest catalogue of Sheldon & Sheldon, Galt, Ont. A number of fine illustrations and valuable information on this line of labor-saving appliances are given. This and other catalogues on heating, ventilating and drying and blowers, forges, steam traps, exhaust heads, etc., will be mailed to parties interested on application.

The Canadian Portable Fence Co., Toronto, have issued an attractive catalogue concerning their line of fencing and steel fence posts. The latter are now rapidly supplanting the old wooden post.

CORUNDUM WHEELS, EMERY WHEELS and GRINDING MACHINERY

CANADIAN CORUNDUM WHEEL CO.

HAMILTON, - ONT.

SEE HERE

You will surely admit that the best is none too good; therefore if you want a really first-class **AIR COMPRESSOR** you will install a **RAND**. Want our catalogue?

THE CANADIAN RAND DRILL CO., Sherbrooke, Que.

MONTREAL—18 Victoria Sq.
RAT PORTAGE, ONT.

TORONTO—1103 Temple Bldg.
ROSSLAND, B.C.

HALIFAX—116 Hollis St.
GREENWOOD, B.C. VANCOUVER, B.C.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Richmond Conduit & Mfg. Co., Toronto, are mailing a folder directing attention to the Richmond electro-galvanized conduit and fittings now in wide use in interior electric wiring. The company's product is approved by the Board of Fire Underwriters and is an absolute guarantee against defective electric wiring.

The Peat Board Co., Toronto, have issued a prospectus describing the proposed manufacture of cardboard, etc., from peat and giving the organization of the company.

The Simplex Time Recorder Co., represented in Canada by Munderloh & Co., Montreal, have issued a booklet regarding their system.

The Chapman Double Ball Bearing Co., Toronto, have just issued an attractive booklet in which is reproduced a highly complimentary article on the merits of their bearings which recently appeared in the Textile World Record, a leading American textile magazine. The Chapman bearings are rapidly coming into use throughout Canada.

Mr. C. B. Bryant, Charlotte, N.C., secretary-treasurer of the American Cotton Manufacturers' Association, has sent us information re the Eighth Annual Convention of the Association which is to be in session at the Arlington Hotel, Washington, D.C., May 11-12th instant. It is expected that the convention will be the largest textile meeting ever held in the United States.

The Laurie Engine Co., Montreal, are mailing catalogues re their Laurie "Efficient" feed water heater and purifier.

The Buffalo Forge Co., Buffalo, N.Y., have issued a new bulletin on Buffalo forges. The Buffalo steam pump is described in a catalogue issued by the Buffalo Steam Pump Co.

"Diamond H" Switches is the title of the latest folder of the Canadian General Electric Co., Toronto. Another card refers to the Benjamin wireless receptacle plug.

The C. H. Cowdrey Machine Works, Fitchburg, Mass., which are represented in Canada by H. W. Petrie, Toronto, have issued a new catalogue of high grade


special woodworking machinery, including knife lathes, sanding machines, saw benches, box making machines, rod, pin and dowel machines, cut off machines, tenon chucks, etc. Catalogue will be mailed upon application to either of the above firms.

Catalogue No. 73 of the Jeffrey Mfg. Co., Columbus, Ohio, whose Canadian agents are the A. R. Williams Machinery Co., Toronto, illustrates the various lines of conveying machinery which the company manufacture.

"The Proper Cure of Driving Chains" is the title of the latest bulletin of the Jos. Dixon Crucible Co. and deals with the advantages of Dixon motor chain compound.


The Rotary Engine Co., Philadelphia, Pa., have issued a catalogue on their new type of rotary engines. Arrangements are being made to manufacture them in Canada.

The Canadian Corundum Wheel Co., Hamilton, Ont., are sending out a mailing card with a fine view of their new plant.



Phosphorizers—Our own special design—Absolutely the best made. Last longer and easier handled than any other made. Write for particulars.

MCCULLOUGH-DALZELL CRUCIBLE CO., - PITTSBURG, PA.



Try This!



Take the oil bills for every year you have been in business, add their amounts up, divide the total by two, and the quotient will show the sum of money you would have saved in the cost of oil had you installed a

CROSS OIL FILTER

at your plant when it first began.

Don't put off a day longer, order now. We send the Cross Oil Filter on thirty days approval.

Hundreds of testimonials; here is one: "The Cross Oil Filter has saved us more than fifty per cent. in the cost of our oil."—Bryan (Ohio) Electric Co.

THE BURT MFG. CO.

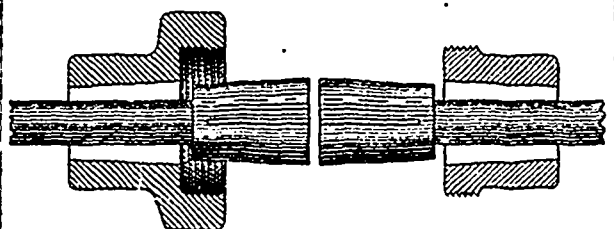
LARGEST MFRS. OF OIL FILTERS IN THE WORLD.

212 Main Street, AKRON, OHIO, U.S.A.

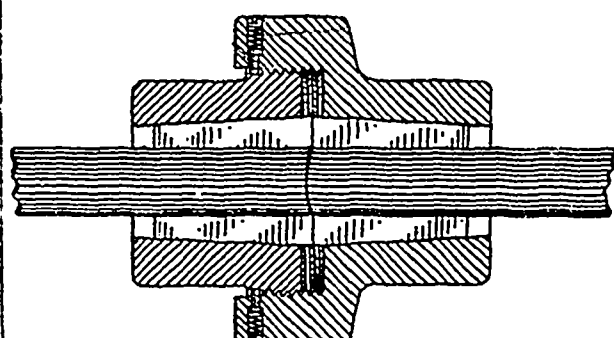
A complete stock carried by the
FAIRBANKS CO., Montreal.

Supplied also by Engine Builders, Dealers and Power Contractors.

SINCLAIR PATENT COUPLING



SAFETY



No Bolts. No Keys.
No Slip.

G. S. SINCLAIR & SONS

WARTON, ONT.

One of the most interesting exchanges which comes to this office is the Northwest Contractor, of Winnipeg, Man., recently established. It is devoted to the building and allied trades in the great West.

The F. E. Reed Co., Worcester, Mass., have sent us their new catalogue illustrative and descriptive of lathes and other machine tools manufactured by them. Included in the book are descriptions of their amateur screw cutting lathes, standard engine lathes, special turning lathes, hand and foot lathes, manual training wood lathes, turret head chuck lathes, etc.

PERSONALS.

At the meeting of the executive committee of the Canadian Electrical Association, held in Toronto a few days ago, it was decided to hold the next annual convention of the association in the city of Hamilton on June 15, 16 and 17.

Mr. Alexander MacLean, the Canadian Commercial agent at Yokohama, Japan, now in this country, expects to sail for Japan from Vancouver, B.C., about May 23 instant. Among the articles which Mr. MacLean thinks will find a market in Japan are flour, meats, fish, household furniture, paper and pulp, cotton and woollens, rubber goods, sewing machines, plated ware, nails, hand tools, lumber, cabinetware, organs and pianos, hides, leather goods including boots and shoes.

The Nernst Lamp Co. have recently removed their Boston office from 131 State Street, to 501 Atlantic Ave. The office will as heretofore be in charge of Mr. Geo. C. Ewing as District Manager, and will carry a complete stock of Nernst lamps and supplies, insuring prompt service to customers.

The Dodge Mfg. Co., of Toronto, Limited, who in January last opened up a branch office and distributing ware room at 419 St. James Street, Montreal, report very gratifying results from that quarter. The Montreal office is in charge of Mr. Frank F. Young, formerly of the sales department at head office. Mr. Young says a large percentage of the mills and factories seem to prefer taking their requirements from the maker when it is made convenient for them to do so, and as Montreal is the recognized distributing centre for the Eastern part of the province, he finds a ready welcome from all quarters for Dodge products.

Mr. G. A. Powell, sales manager of the Packard Electric Co., Limited, St. Catharines, Ont., leaves in a few days for Winnipeg, Man., to open a branch office for his company there. This step is necessitated by the vastly increasing trade of the company in the west. Definite arrangements have not yet been completed as to location, etc. but it is very probable that Mr. Powell will remain in charge of the Winnipeg office for some little time, at least until the organization is perfected. With a branch office in the east at Montreal and in the middle west at Winnipeg, the company

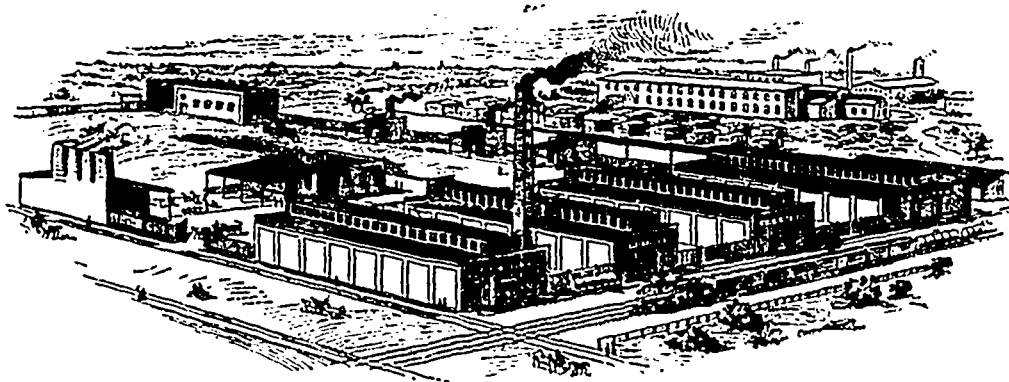
is in an excellent position to care for the demands of their rapidly increasing business.

The next annual convention of the National Association of Manufacturers of the United States will be held in Pittsburgh, Pa., May 17, 18 and 19. The Association has a membership of about 3,000. The present officers of the Association are: D. M. Parry, Indianapolis, Ind., president; T. H. Stillman, New York, treasurer; and Marshall Cushing, New York, secretary. The last convention was held in New Orleans, in June, 1903.

Capt. Donald Matheson, superintendent of the Dominion dredges, is at present engaged in Kingston, Ont., looking after the necessary repairs and equipments of the dredges that have wintered there, preparatory to their going into active service. Capt. Matheson was very successful in recently raising the Government steam tug boat, which was sunk at Kingston in an ice jam.

The International Harvester Co., Winnipeg, Man., have appointed L. C. Hazlett to be manager of their Winnipeg office.

The chief of the Toronto fire department has received a donation of \$50 from the A. R. Williams Machinery Co., with a letter forwarding same, as follows: "In recognition of the strenuous efforts made by the department to stay the spread of the great conflagration from



It is nearly Half a Century

since we commenced to make Varnish. During this period we have acquired a knowledge not only of Varnish, but of the varied needs of varnish consumers that nothing but time can impart, and have also learned how to cater successfully to every varnish want.

Our experience belongs to those who use and sell Berry Brothers' Varnishes. Safest goods to handle, surest and most reliable goods to use.

WRITE FOR CATALOGUE.

BERRY BROTHERS, Limited, - Walkerville, Ont.



Large manufacturer wanted!

We will offer to such an one locating at
Peterboro',

Abnormally Cheap Power,

on account of the natural developed
conditions of our property.

The Municipal Corporation offers
Free site & Tax exemptions.

PETERBORO'

Is located on the main line of the Canadian Pacific Railway—is on the Grand Trunk Railway and the Trent Valley Canal, and has now a population of 15,000. Is located in the heart of Canada, 70 miles east of Toronto on the way to Montreal.

The Trent Valley Canal (now half completed) will place Peterboro' on the highway between "Britain's Granary" and Europe. It is Nature's Short-Route Grain-Carrying Waterway.

THE CENTRAL ONTARIO POWER CO., LIMITED

J. A. CULVERWELL, Managing Director.

Branch Office—9 Toronto St., TORONTO.

Head Office—Cor. George & Hunter Sts., PETERBORO'.

which our city has just suffered. The saving of the Queen's Hotel from destruction was also the saving of our warehouse directly opposite. We desire to express our admiration of the heroic efforts put forth and the great endurance displayed by the firemen by continuing at their posts, many of them for at least 36 hours. We are proud of our fire department."

Mr. Charles Hyde, of Hyde Bros. & Co., Pittsburg, Pa., is now in England in connection with a large boiler contract which the firm recently secured in competition with English and American boilers.

Mr. C. W. Vaughn, of the Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio., was in Toronto last week in connection with the installation of the plant of the Imperial Steel & Wire Co., at Collingwood, Ont. This plant will be ready for operation in July or August, and will be, it is claimed, the most complete of the kind in Canada.

Sadler & Haworth, Montreal and Toronto, are sending their friends a fine folding one foot rule in a leather case, a reminder of the excellent oak belting which they manufacture.

The Estate of James Cooper and the Dominion Wire Rope Co., Montreal, are removing their general offices to the new Imperial Bank Building, corner of McGill and St. James streets, where they will have improved facilities for handling their business.

