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 AND INDUSTRIAL WORLD
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

THE HIGHEST QUALITY OF WORKMANSHIP
 THE BEST OF MATERIALS
 THE MOST COMPLETE FACILITIES
 THE MOST MODERN EQUIPMENT

Vol 47.

TORONTO, JULY 17, 1903.

No. 2

STEAM BOILERS
 OF THE LATEST PATENT
 FOR ALL PURPOSES
 ECONOMY
 DURABILITY
 SAFETY

HEATERS, SUPERHEATERS,
 ECONOMIZERS
 AND STEAM ACCESSORIES

BABCOCK & WILCOX
 LIMITED

NEW YORK LIFE BLDG., PLACE D'ARMES
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Toronto Office—114 King St. West

"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.

**McKinnon 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

THE...
Walkerville Malleable Iron Co., (Limited)

Manufacturers of
 REFINED AIR FURNACE
Malleable Castings

ALSO LIGHT-GRAY IRON CASTINGS.

WALKERVILLE, ONTARIO.

Classified Index
 beginning on page 40 of this issue of THE CANADIAN MANUFACTURER will save our Readers money, and should be consulted by them before purchasing.

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 REGISTERED PATENT SOLICITORS
 OF PATENT NOTARY PUBLIC
 MEMBER OF THE CANADIAN MANUFACTURERS' ASSOCIATION
 HEAD OFFICE
 TEMPLE BUILDING
 TORONTO
 OFFICE
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Floor Space is Valuable!



For Attaching to Wall

Type 1 B
Direct Current
MOTORS



For Suspension from Ceiling

FOR POWER PURPOSES

Substantial, Compact, Practical and Efficient

The greatest care in design, workmanship and testing is necessary to reach these results.

Our Motors are the Standard of the World.

CANADIAN GENERAL ELECTRIC CO., LIMITED. HEAD OFFICE TORONTO, - ONT.

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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

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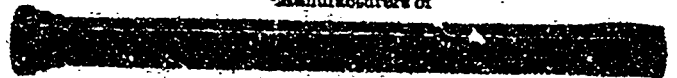
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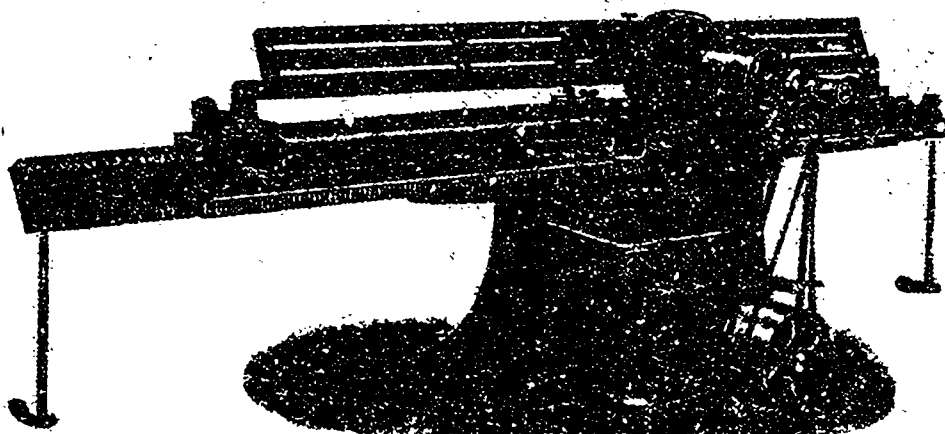
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Manufacturers of



"Specials," Hydrants, Valves, Etc.

Offices: - - - Canada Life Building, MONTREAL



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HAMILTON, ONT.

OUR SPECIALTY:-

Craig Mine Crystal Corundum Wheels.

Grinding Machinery of every description.

WRITE FOR PRICES.

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The long record in engine building of The Goldie & McCulloch Co., Limited, Galt, has gained for their WHEELOCK 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, Shafting, Hangers, Gearing, Friction, Clutch Pulleys, Friction Clutch Couplings, etc., Safes, Vaults and Vault Doors.

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GALT, Ont., Canada.

LEONARD - CORLISS Engines

For all power purposes.

The **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.**

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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.

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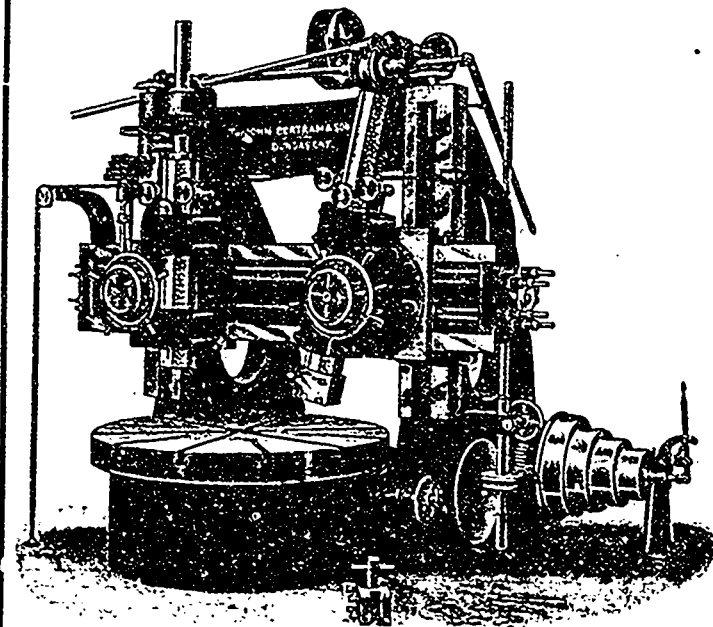
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Bridge Road, London, Eng.

Enquiries should be addressed to

JOHN FORMAN, - 650 Craig St., MONTREAL

**ALL THE BEST
SHOPS ARE
INSTALLING OUR**

BORING and TURNING MILLS



This represents our 60 Boring and Turning Mill with one regular head and one special boring head.

THESE shops are then equipped with best facilities for boring and turning a variety of jobs, including wheels, pulleys, etc. The shops best equipped to handle work are the ones that are getting the work.

If any manufacturer thinks he can get along by doing all his boring and turning on a lathe he is making a costly mistake. It may have worked all right in his grandfather's time, but the shop owner of to-day is bucking up against a harder proposition than his grandfather's competitors.

If you are interested enough in your own progress to write for further information on this subject, we will tell you all about our line of Boring and Turning Mills.

THE JOHN BERTRAM & SONS CO.

LIMITED

DUNDAS, - ONTARIO

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

JAMES COOPER, - - - - - Montreal.

THE NOVA SCOTIA STEEL & COAL CO.

MANUFACTURERS OF

LIMITED

BRIGHT COMPRESSED STEEL SHAFTING

FROM 1/2 TO 6 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN 1/16 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

Tee Rails, 12, 18, 24 and 28 lbs. per yard

..HEAVY FORGINGS A SPECIALTY..

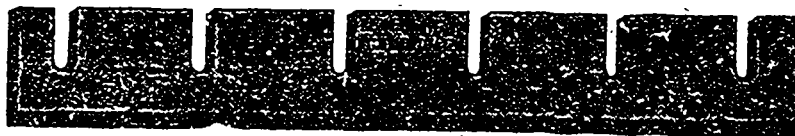
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Works—NEW GLASGOW, N.S., and FERRONA, N.S.

Head Office—NEW GLASGOW, NOVA SCOTIA

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PETER HAY,



GALT, ONT.

Manufacturers of Every Description of.....

KNIVES,

For Wood-Working, Paper Cutting and Leather-Splitting Machines



DARK KNIVES
PULP KNIVES
RAG KNIVES
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Shear Blades, Straw Knives, Paper Knives, Etc., Etc.



Quality Guaranteed. Special Knives Made to Order. Send for Price List

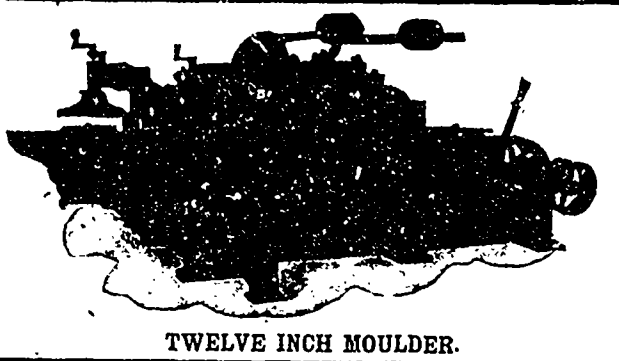
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COWAN & COMPANY OF GALT,