The general offices of the Locomotive & Machine Co., Montreal, have been removed from the Street Railway Chambers to the new Imperial Bank Building, McGill and St. James streets.

ELECTRIC SMELTING OF IRON.

As heretofore mentioned in this journal, a commission consisting of Dr. Haanel, Mr. C. E. Brown, electrical expert, and Mr. Thomas Cote, was sent to Europe by the Dominion Government to investigate the several electro-thermic processes employed there in the smelting of iron ores and the manufacture of steel. The Commission left Canada on January 21 and arrived back in Ottawa on April 16.

On reaching England the services of Prof. F. W. Harbord, of Cooper's Hill, Surrey, professor of metallurgy, and metallurgist to the Indian Government, was engaged as metallurgist, and the party proceeded to Gysinge, Sweden, where the making of steel from pig iron and scrap was witnessed. From Gysinge Dr. Haanel carried away some knives made from steel manufactured by the electric process. The next place visited was Kortfors, Sweden, where one of Heroult's furnaces was seen in operation. From Kortfors, Dr. Haanel went to Berlin, where he inspected an exhibition of peat, having also been commissioned to make an investigation into the peat industry. Paris was next visited, and then the commission went to La Praz, where experiments in making steel from pig iron and scrap and also of pig iron direct from the ores were observed. The most important

experiments witnessed were those at Livot, in the Pyrenees.

For the purpose of the experiments ninety tons of iron ores were imported from Spain. With the result Dr. Haanel is highly pleased. Samples of the steel were secured, and Prof. Harbord will report on the quality of steel, cost of manufacture, etc. Mr. Brown, the electric expert, will report on the absorption of electric energy in the different processes. When these reports are received Dr. Haanel will be able to give definite statements. Until then he declined to state what was the actual cost of making the steel produced at Livot. It is said however, that the sum total was about \$8 a ton.

All that Dr. Haanel would say as to the results of his investigation was that it was most successful. This is taken to mean that the smelting of iron ores in Canada by electricity is commercially feasible, which opens up enormous possibilities for this country. Throughout Ontario there are immense deposits of iron ore and numerous water-powers for the development of electric energy. It is not difficult to picture the speedy establishment and development of a great iron and steel industry in Canada, and the province of Ontario may yet be studded with scores of them.

The Vancouver Portland Cement Co., Vancouver, B.C., have been incorporated with a capital of \$500,000, to manufacture Portland cement, concrete, bricks, tiles, etc.

COAL

THE O. W. SHIPMAN CO.
MINERS and SHIPPERS

Best grades, Domestic, Steam, Gas and Smithing Coals. Shipments to Canadian trade direct from the mines, Buffalo or Detroit, and by Lake.

Write for Quotations.
GENERAL OFFICE: DETROIT, MICH.
J. BROWNLEE,
Canadian Representative, GALT ONT

COAL

COAL **JAS. H. MILNES & CO.** **COKE**
WHOLESALE DEALERS IN
Best Grades of STEAM COALS.
Best Grades of BLACKSMITHS' COALS.
Best Grades of FOUNDRY COKES.
Shipments made direct from Mines to any point in Canada. Write for quotations.
Head Office: 86 KING ST. EAST TORONTO. Docks: Esplanade, Foot of Yonge

Petrie's Machinery Depot

UP- TO- DATE	ENGINES AND BOILERS	NEW STOCK LIST Issued Monthly. Ask for one.	AGENTS FOR		
	MACHINE TOOLS		London Machine Tool Co.	American Grinding Machines.	
	WOOD-WORKING MACHINERY		Cincinnati Milling Machine Co.	Morris Machine Works.	
	SAW MILLS		Cincinnati Planer Co.	C. H. Dutton Co.	
	ENGINEERS' AND MILL MEN'S		Cincinnati Shaper Co.	Taber Pump Co.	
SUPPLIES	Cincinnati Upright Drills.	Sturtevant and Buffalo Blowers and Fans.			
H. W. PETRIE Adjoining Union Station. TORONTO		Prices and Descriptions of NEW AND SECOND-HAND MACHINES on Application.		Lodge & Shipley Lathes.	American Machinery Co.
				Bickford Radial Drills.	Fox Machine Co.
				Sebastian Lathes Co.	West Side Band Saw.
				B. F. Barnes & Co.	Dain Hay Presses.
				Automatic Machine Co.	The Cleveland Automatic Machine Co., Cleveland, Ohio.
				Catlin Keyseater.	The Laurio Engine Co., Montreal.
				Bremer Punch & Shears.	Potter & Johnson.
				B. & C. Metal Saw.	
				Schuchart & Schutte.	

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

PITTSBURGH COAL COMPANY

Miners and Shippers

OF

**YOUGHIOGHENY
GAS and PITTSBURGH
STEAM COAL**

Manufacturers of

HIGH GRADE COKE

Loading and Fuelling Docks at all Ports on the Great Lakes.

GENERAL OFFICES:

PITTSBURGH, PA.

JOHN BYRNE, President.
D. F. MARONEY, Vice-Pres.

H. S. HASTINGS, Auditor.
G. H. JONES, Genl. Sales Agent.

THE SHAWMUT COAL & COKE CO.

**BITUMINOUS COAL
COKE**

Pennsylvania Office: **ST. MARYS, PA.**

Sales Office: **J. D. FERGUSON,**
1110 Prudential Building, Canadian Sales Agent,
BUFFALO, N.Y. HAMILTON, ONT.

**Annual Capacity of Mines
1,500,000 tons.**

**Annual Capacity of Coke Ovens
100,000 tons.**

Operating 2,500 Coal Cars.

JULES G. HOFFMAN

Miner and Shipper

COAL---COKE

Youghiogheny
Gas and Steam

Pittsburg No. 8

Hocking

Pocahontas Smokeless
High-grade Smithing
Cannel

Cambridge

Coke Foundry. Furnace.
Domestic.
Gas House.

Steam and Domestic Grades

Contract business solicited.
Shipments via Buffalo and Detroit.
Lake or Rail Shipments.

General Offices: 421-422-423 Hammond Bldg.,

DETROIT, - - MICH., U.S.A.

H. K. WICK, President.

W. D. WARD, Secy. and Treasurer.

H. K. WICK & CO.

(INCORPORATED)

Miners and Shippers of
Bituminous Coals

Pittsburgh, Rooms 64 and 65
Youghiogheny, Erie County Savings Bank Bldg.,
Brier Hill, Smithing.
Mercer & Butler County Coals. **BUFFALO,**
N.Y.

400 Individual Cars.

TIRE SOME

Lifting that carriage to inspect the writing.
Actual tests made show the daily average to be 200
times. Think of it! Why not try an Underwood?
The cost is only a trifle more.

Sole Canadian Dealers

UNITED TYPEWRITER CO., Limited

15 Adelaide St. East, TORONTO.

W. H. SHAW, President.

I. SEITZ, Gen. Mgr.

GASSELLA COLOR COMPANY

(American Branch of Leopold Cassella & Co.)

**ARTIFICIAL
DYE STUFFS**

New York, 182-184 Front Street.

Boston, 68 Essex Street.

Philadelphia, 126-128 South Front St.

Providence, 64 Exchange Place.

Atlanta, 47 North Pryor Street.

Montreal, 86-88 Youville Square.

ANILINES**St. Denis Dyestuff and Chemical Co.,**

(A. POIRRIER), of Paris, France.

Manufacturers of

Aniline Colors, Aniline Oil and Salt, Archil Extracts
Cudbear, Cachou de Laval, Thiocatechines, etc.

A Complete Assorted Stock of the above always on hand.

W. T. Benson & Co.,

Sole Agents for Canada.

164 St. James St., MONTREAL

GEIGY ANILINE & EXTRACT CO.

69 Barclay Street, NEW YORK.

BOSTON, PROVIDENCE, PHILADELPHIA,
ATLANTA, CHICAGO, TORONTO.**Aniline Colors**

Calico Printers' Specialties.

DYEWOOD and SUMAC EXTRACTS.

SYNTHETIC INDIGO J R G.

Canadian Branch—11 FRONT ST. EAST. T. D. WARDLAW, Mgr.

**SODA ASH**

LIGHT or HEAVY

THE MOST ECONOMICAL FORM OF SODA FOR MANUFACTURERS OF

**GLASS, SOAP, PAPER, WOOD PULP
and COLORS, and for PRINTERS
and BLEACHERS****BLEACHING POWDER,**HIGH STRENGTH, 35/37% IN
HARDWOOD CASKS.**ALSO CAUSTIC SODA, SALSODA, CONCENTRATED SALSODA
SALAMMONIAC, Etc.****BRUNNER, MOND & CO., LIMITED, NORTHWICH, ENG.**

WINN & HOLLAND, Montreal, SOLE AGENTS FOR CANADA

BELLHOUSE, DILLON & CO.

201 Coristine Bldg., St. Nicholas St., MONTREAL.

Logwood Crystals

The only Extract that is absolutely pure and will do the work of Chips. Manufactured where the wood is grown, by The West Indies Chemical Works, Limited, Spanish Town, Jamaica, W. I.

A. KLIPSTEIN & CO.

122 Pearl St., New York

HAMILTON, ONT.—24 Catharine St. N. MONTREAL—17 Lemoiné St.

ANILINES**DYESTUFFS and CHEMICALS****FAST COLORS FOR WOOL and COTTON**

ALSO FULL LINE OF DIRECT COTTON COLORS

BRANCHES—BOSTON, 233-5 Congress St. PHILADELPHIA, 50-52 N. Front St.
CHICAGO, 136 Kinzie St. PROVIDENCE, 13 Mathowson St.Sole Agents for **THE SOCIETY OF CHEMICAL
INDUSTRY, Basle, Switzerland**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



"Little Giant" Drill. "Little Giant" Wood Boring Machine.

Chicago Pneumatic Tool Co.

GENERAL OFFICES, Fisher Building, CHICAGO.
 CANADIAN OFFICE, Forester Temple Bldg., TORONTO, ONT.
 EASTERN OFFICES, 95 Liberty St., NEW YORK.



"Little Giant"

We Manufacture Air Compressors and Pneumatic Appliances of every variety and highest quality.

Reversible, Flue Rolling, Reaming and Tapping Machine.

CATALOGUE?

ELEVATING...
 CONVEYING...
 COAL MINING...
 COAL WASHING

JEFFREY MACHINERY

ELECTRIC LOCOMOTIVES

SEND FOR CATALOGUE.



We design Machinery to suit any and all conditions. Address

THE JEFFREY MFG. CO., - Columbus, Ohio, U.S.A.

Toronto Agents—A. R. WILLIAMS MACHINERY CO.
 Montreal Agents—WILLIAMS & WILSON.

It is a Good Thing

After STOCK TAKING to get your office fitted up. We make all kinds of OFFICE FIXTURES.

New Catalogue in Press; shall we mail you a copy?

THE

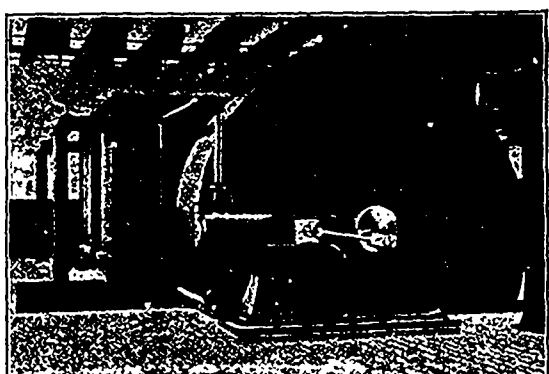
GEO. B. MEADOWS

Wire, Iron & Brass Works Co., Limited

117 King St. West, TORONTO, Canada

POSITIVE IN ACTION
 ECONOMICAL IN OPERATION

The **STURTEVANT SYSTEM** of HEATING AND VENTILATION



Forced circulation of air by means of a fan. A centralized plant. Operation independent of weather. Exhaust steam utilized.

B. F. STURTEVANT CO.

BOSTON, MASS.

New York Philadelphia Chicago London 354

WORTH & MARTIN

Electrical and Mechanical Contractors
and Brass Founders and Finishers . .

Electric Supplies, Nitrous Oxide Gas, Switches
and Switchboards Manufactured.

Dynamos and Motors . . Built and Repaired. We have a well-equipped Machine Shop. Model and Experimental Work a specialty. Inventions perfected. All work strictly confidential. Correspondence solicited.

35 to 39 Adelaide Street West, Toronto. Phone Main 3494.

Our Method

of inspecting boilers is appreciated by our clients (amongst whom are the largest steam users in Canada) simply because of the utmost pains we are taking to give a service that is reliable because up-to-date in its thoroughness.

We take nothing for granted when inspecting a boiler

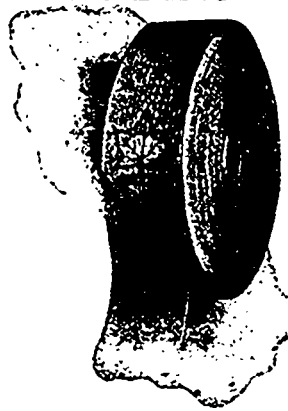
The most skilful and experienced engineers are employed who make regular inspections, both internal and external of all boilers entrusted to our care.

The Canadian Casualty and Boiler Insurance Co.

give special consulting engineers' advice to all policy holders, and use their utmost endeavor to make steam plants efficient in service at a minimum of cost.

Do you use Steam Boilers? It will pay you to write us. Booklet to steam users mailed free on request.

Head Office: A. G. C. DINNICK, Managing Director.
22 Adelaide Street E., TORONTO
Telephone Main 4091.



Use our "MAPLE LEAF" Belt Dressing.

STITCHED Cotton Belting Duck

SUPERIOR TO ALL OTHER BELTING

—FOR—

Agricultural Machinery, Cement Mills, Cotton and Woolen Mills, Paper Mills, Pulp Mills, Electric Powers, Flour Mills, and all other classes of Machinery. Superior in Tensile, Strength, Pliability, Weight, Freedom from Stretching.

Manufactured by
DOMINION BELTING CO., Limited,
HAMILTON, ONT.

THE CANADIAN OAK BELTING CO.

LIMITED

TANNERS

MANUFACTURERS OF

Pure Oak Tanned Leather Belting

SPECIAL
Patent Waterproof Cement Splice
AND J X L Dove Tail Splice.

BRANCH: 771 Craig Street - MONTREAL BROCKVILLE, ONT.

English Card Clothing

FULL STOCK ON HAND

"GENUINE OAK" Leather Belting

OUR PRICES ARE LOW

Rubber Belting

D. K. McLAREN

751 Craig Street, - - MONTREAL
132 Bay Street, - - - TORONTO

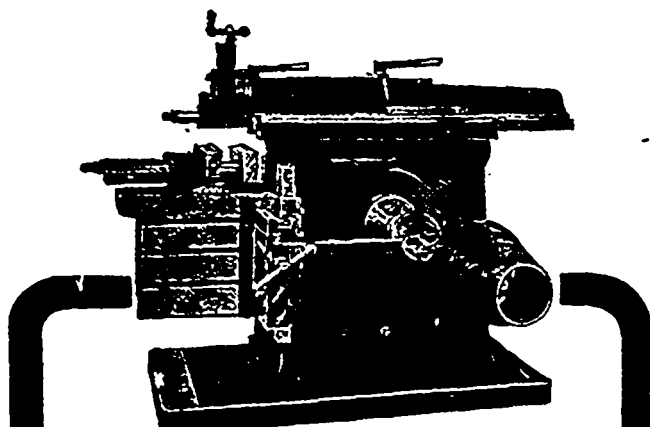


NOTICE The following are the Factory Inspectors for the Province of Ontario:

JAS. T. BURKE, Parliament Buildings, Toronto.
JAS. R. BROWN, Parliament Buildings, Toronto.
MARGARET CARLYLE, Parliament Buildings, Toronto.
O. A. ROCQUE, Orleans, Ont.

Persons having business with any of the Inspectors will find them at the above address.

JOHN DRYDEN, Minister of Agriculture.



STEPTOE SHAPERS

Compare the work of these machines with that of any high class shaper and you will readily admit the superiority of STEPTOE SHAPERS.

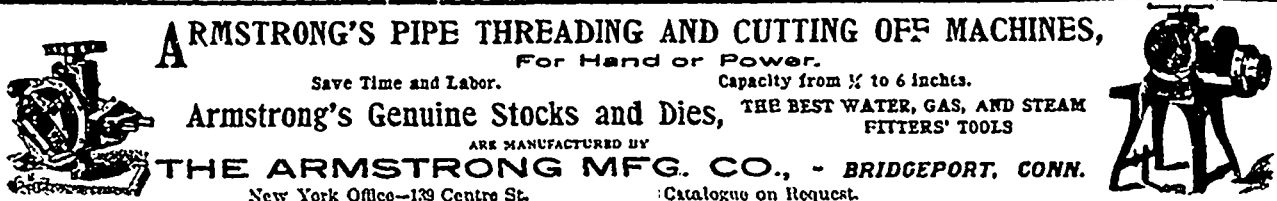
Our machines will do your work satisfactorily and our prices will interest you. We would like to forward our catalogues.

Crank Shaper made in 11", 16", 20", 23" sizes, both plain and back geared.
Triple geared made in 21", 25", 32" sizes.

John Steptoe Shaper Co.,
A. R. Williams Machinery Co., Makers of THE Shaper,
Canadian Agents, Toronto, Ont. CINCINNATI, O.

ARMSTRONG'S PIPE THREADING AND CUTTING OFF MACHINES,
 For Hand or Power.
 Capacity from 1/2 to 6 inches.
 Save Time and Labor. THE BEST WATER, GAS, AND STEAM FITTERS' TOOLS

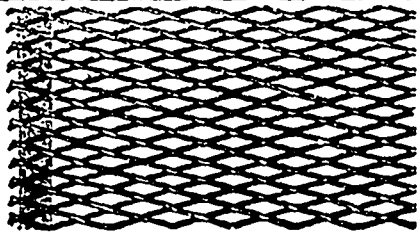
Armstrong's Genuine Stocks and Dies,
 ARE MANUFACTURED BY
THE ARMSTRONG MFG. CO., - BRIDGEPORT, CONN.
 New York Office-139 Centre St. Catalogue on Request.



PAGE "ACME" NETTING

150-foot roll, 4 feet high.....\$4.40 For poultry and garden. Better than old style. Of local dealer or us. Freight paid.
 150-foot roll, 5 feet high..... 5.10
 150-foot roll, 6 feet high..... 6.00

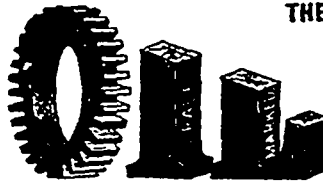
THE PACE WIRE FENCE CO. LIMITED 204
 Walkerville Montreal Winnipeg St. John



Expanded Metal is made in Canada.
 Used in **FIREPROOF** concrete roofs, walls, floors, etc.
 Stop building heavy and expensive brick, terra cotta, or solid concrete arches. Get our prices on factory wall and roof work. We sell material, furnishing full working-drawings, and foreman's instructions. Or we submit estimates and undertake contracts.
 You will save money by instructing your practical man to correspond with our engineer. Ask him to send rough drawing with accurate measurements, before building or making alterations.

EXPANDED METAL & FIRE PROOFING CO., Limited
 100 King Street West, - TORONTO

"CAPITOL" CYLINDER
 "RENOVN" ENGINE
 "ATLANTIC" RED
 RELIABLE WELL-KNOWN BRAND



THE **Queen City Oil Co.**
 LIMITED
 TORONTO, CANADA
 ALL ORDERS PROMPTLY FILLED

THE IMPERIAL OIL COMPANY, Limited

Highest Awards at the World's Fair, Chicago, 1901

Lubricating, Water White Illuminating Oils,
 Paraffine Wax, Etc.

We manufacture all grades of oils, greases, soap stocks, candles, wool stocks, leather and tanners' oils, fuel gas, machinery, cylinder oils, &c. And solicit opportunity to compete against any oil on the market. Write for prices and samples.

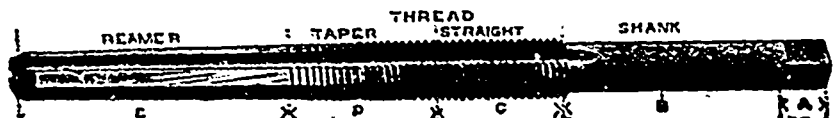
Refineries at **SARNIA** and **PETROLIA, CANADA.** Merchandising Branches at:

HALIFAX, N.S. HAMILTON, ONT. QUEBEC, QUE. LONDON, ONT. TORONTO, ONT. WINNIPEG, MAN. ST. JOHN, N.B. GUELPH, ONT.
 MONTREAL, QUE. CHATHAM, ONT. PETERBORO, ONT. VANCOUVER, B.C. MONCTON, N.B. STRATFORD, ONT. KINGSTON, ONT. WINDSOR, ONT.



WE MANUFACTURE
STAY BOLT TAPS, all diameters and lengths up to 94 inches.
SPINDLE STAY BOLT TAPS and **TAPS** for Screw Machines, and **TAPS** for all uses.
 Regular and Full Mounted Reece and Derby Plates, Bicycle and Machinists' Plates, etc., etc.

BUTTERFIELD & CO.,
 Rock Island, Que.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE PETER HAY KNIFE CO., Limited



GALT, ONT.



Manufacturers of

MACHINE KNIVES

For WOOD-WORKING,
PAPER CUTTING and LEATHER SPLITTING
MACHINES,



Quality Warranted.

Send for Price List.

SHEAR BLADES.

BARK and RAG KNIVES,

Etc., Etc., Etc.

CAMEL BRAND
BALATA
RUBBER
.....
BELTING

Linen Fire Hose,
Water and Steam Hose,
Packings, Etc., Etc.

THE STANDARD



GOLD WATER PAINT

WEATHER PROOF, FIRE PROOF
WHITE AND COLORS.

MILL SUPPLIES

Lubricating Oils and Greases
PAINT, PAINT OILS, ETC.

W. A. FLEMING & CO.

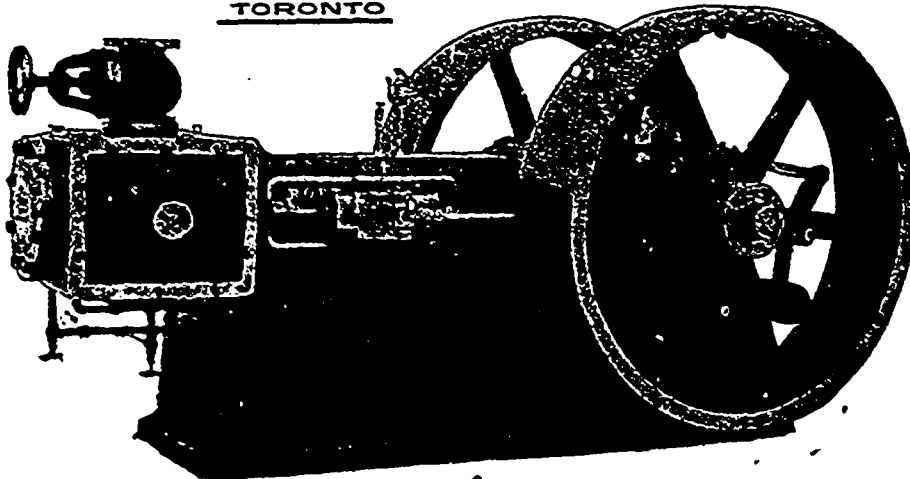
Montreal and St. John, N.B.

The A. R. Williams Machinery Co.,

LIMITED,

MANUFACTURERS
IMPORTERS AND DEALERS

TORONTO



OUR NEW BELL PATENT HIGH SPEED AUTOMATIC ENGINE

—IS—
Engines, Boilers
Iron Machinery
Tools
Wood-Working
Machinery

—AND—
**GENERAL MILL
MACHINERY and
SUPPLIES**

Write for.....
CATALOGUE and
QUOTATIONS

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

DEMAND FOR WIND ENGINES AND PUMPS.

Mr. D. H. Ross, Canadian commercial agent for Victoria, South Australia, Western Australia and Tasmania, writing of the conditions of business in those states, says:

In interviews with the managers of large companies, interested in station—or ranch—properties, I find that there exists a strong demand for improved air-motors upon all large stations. What is true of the big sheep and cattle "runs," operated in many instances by strong financial concerns, also applies in equal force to properties held by individual owners and to the ordinary farmer, whose "selection" may only be a few hundred acres in extent. Some wind-mills are made locally, but the majority of those in use in Australia are of United States origin.

The manager of one company—being thoroughly British in sentiment—asked for information as to what Canada could supply in this line. I was therefore glad to be in a position to tell him that a Canadian manufacturing concern succeeded, after exhaustive trials, in obtaining the first prize awarded for windmills, over some 20 competitors, at the Royal Agricultural Show in England, last year. I was assured by the enquirer that if I had the necessary catalogues, price lists and discount sheets—showing the f.o.b. price, New York—he would, by this mail, order six Canadian windmills, of various capacities, required for delivery here in May next. I gave him the names of Canadian manufacturers, but his company could not wait for an indefinite time, and thus what would have been a fine introduction for this line will likely be passed to foreign sources of supply. All sizes are required for lifting water from 20 to 200 feet, and those fitted with a detachable contrivance, so that power can be used for other purposes, will meet with the best sale.

There is a constant large sale in these states of cheap hand pumps, and a vigorous attempt should be made by Canadian manufacturers to secure, at least, a portion of this business, the bulk of Australian requirements being indented from United States makers. In Western Australia I have seen stocks of over 250 hand pumps—in assorted sizes—being carried by one firm, and this is by no means an isolated instance. It will give me pleasure to forward to Canadian pump manufacturers any desired information regarding sizes, f.o.b., prices, etc.