LIMITED

"Galt Foundry"

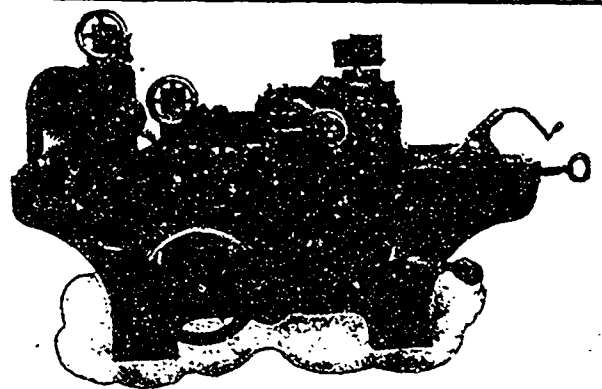
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GALT, CANADA



TWELVE INCH MOULDER.

WOOD-WORKING MACHINERY and ENGINES

... SEND FOR CATALOGUE ...

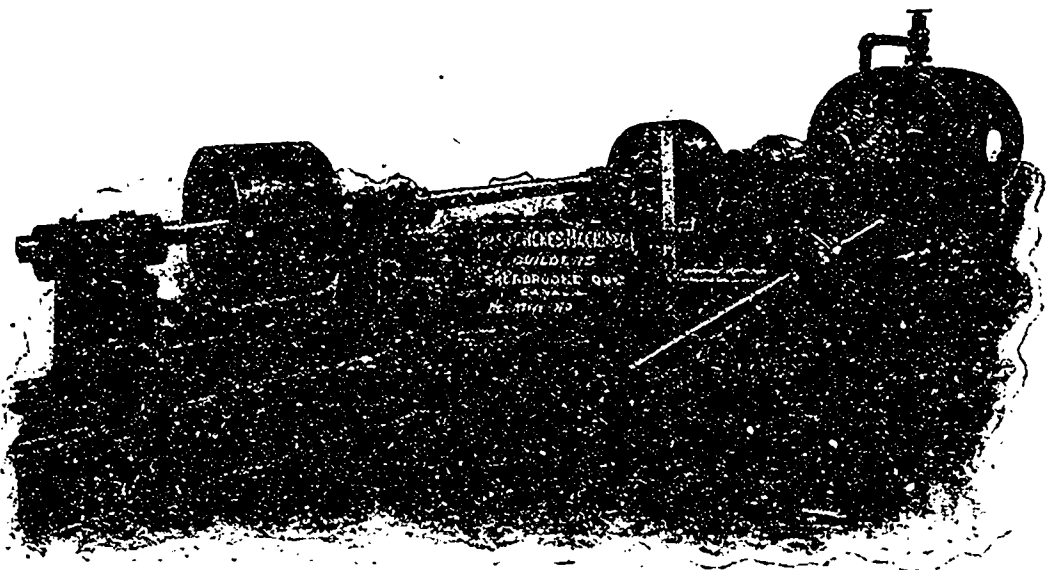


TWENTY-SIX INCH R. B. SURFACE D. C.

A 15-inch
**CROCKER
TURBINE**
horizontal.

Running
under
98 ft. head.

Electric
Light Plant
at
Fraserville
Que.



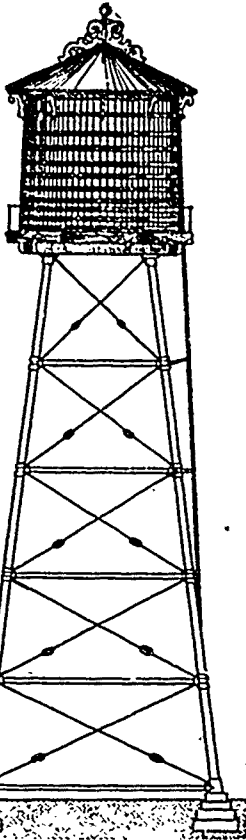
The Crocker Turbine is built in all sizes and all settings for any head. Our Bulletin 200, shows many of them. It is free.

The Jenckes Machine Company,

626 LANSDOWNE STREET,

SHERBROOKE, QUE.

"Absolutely safe and reliable. Ask your friends."



An Automatic Sprinkler System

is of no value if your water supply is too small to make it effective. A slight blaze may develop into a large fire.