\$50.00 TO CALIFORNIA AND RETURN.

Via The Chicago, Union Pacific & North-Western Line, from Chicago, April 23 to May 1. Choice of routes going and returning. Correspondingly low rates from all points. Two trains a day from Chicago through without change. Daily and personally conducted tourist and excursions. Write for itinerary and full particulars regarding special train leaving Chicago, April 26. B. H. Bennett, 2 East King St., Toronto, Ont.

THE Milner Petrolia Wagon Co.

Limited

PETROLIA, ONT.

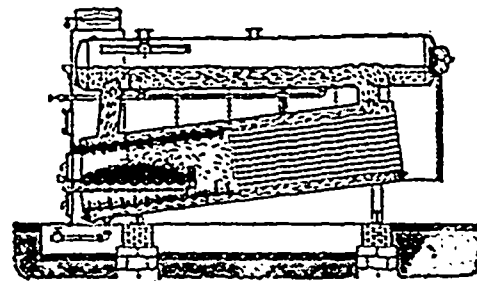
Manufacturers of:

Heavy Team Wagons,
Log and Lumber Trucks,
Saw Mill Dump Carts,
Contractors' Dump Carts,
Farm Wagons of all kinds.

Strictly First-Class and Fully Warranted.

SEND FOR NEW ILLUSTRATED CATALOGUE.

No Heat Wasted



The Mumford Standard boiler is internally fired and no heat is wasted by radiation as in an externally fired boiler.

The furnace is long and of large diameter with greatest height at the back, giving good combustion.

The boiler is built with a sheet steel case ready for use when it leaves our works, or without case, for bricksetting, as preferred by customer.

Robb Engineering Co., Limited
AMHERST, N.S.

AGENTS } WILLIAM MCKAY, 320 Ossington Ave., Toronto.
WATSON JACK & COMPANY, 7 St. Helen Street, Montreal
J. R. PORTER, 355 Carlton Street, Winnipeg.

MAIN FACTORY—BRADFORD, ENG.

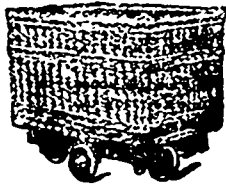
CANADIAN FACTORY—MONTREAL

WE BUILD

TRUCKS

That sustain our Reputation.

THE LARGEST TRUCK ESTABLISHMENT IN THE WORLD.
NOTHING BUT THE BEST



Spins Like a Top.

For the Warehouse, Factory, Brewery, Stores, Hospitals—in fact for every conceivable purpose—all on the famous Slingsby Patent Sliding Wheel Principle.

HAVE YOU SEEN IT?

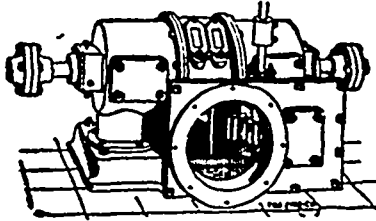
We also make special Trucks. Simply give us your ideas.

H. C. Slingsby for Canada

TEMPLE BLDG., MONTREAL



Runs either way



Horizontal Type.

"LITTLE GIANT" TURBINE

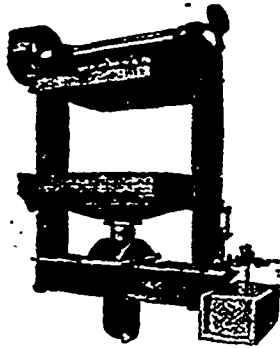
...FOR ALL PURPOSES...

HORIZONTAL AND VERTICAL BUILT IN 44 SIZES.

We guarantee a higher percentage of power from water used than any other wheel on the market.

Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings. Correspondence Solicited.

J. C. WILSON & CO., - - GLENORA, ONT.



Hydraulic Screw

— and —

Filter Presses..

WILLIAM R. PERRIN & COMPANY, Limited
Toronto, - Canada.

ESTABLISHED 1823.

WILSON BROS. BOBBIN CO., LIMITED

(1900)

LARGEST MAKERS IN THE WORLD

46 GOLD MEDALS AND DIPLOMAS



BOBBIN AND SHUTTLE MANUFACTURERS



Address, - Cornholme Mills, GARSTON, LIVERPOOL, ENGLAND

TELEGRAMS: "NUGGET, LIVERPOOL, ABC and A1 Codes.

BRANCH WORKS—St. HELENS

Office and Showrooms—14 Market Place, Manchester.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

GET A

Canada

Cheque Protector

Price, - \$12.00.

Manufactured by

Hamilton Stamp & Stencil Works,
HAMILTON, ONT.

Dominion Oil Cloth Co.

LIMITED

Manufacturers of **Oilcloths** of Every Description.

Floor Oil-Cloth, Table Oil-Cloth, Carriage Oil-Cloth, Enamelled Oil-Cloth, Stair Oil-Cloth, etc.

OFFICE AND WORKS:

Cor. St. Catherine and Parthenais Streets
MONTREAL, Que.

MOTORS

FOR ALL CIRCUITS.

Direct or Alternating

Phone Main 4227.

THE ELECTRIC ENGINEERING AND SUPPLY COMPANY
MONTREAL - CANADA.

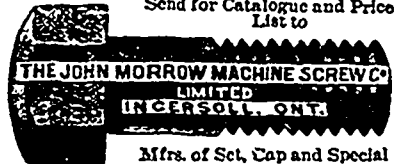
R. SPENCE & CO.

HAMILTON, ONT.

FILE and RASP MANUFACTURERS AND RE-CUTTERS.

A trial order solicited. Write for terms. C. P. MOORE, PROPRIETOR.

Send for Catalogue and Price List to



Mfrs. of Set, Cap and Special Screws, Studs, Finished Nuts, etc.

The Firstbrook Box Co. Limited

PACKING CASES. DOVETAIL BOXES. Bottlers' SHIPPING CASES. BOX SHOOKS, Etc.

TOP PINS, SIDE-BLOCKS & CROSS-ARMS
Write for prices. TORONTO, Canada.



CLASSIFIED INDEX.

Abrasives.

Canadian Corundum Wheel Co., Hamilton, Ont.
Hart Corundum Wheel Co., Hamilton, Ont.
Rice Lewis & Son, Toronto.
Williams, A. R., Machinery Co., Toronto.

Air Compressors

American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Canadian Hand Drill Co., Sherbrooke, Que.
Chicago Pneumatic Tool Co., Chicago, Ill.
Darling Bros., Montreal.
Shaw, Willis, Chicago, Ill.

Aluminum

Northern Aluminum Co., Pittsburgh, Pa.
Syracuse Smelting Works, Montreal.

Angles, Beams and Girders

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Cooper, Estate late James, Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Slingsby, H. C., Montreal.

Aniline Colors and Dyewood Extracts

Bellhouse, Dillon & Co., Montreal.
Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Cassella Color Co., New York City.
Goisy Aniline & Extract Co., New York City.
Klipstein, A. & Co., New York City.
McArthur, Cornello & Co., Montreal.
Winn & Holland, Montreal.

Annealing Muffles and Furnaces (Wire)

Morgan Construction Co., Worcester, Mass.
Leslie, A. C. & Co., Montreal.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Antimony

Syracuse Smelting Works, Montreal.

Anvils and Vises

Cooper, Estate late James, Montreal.
Leslie, A. C. & Co., Montreal.
Rice Lewis & Son, Toronto.

Architects

Edwards, R. J., Toronto.
Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Assayers.

Wentz, R. F. Engineering Co., Toronto.

Axles

Cooper, Estate late James, Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Babbitt Metal

Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Syracuse Smelting Works, Montreal.

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Cooper, Estate late James, Montreal.
Leslie, A. C. & Co., Montreal.
Rice Lewis & Son, Toronto.

Belt Dressing.

McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rossendale Belting Co., Toronto.
Williams, A. R., Machinery Co., Toronto.

Belt Fasteners.

Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rossendale Belting Co., Toronto.
Williams, A. R., Machinery Co., Toronto.

Belting (Cotton.)

Domilon Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rossendale Belting Co., Toronto.
Wilby, P. H., Toronto, Ont.

Belting (Leather.)

Canadian Oak Belting Co., Brockville, Ont.
Fleming, W. A. & Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rice, Lewis & Son, Toronto.
Wilby, P. H., Toronto, Ont.
Williams, A. R., Machinery Co., Toronto.

Belting (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, D. K., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.

TRY GRAPHITE

Test the value of

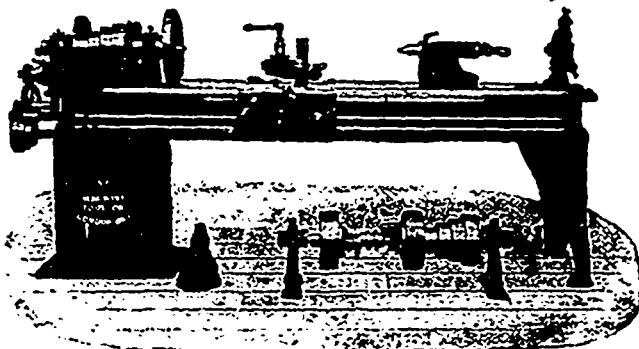
DIXON'S PURE FLAKE GRAPHITE

on your most troublesome bearing and be convinced that it offers, as we claim, the practical solution of the most difficult problems in lubrication.

Booklet 33-C tells how Dixon's Graphite does its work and how many its uses. Sample upon request.

JOSEPH DIXON CRUCIBLE CO., - Jersey City, N.J.

The London Machine Tool Co., LONDON, ONT.



MANUFACTURERS OF

GENERAL MACHINERY

LATHES
PLANERS
DRILLS
SHAPERS
HAMMERS
BULL DOZERS
PUNCHES
PRESSES

"NOVO" Air Hardening STEEL

Unexcelled for Turning, Planing, Shaping, Boring, Milling and Reaming.

Stock of all sizes, including ANNEALED Steel, always on hand.

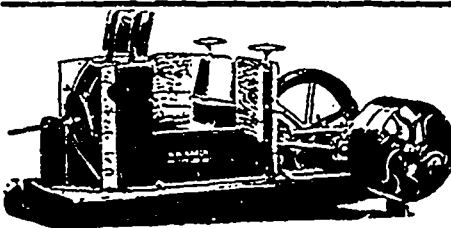
WILLIAM ABBOTT, Sole Agent for Canada - 334 St. James Street, MONTREAL

DEEP WELL PUMPS

Steam Geared or Electrically Driven.

Deep Well Pumping Systems for Cities, Railroad, Mines, Factories, etc.

DOWNIE PUMP CO., Downieville, Pa., U.S.A.



H. W. KARCH

HESPELER, ONT.

IRON FOUNDER and MACHINIST

Manufacturer of

WOOLEN MACHINERY,

Rotary Fulling Mills, Kicker Fulling Mills, Soaping Machines,
Cloth Washers, Wool and Waste Dusters, Rag Dusters, Drum Spool Winders
Reels, Spooling and Doubling Machines, Ring Twisters, Card Creels
Dead Spindle Spooler for Warp or Dresser Spools,

Patent Double-Acting, Gig Dyeing Machines.

TO WOOLEN MANUFACTURERS

MESSRS. REICHE & CO.

WOOL, TOPS, NOILS, YARNS, Etc.

Represented in Canada by BRADFORD, ENGLAND

JAMES A. CANTLIE

22 ST. JOHN STREET, - - MONTREAL

Samples and Lowest Quotations Promptly Supplied. Correspondence Solicited.

WOOLEN MILL

For Sale

Water and steam power; one set Woollen Mill. Three story brick and stone. 36 x 52 feet. Two story brick and stone addition 30 x 36 feet.

Good locality; wool plentiful.

Address,

S. M. HUTCHESON,
Paisley, Ont.

PATENTS
IN ALL COUNTRIES

ENGINEERING, ELECTRICAL and SCIENTIFIC CASES & SPECIALTY

Experience in such cases makes smaller cases easy as A. B. C. All kinds welcome as we are well equipped with special associates, assistants and facilities. CHARGES MODERATE. Preliminary advice free.

WRITE FOR SCHEDULE OF CHARGES AND HOW TO PROCEED.

We particularly invite inventors to make use of our PATENT LIBRARY and of our SPECIAL SEARCH FILES containing thousands of patents properly classified.

Patents procured through Marlon & Marion RECEIVE SPECIAL NOTICE without CHARGE in over 100 newspapers distributed throughout the Dominion.

SPECIALTY:—Patent business of Manufacturers and Engineers.

MARION & MARION
Graduate Engineers & Registered Patent Attorneys
Office: New York Life Building, Montreal,
and 907 G Street, Washington, D. C.

THE MEYERCOCK CO.
DIAMOND CUTTING TRANSFERS
ENAMEL PLATES TRADE MARKS AND ORNAMENTS
OPAQUE ENAMEL TRANSFER WINDOW SIGNS

"RED CROSS"
Lubricant for Commutators.

FREE SAMPLE. The Biggest Little Thing on the Market.
Address—

**HART & CO., 303 Monadnock Building,
CHICAGO, ILL.**

BANK OF HAMILTON

J. TURNBULL, General Manager.

HEAD OFFICE, HAMILTON, ONT.

Capital.	Reserve.	Total Assets.
\$2,000,000	\$1,700,000	\$22,000,000

BRANCHES IN
TORONTO, MONTREAL, WINNIPEG, VANCOUVER,
and all principal towns in Canada.

Collections made in all parts of Canada.

The Mercantile Agency
ESTABLISHED 1841.

R. G. DUN & CO.

Offices in 169 of the leading business centres of the world.

CANADIAN OFFICES

TORONTO,	MONTREAL,
HAMILTON,	QUEBEC,
LONDON,	OTTAWA,
WINNIPEG,	ST. JOHN,
VANCOUVER,	HALIFAX.

W. C. MATTHEWS, Toronto,
General Manager for Canada.

CLASSIFIED INDEX.

(CONTINUED).

Belting and Supplies

Bristol Co., Waterbury, Conn.
Canadian Oak Belting Co., Brockville, Ont.
Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Gutta Percha & Rubber Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Rossendale Belting Co., Toronto.
Wilby, P. H., Toronto.
Williams, A. R. Machinery Co., Toronto.

Billiet Heating Furnaces

Morgan Construction Co., Worcester, Mass.

Bobbins

Wilson Bros. Bobbin Co., Liverpool, England.

Boiler Inspection

Canadian Casualty & Boiler Insurance Co., Toronto.

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.
Meadows, Geo. R. Wire, Iron & Brass Works Co., Toronto.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Pencorby Injector Co., Windsor, Ont.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Canadian Otis Elevator Co., Toronto.
Canadian Portland Cement Co., Deseronto, Ont.
Cooper, Estate late James, Montreal.
Dodge Mfg. Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Gartshore, John J., Toronto.
Metallic Roofing Co., Toronto.
Owen Sound Portland Cement Co., Owen Sound, Ont.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
Wire & Cable Co., Montreal.

Canada Plates

Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.

Cast Iron Pipe

Canada Foundry Co., Toronto.
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
Rice Lewis & Son, Toronto.
Montreal Pipe Foundry Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Castings (Iron and Brass.)

Buhl Malleable Co., Detroit, Mich.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Slingsby, H. C., Montreal.
Toronto Iron & Brass Bedstead Co., Toronto.

Cement Machinery

McDougall, John, Caledonian Iron Works Co., Montreal.
Wentz, R. F. Engineering Co., Toronto.

Chain Making Machinery (Welded Coil Chain)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Channels

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Chemists

Archbold, Dr. Geo., Prescott, Ont.
Hoys, Thos. & Son, Toronto.
Wentz, R. F. Engineering Co., Toronto.

Clay Working Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.
Brownlee, J., Galt, Ont.
Hoffman, Jules G., Detroit, Mich.
Milnes, James H. & Co., Toronto.
Pittsburgh Coal Co., Pittsburgh, Pa.
Shawmut Coal & Coke Co., St. Marys, Pa.
Shipman, O. W. Co., Detroit, Mich.
Wick, H. K. & Co., Buffalo, N.Y.

Coal Cutting Machines

Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples

Jeffrey Mfg. Co., Columbus, Ohio.

Coll Chains

Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.

Coke Oven Brick

Dunbar Fire Brick Co., Pittsburg, Pa.

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Construction

Stevens, A. J., Toronto.

Concrete Mixers

Cooper, Estate late James, Montreal.

Continuous Rolling Mills

Morgan Construction Co., Worcester, Mass.

Contractors' Machinery

Carlin's, Thomas Sons Co., Allegheny, Pa.
Cooper, Estate late James, Montreal.
Gartshore, John J., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Shaw, Willis, Chicago, Ill.

Contractor's Plants

Shaw, Willis, Chicago, Ill.
Von der Osten, E. & Co., Toronto.

Conveying Machinery

Babcock & Wilcox, Limited, Montreal.
Buhl Malleable Co., Detroit, Mich.
Canada Foundry Co., Toronto.
Dodge Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Company, Limited, Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rossendale Belting Co., Toronto.
Stevens, Alfred J., Toronto.

Copper Materials

Greening, B., Wire Company, Hamilton, Ont.
Syracuse Smelting Works, Montreal.
Wire & Cable Co., Montreal.

Corundum

Canada Corundum Co., Toronto.

Corundum Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
Hart Corundum Wheel Co., Hamilton, Ont.
Rice Lewis & Son, Toronto.

Covers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Crucible Caps and Nozzles

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crucible Covers and Stoppers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Dies (Socket, Sewer Pipe and Tile)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Kelly's Directories, Limited, Toronto.

Draw Benches (Wire)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Drills

Bertram, John, & Sons Co., Dundas, Ont.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Shaw, Willis, Chicago, Ill.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CLASSIFIED INDEX.

(CONTINUED).

Drills (Pneumatic and Rock)

Canadian Rand Drill Co., Sherbrooke, Que.
Chicago Pneumatic Tool Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, Ohio.

Drills (Twist)

Cleveland Twist Drill Co., Cleveland, Ohio.
Pittsburg Shafting Co., Detroit, Mich.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

Sheldon & Sheldon, Galt, Ont.
Stevens, Alfred J., Toronto.
Sturtevant, B. F. Co., Boston, Mass.

Dust and Sawings Separators

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dye Stuffs and Chemicals

Bellhouse, Dillon & Co., Montreal.
Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Cassella Color Co., New York City.
Gely Aniline & Extract Co., New York City.
Klipstein, A. & Co., New York City.
McArthur, Cornillon & Co., Montreal.
Winn & Holland, Montreal.

Electric Meters and Transformers

Packard Electric Co., St. Catharines, Ont.

Electric Mine Locomotives

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Shaw, Willis, Chicago, Ill.

Electrical Repairs

Volta Electric Repair Works, Toronto.

Electrical Supplies

Bristol Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

Elevators and Conveyors

Buhl Malleable Co., Detroit, Mich.
Canadian Otis Elevator Co., Toronto.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
Forman, John, Montreal.
Hart Corundum Wheel Co., Hamilton, Ont.
Petrie, H. W., Toronto.

Engineers (Cement)

Wentz, R. F. Engineering Co., Toronto.

Engineers (Chemical)

Heys, Thos. & Son, Toronto.
Hunt, Robert W. & Co., Chicago, Ill.

Engineers (Civil)

DeLano-Osborn Engineering Co., Toronto.
Kelsch, R. S., Montreal.
Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Engineers (Consulting)

DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Hunt, Robert W. & Co., Chicago, Ill.
Kelsch, R. S., Montreal.
Marion & Marion, Montreal.
Morgan Construction Co., Worcester, Mass.
Parke, R. J., Toronto.
Perrin, William R. & Company, Limited, Toronto.
Simpson, T. T., Deschutes, Que.
Vogel, C. H., Ottawa.
Volta Electric Repair Works, Toronto.
Von der Osten, E. & Co., Toronto.
Wentz, R. F. Engineering Co., Toronto.

Engineers (Contracting)

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Engineers (Electrical)

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Electric Engineering & Supply Co., Montreal.
Kelsch, R. S., Montreal.
Jones & Moore Electric Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto.
Worth & Martin, Toronto.

Engineers (Mechanical)

Babcock & Wilcox, Limited, Montreal.
Buhl Malleable Co., Detroit, Mich.
Darling Bros., Montreal.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hunt, Robert W. & Co., Chicago, Ill.
Kelsch, R. S., Montreal.
Kerr Engine Co., Walkerville, Ont.
Marion & Marion, Montreal.
Morgan Construction Co., Worcester, Mass.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Wentz, R. F. Engineering Co., Toronto.

Engineers (Mill and Hydraulic)

Buhl Malleable Co., Detroit, Mich.
DeLano-Osborn Engineering Co., Toronto.
Vogel, C. H., Ottawa.

Engineers (Mining)

Buhl Malleable Co., Detroit, Mich.
Heys, Thos. & Son, Toronto.
Mills, S. D., Toronto.

Engineers (Municipal)

Von der Osten, E. & Co., Toronto.

Engineers and Contractors

Buhl Malleable Co., Detroit, Mich.
Jeffrey Mfg. Co., Columbus, Ohio.

Engines and Boilers

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Canadian Heino Safety Boiler Co., Toronto.
Cooper, Estate late James, Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hyde Bros. & Co., Pittsburg, Pa.
Leonard, E. & Sons, London, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Petrie, H. W., Toronto.
Petroleum Iron Works Co., Washington, Pa.
Pittsburgh Shafting Co., Detroit, Mich.
Robb Engineering Co., Amherst, N.S.
Shaw, Willis, Chicago, Ill.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R., Machinery Co., Toronto.

Engravers

Canadian Manufacturer, Toronto.
Jones, J. L., Engraving Co., Toronto.

Exhaust Fans

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Exhaust Heads

Burt Mfg. Co., Akron, Ohio.
Darling Bros., Montreal.

Factory Sites

Central Ontario Power Co., Peterboro, Ont.

Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petroleum Iron Works Co., Washington, Pa.

Files

Spence, R. & Co., Hamilton, Ont.

Financial

Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postelwalle, Toronto.
Petrie, H. D., Hamilton, Ont.

Filters (Oil)

Babcock & Wilcox, Limited, Montreal.
Burt Mfg. Co., Akron, Ohio.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Company, Limited, Toronto.

Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Fire Brick and Clay

Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven.
Seloto Fire Brick Co., Selotville, Ohio.
Wynn, W. H. & Co., West Decatur, Pa.

Forges and Blowers

Canada Foundry Co., Toronto.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

RICE LEWIS & SON LIMITED

Machinist Tools, Pipe Fittings,
Stillson and Trimo
Wrenches,

HARDWARE and METAL

Bar Iron, Steel, Boiler
Plate Tubes.

COMPLETE STOCK OF STOCKS AND DIES

Pipe Vices, Steam Pipe.

CORNER KING & VICTORIA STS.

TORONTO

The Ryall Machine Screw Works

MONTREAL, QUE.

Manufacturers of Screws, Studs and Pins
for Sewing Machines, Typewriters and
Electrical Works, etc.

STAMPING AND DIES.

F. W. HORE & SON, Limited, HAMILTON, ONT.

CARRIAGE, WAGGON, AND SLEIGH WOOD WORK.

BROWN & CO.

Manufacturers of

Square and Hexagon

HOT PRESSED NUTS.

PARIS, - ONT.

Telegraphic Address: "PHENOLATE."

51 Lime St., LONDON, E. C., ENG.

Blagden, Waugh & Co.

—SOLE AGENTS FOR—

THE DOMINION TAR & CHEMICAL CO.,

LIMITED

Works at Sydney, Cape Breton, CANADA.

Manufacturers of Pitch (Roofing and
Target); Creosote (Dead Oil); Car-
bolic, Naptha, Disinfectants,
Refined Tar.

Also Naphthalines (all qualities)
Cyanides (Prussiates of Potash
and Soda) and Ammonia
Salts.

Hyde Water Tube Safety Boiler

The modern boiler for
Rolling Mills, Blast
Furnaces, and general
power purposes.

In successful operation
in every state from
Atlantic to Rockies.

HYDE BROS. & CO.

PITTSBURG, PA.

WM. BARBER & BROS.

Georgetown, Ont.

Manufacturers of.....

Book and Fine Papers.

THE.....

Toronto Paper Manufacturing Co., Cornwall, Ont.

Manufacturers of Engine Sized Superfine
Papers, White and Tinted Book Papers, Blue
and Cream Laid and Wove Foolscaps, Account,
Envelope and Lithographic Papers, etc.

Smith Mfg. Co.

LIMITED

219 Front Street East, Toronto

Makers of

WOOL STOCK, SHODDIES, Etc.

The Toronto Iron & Brass Bedstead Co.

148, 148 and 150

Niagara Street, TORONTO

Manufacturers of...

ORNAMENTAL IRON AND BRASS

Bedsteads

OF ALL KINDS.

WRITE FOR PRICES

CLASSIFIED INDEX.

(CONTINUED).

Founders

Canada Foundry Co., Toronto.
Cowan & Co., Galt, Ont.
Gartshore-Thomson Pipe & Foundry Co., Hamil-
ton, Ont.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Karch, H. W., Hespeler, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babcock & Wilcox, Limited, Montreal.

Furniture (Lodge, Opera and School)

Canadian Office & School Furniture Co.,
Preston, Ont.

Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls
Ohio.

Gas and Gasoline Engines

Goldie & McCulloch Co., Galt, Ont.
Morrison, T. A. & Co., Montreal.

Gas Producers.

Morgan Construction Co., Worcester, Mass.

Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

Gauges (Steam)

American Steam Pump Co., Battle Creek, Mich.
Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Williams, A. R., Machinery Co., Toronto.

Gauges (Water)

Babcock & Wilcox, Limited, Montreal.
Penberthy Injector Co., Windsor, Ont.

Generators

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
Volta Electric Repair Works, Toronto.

Gloves, Mittens and Moccasins

Storoy, W. H. & Son, Acton, Ont.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos., Crucible Co., Jersey City, N.J.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Grease Cups

Penberthy Injector Co., Windsor, Ont.

Grinding Machinery

Canadian Corundum Wheel Co., Hamilton, Ont.
Hart Corundum Wheel Co., Hamilton, Ont.

Grinding Pans

Carlin's, Thomas Sons Co., Allegheny, Pa.

Hand Travelling Cranes

Morgan Construction Co., Worcester, Mass.

Hardware

Rutterfield & Co., Rock Island, Que.
Cleveland Twist Drill Co., Cleveland, Ohio.
Cooper, James, Montreal.
Empire Machine & Metal Stamping Co., Toronto.
Gartshore, John J., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Rice Lewis & Son, Toronto.
Ryall Machine Screw Co., Montreal.

Heating and Ventilating Apparatus

Darling Bros., Montreal.
Leonard, F. & Sons, London, Ont.
Sheldon & Sheldon, Galt, Ont.
Stevens, Alfred J., Toronto.
Sturtevant, B. F. Co., Boston, Mass.

Hoists (Chain and Pneumatic)

Canadian Rand Drill Co., Sherbrooke, Que.
Chicago Pneumatic Tool Co., Chicago, Ill.
Cooper, Estate late James, Montreal.

Hose (Fire and Pneumatic)

Chicago Pneumatic Tool Co., Chicago, Ill.
Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C. Helling Co., Montreal and Toronto.
Slingsby, H. C., Montreal.

Hydrants

Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

Hydraulic Accumulators

Morgan Construction Co., Worcester, Mass.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

Hydraulic Cranes

Morgan Construction Co., Worcester, Mass.

Hydraulic Machinery

Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Morgan Construction Co., Worcester, Mass.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Perrin, William R. & Company, Limited, Toronto.
Petrie, H. W., Toronto.
Wilson, J. C. & Co., Glonora, Ont.

Industrial Plants

Von der Osten, E. & Co., Toronto.

Insulated Wires and Cables

Wire & Cable Co., Montreal.

Iron and Steel Specialties

Abbott, William, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Brown & Co., Paris, Ont.
Buhl Malleable Co., Detroit, Mich.
Canada Foundry Co., Toronto.
Cleveland Twist Drill Co., Cleveland, Ohio.
Dodge Mfg. Co., Toronto.
Karch, H. W., Hespeler, Ont.
Leslie, A. C. & Co., Montreal.
Meadows, Geo. B. Wire, Iron & Brass Works Co.,
Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Petroleum Iron Works Co., Washington, Pa.
Pittsburgh Shutting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Ryall Machine Screw Co., Montreal.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Penberthy Injector Co., Windsor, Ont.
Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

Lamps—Electric

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.

Lathes

Bertram, John, & Sons Co., Dundas, Ont.
Cowdrey, C. H., Machine Works, Fitchburg, Mass.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Williams, A. R. & Co., Toronto.

Lathes (Wood-Working)

American Machinery Co., Grand Rapids, Mich.
Cowan & Co., Galt, Ont.
Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Lubricators

Penberthy Injector Co., Windsor, Ont.

Machinists.

Buhl Malleable Co., Detroit, Mich.
Goldie & McCulloch Co., Galt, Ont.
Worth & Martin, Toronto.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Buhl Malleable Co., Detroit, Mich.
Butterfield & Co., Rock Island, Que.
Cleveland Twist Drill Co., Cleveland, Ohio.
Cooper, James, Montreal.
Dodge Mfg. Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shutting Co., Detroit, Mich.
Ryall Machine Screw Co., Montreal.
Worth & Martin, Toronto.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CLASSIFIED INDEX.

(CONTINUED).

Machine Tools

Abbott, William, Montreal.
Bertram, John, & Sons Co., Dundas, Ont.
Cleveland Twist Drill Co., Cleveland, Ohio.
Darling Bros., Montreal.
Petrie, H. W., Toronto.

Malleable Iron Castings

Buhl Malleable Co., Detroit, Mich.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Smith's Falls Malleable Castings Co., Smith's Falls, Ont.

Mechanical Draft

Babeock & Wilcox, Limited, Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Metal Gates

Page Wire Fence Co., Walkerville, Ont.

Metal Shears

Morgan Construction Co., Worcester, Mass.

Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.

Metalurgists.

Mills, S. D., Toronto.
Wentz, R. F. Engineering Co., Toronto.
Mill Machinery and Supplies
American Machinery Co., Grand Rapids, Mich.
Armstrong Mfg. Co., Bridgeport, Conn.
Buhl Malleable Co., Detroit, Mich.
Cleveland Twist Drill Co., Cleveland, Ohio.
Cooper, Estate late James, Montreal.
Cowan & Co., Galt, Ont.
Darling Bros., Montreal.
Dodgo Mfg. Co., Toronto.
Fleming, W. A. & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hay, Peter Knife Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Karch, H. W., Hesperior, Ont.
Leonard, E. & Sons, London, Ont.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, D. K., Montreal and Toronto.
Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rico Lewis & Son, Toronto.
Hobbs Engineering Co., Amherst, N.S.
Hyal Machine Screw Co., Montreal.
Spence, H. & Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Mining Machinery

Buhl Malleable Co., Detroit, Mich.
Canadian Rand Drill Co., Sherbrooke, Que.
Chicago Pneumatic Tool Co., Chicago, Ill.
Cleveland Twist Drill Co., Cleveland, Ohio.
Cooper, Estate late James, Montreal.
Gartshore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Porrin, William R. & Company, Limited, Toronto.
Petrie, H. W., Toronto.
Shaw, Willis, Chicago, Ill.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Petrie, H. W., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Novelty Manufacturers.

Worth & Martin, Toronto.

Nozzles.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston, Ont.
Meadows, Geo. B., Wire, Iron & Brass Works Co., Toronto.

Oils and Lubricants

Chicago Pneumatic Tool Co., Chicago, Ill.
Dixon, Jos., Crucible Co., Jersey City, N.J.
Fleming, W. A. & Co., Montreal.
Hart & Co., Chicago, Ill.
Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

Paints and Colors

Bellhouse, Dillon & Co., Montreal.
Fleming, W. A. & Co., Montreal.
Geigy Aniline & Extract Co., New York City.
Kipstein, A. & Co., New York City.
McArthur, Cornelius & Co., Montreal.

Paper Manufacturers

Harber, Wm. & Bros., Georgetown, Ont.
Toronto Paper Mfg. Co., Cornwall, Ont.

Patents

Budden, Hanbury A., Montreal.
Case, Egerton H., Toronto.
Fetherstonhaugh & Co., Toronto.
Marion & Marion, Montreal.
Patent Exchange & Investment Co., Toronto, Ont.

Pattern Makers' Machinery and Supplies

American Machinery Co., Grand Rapids, Mich.

Pattern Shop Equipments

American Machinery Co., Grand Rapids, Mich.

Perforated Metals

Greening, B. Wire Co., Hamilton, Ont.

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Syracuse Smelting Works, Montreal.

Pipe (Riveted, Iron and Steel)

Babeock & Wilcox, Limited, Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petroleum Iron Works Co., Washington, Pa.

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.
Rico Lewis & Son, Toronto.

Pipes and Tubes

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
Montreal Pipe Foundry Co., Montreal.
Rico Lewis & Son, Toronto.

Plaster

Alber Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Rico Lewis & Son, Toronto.

Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

Canadian Rand Drill Co., Sherbrooke, Que.
Chicago Pneumatic Tool Co., Chicago, Ill.

Pointer Rolls (For Rods and Wire.)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Portland Cement

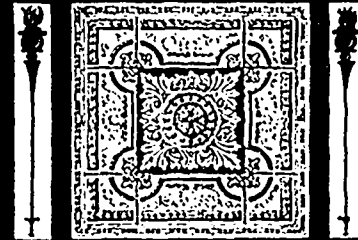
Canadian Portland Cement Co., Deseronto, Ont.
Owen Sound Portland Cement Co., Owen Sound, Ont.
Rathbun Co., Toronto.
St. Lawrence Portland Cement Co., Montreal.

Power—Electric and Water

Central Ontario Power Co., Peterboro, Ont.

OUR METALLIC CEILING AND WALLS

Are both artistic and serviceable. Popularly used by practical people everywhere.



Easily applied—most moderate in cost—fire-proof, sanitary and wonderfully durable—with countless designs to select from.

Write us for booklet telling all about them.

METALLIC ROOFING CO., Limited
Wholesale Mfrs. TORONTO, CANADA.

WORK AND
PRICES
RIGHT
GALVANIZING ONT.
WIND
ENGINE & PUMP CO.
TORONTO, ONT. LIMITED

KERR'S VALVES

ARE FOR SALE
BY ALL
FIRST-CLASS DEALERS
IN
STEAM SPECIALTIES

Ask for KERR'S

The Kerr Engine Co.
Limited

WALKERVILLE, - ONT.

CHARLES F. CLARK,
President.

JARED CHITTENDEN
Treasurer.

Established 1848.

BRADSTREET'S

Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.

EXECUTIVE OFFICES,

346 & 348 Broadway, New York City, U.S.A

CORRESPONDENCE INVITED.

OFFICES IN CANADA:

Hallifax, N.S. Hamilton, Ont.
London, Ont. Montreal, Que.
Ottawa, Ont. Quebec, Que.
St. John, N.B. Toronto, Ont.
Vancouver, B.C. Winnipeg, Man.

THOMAS C. IRVING, Gen'l Manager Western Canada
TORONTO.



WOOD ENGRAVING PHOTO ENGRAVING HALF TONES

OR ANY CLASS OF ENGRAVING
FOR ADVERTISING PURPOSES,
CATALOGUES, MAGAZINES, &c

J.L. JONES ENG. CO.
168 BAY ST.-TORONTO

SELF-EDUCATION FOR MECHANICS.

A Monthly Journal intended as a Guide to
Correct Methods in Work and Study.
25c. A YEAR. SAMPLE COPY FREE.

Industrial Publication Co.,
16 Thomas Street - NEW YORK.

INDUSTRIES

Gives correct weekly summary of iron
and steel market conditions in the
important centers of the States.

An advertising medium that reaches the
offices of the people whom you want to
interest in your product.

Subscription, \$3.00 per annum.

General Offices: Youngstown, Ohio.
Advertising rates on application.

W. H. STOREY & SON, ACTON, ONT.
Limited

Manufacturers
of.... **FINE GLOVES and MITTS**
In every variety and style. **Moccasins**

SUBSCRIBE FOR

The Canadian Manufacturer.

CLASSIFIED INDEX.

(CONTINUED).

Power Plants—Equipments

Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Cleveland Twist Drill Co., Cleveland, Ohio.
Darling Bros., Montreal.
DeLano-Osborn Engineering Co., Toronto.
Dodge Mfg. Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Kelsch, H. S., Montreal.
Leonard, E. & Sons, London, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Packard Electric Co., St. Catharines, Ont.
Perrin, William R. & Company, Limited, Toronto.
Petrie, H. W., Toronto.
Phillips, Eugene F. Electrical Works, Montreal.
Pittsburgh Shafting Co., Detroit, Mich.
Robb Engineering Co., Amherst, N.S.
Stevens, Alfred J., Toronto.
Sturtevant, B. F. Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Wilson, J. C. & Co., Glenora, Ont.

Presses (Tire, Sewer Pipe, Nozzles and Sleeves.)

Turner, Vaughn & Taylor Co., Cuyahoga Falls,
Ohio.

Pulleys

Darling Bros., Montreal.
Dodge Mfg. Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
McLaren, J. C. Bolting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Wilson, J. C. & Co., Glenora, Ont.

Pumps and Pumping Machinery

Canada Foundry Co., Toronto.
Downie Pump Co., Downieville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Ontario Wind Engine & Pump Co., Toronto.
Petrie, H. W., Toronto.

Punches and Shears

Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.

Purifiers

Babcock & Wilcox, Limited, Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

Purifying and Softening Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

Railroads

Chicago & North-Western Ry., Toronto & St.
Paul, Minn.
Quebec Central Railway, Sherbrooke, Que.

Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.
Cooper, Estate into James, Montreal.
Garshore, John J., Toronto.
Greening, B. Wm. Co., Hamilton, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugene F. Electrical Works, Montreal.
Slingsby, H. C., Montreal.

Reamers

Butterfield & Co., Rock Island, Que.
Chicago Pneumatic Tool Co., Chicago, Ill.
Cleveland Twist Drill Co., Cleveland, Ohio.

Rivets

Bourne-Fuller Co., Cleveland, Ohio.

Roll Lathes

Morgan Construction Co., Worcester, Mass.

Roller Bearings

Pittsburgh Shafting Co., Detroit, Mich.

Rolling Mills

Morgan Construction Co., Worcester, Mass.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.
Morgan Construction Co., Worcester, Mass.

Roofing

Bourne-Fuller Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.

Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Saws (Band)

American Machinery Co., Grand Rapids, Mich.

Screws

Morrow, John, Machine Screw Co., Ingersoll, Ont.
Ryall Machine Screw Co., Montreal.

Scrow Plates

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.

Shafting

Bourne-Fuller Co., Cleveland, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.

Shear Knives

Carlin's, Thomas Sons Co., Allegheny, Pa.
Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel.)

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.

Sheet Metal Goods

Empire Machine & Metal Stamping Co., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.

Sheet Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Ryall Machine Screw Works, Montreal.

Ship Builders

Clyde Steel Works, Toronto.

Smoke Stacks.

Hamilton, Wm., Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Petroleum Iron Works Co., Washington, Pa.

Solder

Globe Machine & Stamping Co., Cleveland, Ohio.
Syracuse Smelting Co., Montreal.

Special Machinery

Empire Machine & Metal Stamping Co., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.

Speed Recorders

Bristol Co., Waterbury, Conn.
Chicago Pneumatic Tool Co., Chicago, Ill.

Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co.,
Toronto.

Stamps & Stencils

Globe Machine & Stamping Co., Cleveland, Ohio.
Hamilton Stamp & Stencil Works, Hamilton, Ont.

Steam Pumps

American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Leonard, E. & Sons, London, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Shaw, Willis, Chicago, Ill.
Williams, A. H., Machinery Co., Toronto.

Steam Separators

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.

Steam Specialties

Darling Bros., Montreal.
Penberthy Injector Co., Windsor, Ont.
Sheldon & Sheldon, Galt, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CLASSIFIED INDEX.

(CONTINUED).

Steam Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams, A. R., Machinery Co., Toronto.

Steel Plants

Morgan Construction Co., Worcester, Mass.

Steel Rails

Algoma Steel Co., Sault Ste. Marie, Ont.
Cooper, James, Montreal.
Drummond, McCall & Co., Montreal and Toronto.
Gartshore, John J., Toronto.

Steel Shafting

Darling Bros., Montreal.
Dodge Mfg. Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Leslie, A. C. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Pittsburgh Shafting Co., Detroit, Mich.
Wilson, J. C. & Co., Glenora, Ont.

Stocks and Dies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.
Rico & Sons, Toronto.
Worla & Martin, Toronto.

Stoppers.

McCullough-Dabell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Structural Steel.

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Cooper, Estate late James, Montreal.

Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Oil and Water)

Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.
Petroleum Iron Works Co., Washington, Pa.

Taps and Dies

Butterfield & Co., Rock Island, Que.
Cleveland Twist Drill Co., Cleveland, Ohio.
Globe Machine & Stamping Co., Cleveland, Ohio.
Hamilton Stamp & Stencil Works, Hamilton, Ont.

Tees

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.

Textile Manufacturers

Canadian Colored Cotton Mills Co., Montreal.
Dominion Oil Cloth Co., Montreal.
Hamilton Cotton Co., Hamilton, Ont.
Morrice, D., Sons & Co., Montreal.
Smith Mfg. Co., Toronto.
Storey, W. H. & Sons, Acton, Ont.

Textile Supplies

McLaren, J. C. Belting Co., Montreal and Toronto.

Thermometers (Recording)

Bristol Co., Waterbury, Conn.

Tin

Leslie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

Tool Steel

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Cooper, Estate late James, Montreal.
Leslie, A. C. & Co., Montreal.

Trucks

Cooper, Estate late James, Montreal.
Morgan Construction Co., Worcester, Mass.
McDougall, John, Caledonian Iron Works Co., Montreal.
Sheldon & Sheldon, Galt, Ont.
Slingsby, H. C., Montreal.

Trucks (Railway)

Canada Foundry Co., Toronto.

Trucks (Wire Mill Supplies)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tubs (Cleaning and Coating Wire)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tumbling Barrels

Globe Machine & Stamping Co., Cleveland, Ohio.

Turbines

Canada Foundry Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Typewriters and Supplies

United Typewriter Co., Toronto

Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams, A. R., Machinery Co., Toronto.

Valves (Rubber)

Chicago Pneumatic Tool Co., Chicago, Ill.
Gutta Percha & Rubber Mfg. Co., Toronto.

Ventilators

Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Wagon and Carriage Wood Work

Hore, F. W. & Son, Hamilton, Ont.

Wagons and Sleighs

Milner-Petrolca Wagon Co., Petrolca, Ont.

Washers or Hollinders (Cleaning Rubber)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Weaving Machinery

Karch, H. W., Hespeler, Ont.

Windmills

Ontario Wind Engine & Pump Co., Toronto.

Wire Mill Supplies

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire and Wire Rope

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.
Pittsburg Shafting Co., Detroit, Mich.
Wire & Cable Co., Montreal.

Wire Rope Fittings

Dominion Wire Rope Co., Montreal.

Wire Cloth

Greening, B. Wire Co., Hamilton, Ont.

Wire Drawing Machinery

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Fencing and Netting

Page Wire Fence Co., Walkerville, Ont.

Wire Rod Reels

Morgan Construction Co., Worcester, Mass.

Wire Specialties

Empire Machine & Metal Stamping Co., Toronto.
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.
Page Wire Fence Co., Walkerville, Ont.

Wire Testing Machinery

Morgan Construction Co., Worcester, Mass.

Wool and Woolen Yarns

Cantile, James, A., Montreal.
Reiche & Co., Bradford, England.

Wood-Working Machinery

American Machinery Co., Grand Rapids, Mich.
Cowan & Co., Galt, Ont.
Cawdrey, C. L. Machine Works, Pittsburg, Mass.
Goldie & McCulloch Co., Galt, Ont.
Karch, H. W., Hespeler, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Sheldon & Sheldon, Galt, Ont.
Steptoe, John Shaper Co., Cincinnati, Ohio.

Zinc

Leslie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

The Engineering Review

(Formerly FEILDEN'S MAGAZINE).

A High-Class Illustrated Monthly Technical Record.

The largest sale circulation throughout the Empire.

Subscription Rate:

12/6 per annum (post free).

For Advertising Rates apply to General Manager.

104 High Holborn, - LONDON W.C., ENGLAND.

- or -
THE INTERNATIONAL NEWS CO., Limited
TORONTO and MONTREAL.

ATTENTION!

Do you desire to keep posted on the industrial affairs of Alabama, and more especially the Great Birmingham District? If so, subscribe for

The Dixie Manufacturer
BIRMINGHAM, ALA.

It is the only industrial paper published in Alabama. It is old and established. Published semi-monthly. Subscription price, \$2 per year. If you want to sell machinery, hardware, electrical and building supplies you cannot find a better medium. Send for copy and advertising rates.

ROUNTREE PUBLISHING CO.,
BIRMINGHAM, ALABAMA.

Canadian Manufacturers.

If you are interested in the progress of new industries in the United States and wish to get in touch with the swelling tide of improvements, you should have our daily trade advance information letter.

It tells of all new industrial enterprises, railroads, mills and factories, ice and storage plants, water works, mines, breweries, electric plants, etc. We furnish you from 40 to 50 trade pointers every day.

STEEL AGE OF PITTSBURG,

2121 Farmers Bank, - PITTSBURG, Pa.

INDEX TO ADVERTISEMENTS.

Where the folio is not given the Advertisement appears at intervals.

See Classified Index Beginning on Page 89

ofc outside front cover.

obo.....outside back cover.

Abbott, William, Montreal	43	Edwards, R. J., Toronto		Neff & Postlethwaite Toronto	
Agriculture, Ontario Minister of, Toronto	38	Electrical Construction Co., London, Ont.	14	Northern Aluminum Co., Shawinigan Falls, Que. and Pittsburgh, Pa.	3
Albert Mfg. Co., Hillsborough, N. B.	8	Electric Engineering & Supply Co., Montreal	42	Nova Scotia Steel & Coal Co., New Glasgow, N.S.	4
Algoma Steel Co., Sault Ste. Marie, Ont.	4	Empire Machine and Metal Stamping Co., Toronto	14	Oakley, John & Sons, London, England	3
American Machinery Co., Grand Rapids, Mich.	10	Engineering Review London, England	49	Ontario Wind Engine & Pump Co., Toronto	47
American Steam Pump Co., Battle Creek, Mich.	9	Expanded Metal & Fireproofing Co., Toronto	39	Owen Sound Portland Cement Co., Owen Sound Ont.	8
Archbold, Dr. Geo., Prescott, Ont.	39	Fotherstonhaugh & Co., Toronto	ofc	Packard Electric Co., St. Catharines, Ont.	12
Armstrong Mfg. Co., Bridgeport, Conn.	39	Firstbrook Box Co., Toronto	40	Pago Wire Fence Co., Walkerville, Ont.	39
Babcock & Wilcox, Limited, Montreal	ofc	Fleming, W. A. & Co., Montreal	40	Parke, Roderick J., Toronto	9
Bank of Hamilton, Hamilton, Ont.	41	Forman John, Montreal.	14	Patent Exchange & Investment Co., Toronto	9
Barber, Wm. & Bro., Georgetown, Ont.	46	Gartshore, John J., Toronto	36	Penberthy Injector Co., Windsor, Ont.	2
Bellhouse, Dillon & Co., Montreal	36	Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.	32	Pennsylvania Fire Brick Co., Lock Haven, Pa.	8
Benson, W. T. & Co., Montreal	36	Geigy Anilino & Extract Co., New York, N. Y.	36	Perrio, William R. & Company, Limited, Toronto and Chicago, Ill.	42
Berry Bros., Walkerville, Ont.	32	Globe Machine & Stamping Co., Cleveland, Ohio	45	Peterborough Canoe Co., Peterborough, Ont.	42
Bertram, John & Sons Co., Dundas, Ont.	45	Goldie & McCulloch Co., Galt, Ont.	28-27	Petrie, H. D., Hamilton, Ont.	9
Blagden, Waugh & Co., London, E.C., England	45	Greening B. Wire Co., Hamilton, Ont.	18	Petrie, H. W., Toronto	12-34
Bourne-Fuller Co., Cleveland, Ohio	4	Gutta Percha & Rubber Mfg. Co., Toronto	42	Petroleum Iron Works, Washington, Pa.	7
Bradley Pulverizer Co., Boston, Mass.	28-27	Hamilton Brass Mfg. Co., Hamilton Ont.	obo	Phillips, Eugene F., Electrical Works, Montreal	13
Bradstreets, Toronto and New York.	18	Hamilton Facing Mills Co., Hamilton, Ont.	obo	Pittsburgh Coal Co., Pittsburgh, Pa.	35
Bremer Machine Tool Co., Kalamazoo, Mich.	42	Hamilton, Wm Mfg. Co., Peterborough, Ont.	7	Pittsburg Crucible Works, Pittsburg, Pa.	31
Bristol Co., Waterbury Conn.	obo	Hamilton Stamp & Stencil Works, Hamilton, Ont.	9	Pittsburgh Shafting Co., Detroit, Mich.	obo
Brown & Co., Paris, Ont.	45	Hart & Co., Chicago, Ill.	44	Quebec Central Railway, Sherbrooke, Que.	6
Brownlee, J., Galt, Ont.	5	Hart Corundum Wheel Co., Hamilton, Ont.	31	Queen City Oil Co., Toronto	ofc-39
Brunner, Mond & Co., Northwich, England	11	Hay, Peter Knife Co., Galt, Ont.	39	Reiche & Co., Bradford, England	43
Budden, Hanbury A., Montreal	9	Hays, Thomas & Son, Toronto	9	Rice Lewis & Son, Toronto	45
Buhl Malleable Co., Detroit, Mich.	obo	Hoffman, Jules G., Detroit, Mich.	2	Robb Engineering Co., Amherst, N.S.	41
Burt Mfg. Co., Akron, Ohio	31	Holden, Arthur P., Toronto	48	Rosendale Belting Co., Toronto	ofc
Butterfield & Co., Rock Island, Que.	39	Hore, F. W. & Son, Hamilton, Ont.	4	Rountree Publishing Co., Birmingham, Ala.	49
Canada Corundum Co., Toronto	2	Hunt Robert W. & Co., Chicago, Ill.	38	Rail Machine Screw Co., Montreal	45
Canada Foundry Co., Toronto		Hutcheson, S. M., Paisley, Ont.	43	Shaw, Willis, Chicago, Ill.	7
Canada Iron Furnace Co., Montreal		Hyde Bros. & Co., Pittsburg, Pa.	46	Shawmut Coal & Coke Co., St. Marys, Pa. and Hamilton, Ont.	35
Canadian Casualty & Boiler Insurance Co., Toronto.		Imperial Oil Co., Petrolia, Ont.	39	Sheldon & Sheldon, Galt, Ont.	12
Canadian Colored Cotton Mills Co., Montreal.		Industrial Publication Co., New York, N. Y.	48	Shepard, Charles G., Buffalo, N. Y.	8
Canadian Corundum Wheel Co., Hamilton, Ont.		Industries, Youngstown, Ohio	13	Shipman, O. W. Co., Detroit, Mich.	34
Canadian General Electric Co., Toronto		Jeffrey Mfg. Co., Columbus Ohio	37	Simpson, T. T., Deschenes, Que.	9
Canadian Helms Safety Boiler Co., Toronto		Jones & Moore Electric Co., Toronto	48	Sinclair, G. S. & Sons, Wiarion, Ont.	31
Canadian Manufacturer Pub. Co., Toronto		Jones, J. L., Engraving Co., Toronto	38	Slingaby, H. C. for Canada, Montreal	42
Canadian Oak Belting Co., Brockville, Ont.		Karch, H. W., Hespeler, Ont.	48	Smith Mfg. Co., Toronto	46
Canadian Office & School Furniture Co., Preston, Ont.		Kelly's Directories, Toronto and London, England	ofc	Smith's Falls Malleable Castings Co., Smith's Falls, Ont.	obo
Canadian Otis Elevator Co., Hamilton, Ont.		Kelsch, R. S., Montreal	8	Spence, R. & Co., Hamilton, Ont.	42
Canadian Portland Cement Co., Deseronto Ont.		Kerr Engine Co., Walkerville, Ont.	30	Steel Age, Pittsburg, Pa.	49
Canadian Rand Drill Co., Sherbrooke, Que.		Klipstein, A. & Co., New York, N.Y.	30	Steptoe, John Shaper Co., Cincinnati, Ohio	38
Canadian Westinghouse Co., Ltd., Hamilton Ont.		Leonard, E. & Sons, London, Ont.	51	Stevens, Alfred J., Toronto	9
Cantile, James A., Montreal		Leslie, A. C. & Co., Montreal	43	Storoy, W. H. & Son, Acton Ont.	9
Carlin's, Thomas Sons Co., Allegheny, Pa.		Lewis, Rice & Son, Toronto	ofc	Sturtevant, B. G. Co., Boston, Mass.	37
Case, Egerton R., Toronto		London Machine Tool Co., London, Ont.	45	Syracuse Smelting Co., Montreal and New York	6-13
Cassella Color Co., New York and Montreal.	ofc	Lysaght, John, Limited, Bristol, England, and Montreal.	43	Toronto & Hamilton Electric Co., Hamilton, Ont.	13
Central Ontario Power Co., Peterborough, Ont.	33	Marion & Marion, Montreal	44	Toronto Iron & Brass Bedstead Co., Toronto	46
Chicago & North-Western Railway, B. H. Bennett, General Agent, Toronto		Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto	37	Toronto Paper Mfg. Co., Cornwall, Ont.	46
Chicago Pneumatic Tool Co., Toronto and Chicago, Ill.		Metallic Roofing Co., Toronto	47	Turner, Vaughan & Taylor, Cuyahoga Falls, Ohio	9
Cleveland Twist Drill Co., Cleveland, Ohio	obo	Meyercood Co., Chicago, Ill.	44	United Electric Co., Toronto	obo
Clyde Steel Works, Toronto	8	Mills, S. D., Toronto	9	United Typewriter Co., Toronto	35
Continental Iron Works, New York, N.Y.	6	Milnor Petrolia Wagon Co., Petrolia, Ont.	41	Vogel, C. H., Ottawa	9
Cooper, Estate Late James, Montreal	5	Milnes, J. H. & Co., Toronto	31	Volta Electric Repair Works, Toronto	13
Cowan & Co., Galt, Ont.	11	Montreal Pipe Foundry Co., Montreal	4	Von der Osten, E. & Co., Toronto	9
Cowdroy, C. H., Machine Works, Fitchburg, Mass.	11	Morgan Construction Co., Worcester, Mass.	9	Wardlaw T. D. Toronto	36
Darling Bros., Montreal		Morrison, T. A. & Co., Montreal	9	Wentz, R. F. Engineering Co., Toronto	9
DeLano-Osborn Engineering Co., Toronto	9	Morrow, John, Machine Screw Co., Ingersoll, Ont.	42	Westinghouse Electric & Mfg. Co., Pittsburg, Pa.	51
Dixon, Jos., Crucible Co., Jersey City, N.J.	43	McArthur, Cornelio & Co., Montreal	obo	Wick, H. K. & Co., Buffalo, N.Y.	35
Dodge Mfg. Co., Toronto	5	McCullough Dalzell Crucible Co., Pittsburg, Pa.	31	Wilby, P. H., Toronto	obo
Dominion Bolting Co., Hamilton, Ont.	38	McDougall, John, Caledonian Iron Works Co., Montreal	51	Williams, A. R. Machinery Co., Toronto	40
Dominion Oil Cloth Co., Montreal	42	McKinnon Dash & Metal Works Co., St. Catharines, Ont.	ofc	Winn & Holland, Montreal	36
Dominion Wire Rope Co., Montreal		McLaren, D. K., Montreal and Toronto	33	Wilson Bros. Bobbin Co., Todmorden England	42
Downie Pump Co., Downsville, Pa.	43	McLaren, J. C. Bolting Co., Montreal and Toronto	obo	Wilson J. C. & Co., Glenora, Ont.	42
Drummond, McCall & Co., Montreal, Que.	44			Wire & Cable Co., Montreal	ofc
Dun R. G. & Co., Toronto	4			Worth & Martin, Toronto	38
Dunbar Fire Brick Co., Pittsburg, Pa.	8			Wyman, W. H. & Co., West Decatur, Pa.	9

Westinghouse

Alternating and Direct Current

Motors

It is well worth while to have a motor which has thoroughly proven its capacity and reliability in all kinds of service, and under the most severe conditions.

A successful record as possessed by Westinghouse Motors is the best guarantee.

Canadian Westinghouse Co.,

Limited

General Offices and Works, HAMILTON, ONTARIO

For particulars address nearest office.

Lawlor Bldg., King and Yonge Sts.

Liverpool & London & Glebe Bldg.

TORONTO

MONTREAL

388 Hastings Street

HAMILTON

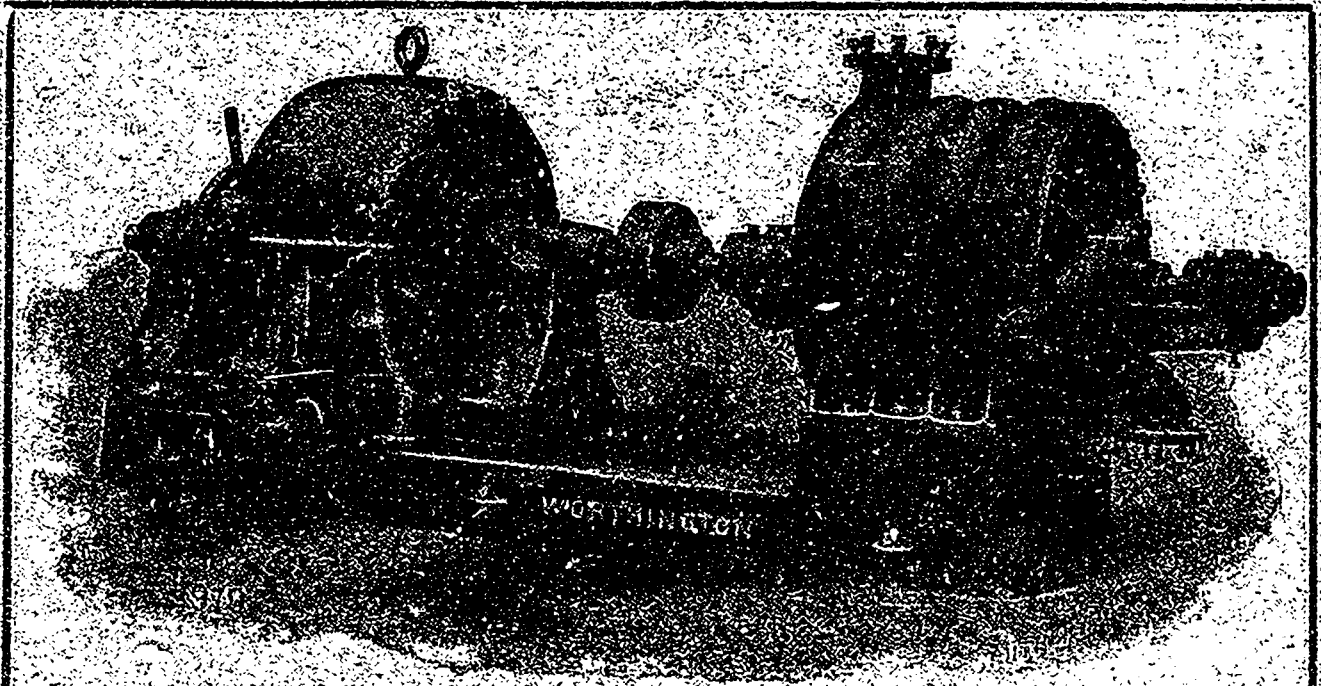
184 Granville Street

VANCOUVER

HALIFAX



Westinghouse Type "C" Induction Motor Driving Double Punch and Shears



4 Stage Worthington Turbine Pump, Electric Driven

FOR HEADS UP TO 2,000 FEET

The JOHN McDOUGALL CALEDONIAN IRON WORKS CO., Limited

Builders for Canada

MONTREAL

Cleveland Twist Drill Co.

CLEVELAND

NEW YORK

CHICAGO

TOOLS OF QUALITY—Sold by all Principal Dealers

TWIST DRILLS
REAMERS
TAPS
CUTTERS, Etc.



PULLEYS,
HANGERS,
COUPLINGS, Etc., Etc.

39-41
E. ATWATER STREET
DETROIT, MICH.

“EVERYTHING FOR POWER TRANSMISSION.”
PITTSBURG SHAFTING CO. of Detroit

Shafting, Screw Stock,
Cold Rolled Steel
All sizes in stock.

McARTHUR, CORNEILLE & CO.

310 to 316 ST. PAUL ST.
MONTREAL

OILS, CHEMICALS, DYESTUFFS
AND
TANNING EXTRACTS

Waxes, Gums, Shellacs,
Glues, Gelatines, Etc.

CANADIAN AGENTS

FOR THE

BERLIN ANILINE CO.
BRITISH ALIZARINE CO. and
MILLER'S TANNING EXTRACT CO.

TEON BELTING

Durability of Teon

Not affected by less
than 230° Fahr., 16°
above boiling.

It is *water* and
steam proof.

It is not affected by
acids, alkalies and
other chemicals.

Dust, dirt and grit
are effectually repelled.

It is absolutely not
affected by the rays of
the *hottest sun* or the
keenest frost, no
matter how constant or
interchangeable these
conditions may be.

**THE GREATEST
BELT** in the world for
use in *exposed* places.

P. H. WILBY

Sole Agent for Canada

27½ Front Street East, TORONTO

LEATHER BELTING
CAPATA BELTING (Balata Type)
CAMELS HAIR BELTING
LACE LEATHER, Etc.

ENGINEERS—FOUNDERS—MACHINISTS

BUHL

MALLEABLE
COMPANY,
DETROIT,
MICH.

ELEVATING, CONVEYING MACH'Y.

Malleable or Steel Elevator Buckets.

Chain
Specialties

Sprocket
Wheels.

Appliances

Prices may
Surprise
You.



Detachable
or
Riveted

CHAINS

Material
Will Please
You.

STANDARD DESIGN — UNEXCELLED QUALITY.

Excellent Location for Prompt
Deliveries in Dominion of Canada.

THE UNITED ELECTRIC CO. LIMITED



MANUFACTURERS OF

Dynamos,
Motors,
Arc Lamps
ETC.

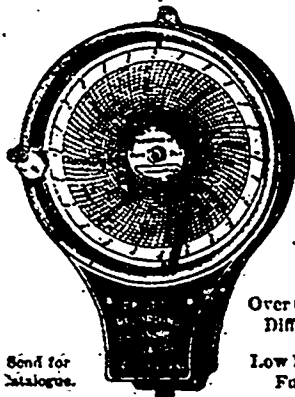
Head Office, - 134 KING ST. W., TORONTO, ONT.

CARD CLOTHING

EVERY VARIETY.

The J. C. McLAREN BELTING CO.
MONTREAL

BRISTOL'S Recording Instruments



Send for
Catalogue.

For.....

Pressure,

Tempera-

ture and

Electricity.

Over One Hundred
Different Varieties.

Low Prices and
Fully Guaranteed

Silver Medal, Pa. Exposition

THE BRISTOL CO.
WATERBURY, CONN., U.S.A.

Smith's Falls Malleable Castings Company, Limited

CAPACITY 4,000-TONS

MANUFACTURERS
OF

MALLEABLE
IRON
CASTINGS

Smith's Labor Gazette
Falls, Ont., Uall.

AND MANUFACTURERS OF
HAMILTON, ONT.
Manufacturers of
FOUNDRY
also Extra Fine Quality
PIPE AND FORT SAND.
WRITE FOR PRICES.