A Caldwell Cypress Tank

ON

A Caldwell Steel Tower

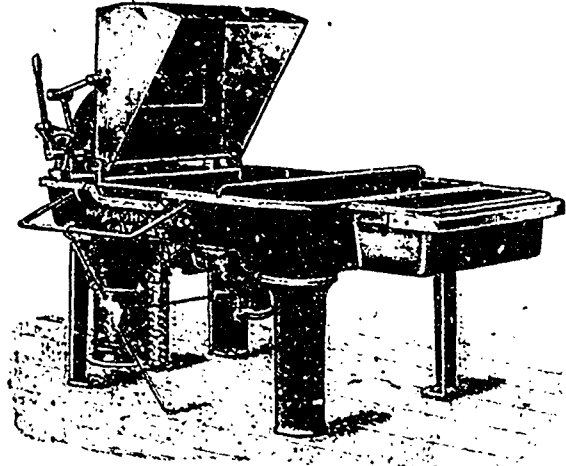
is an outfit always ready. No leaks can develop as the red cypress wood does not shrink or swell perceptibly, or warp or twist, and the steel towers defy the strongest gales. An illustrated catalogue and price list will be sent.

W. E. Caldwell Co.
LOUISVILLE, - KY.

Down Draft FORGES

— FOR —

BLACKSMITH and CARRIAGE SHOPS . . .



Have your forge room clear of smoke by installing our **DOWN DRAFT SYSTEM.**

WRITE FOR CIRCULARS AND PRICES.

McEACHREN HEATING and VENTILATING CO.,
GALT, - ONTARIO

WIRE PULP MATS

PERFORATED COPPER, BRASS and STEEL.

WIRE ROPE—All kinds.

WIRE GUARDS for Mill Windows.

REFUSE BURNER CLOTH, Etc.

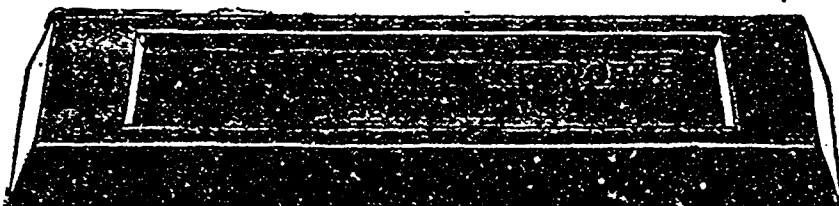
THE B. GREENING WIRE CO., Limited, HAMILTON, - ONT.
MONTREAL, QUE.

IF WE TOLD YOU

That the SYRACUSE SMELTING WORKS Babbit Metal and Solder are the best on earth, you would be inclined to view the statement in a sceptical light and consider it off color, but that is exactly what we claim and can prove what we say. Not by arguments, but by thousands of testimonials from firms who have used it for the last 15 years, and are still using it.

Ask your dealer for the SYRACUSE SMELTING WORKS Babbit Metal and Solder, and if they don't keep it, send your order direct to us and tell us for what purpose you would want it, and we will send you the right metal at the right price.

Remember and don't forget that the SYRACUSE SMELTING WORKS, Montreal, are the largest Babbit Metal and Solder manufacturers under the British flag.



SYRACUSE SMELTING

... WORKS ...

MONTREAL, CAN. AND NEW YORK, U.S.A.
SEATTLE, WASH.

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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.,
101-102 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

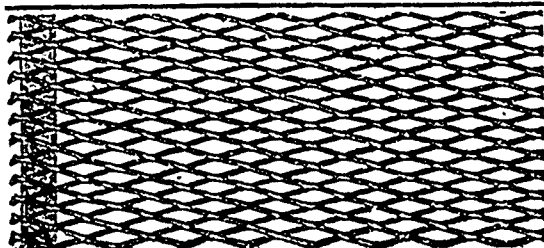
Works—SHALLOW LAKE, Ont. Head Office—OWEN SOUND, Ont.

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.



EXPANDED METAL and FIRE PROOFING COMPANY, Limited

CHEAP FIREPROOF CONSTRUCTION

SUITABLE FOR FACTORIES

Write for Booklet and Prices.

Offices, 100 KING ST. WEST, TORONTO

"SCIOTO" FIRE BRICKS

Are the best that money can buy for
BLAST FURNACES, STEEL WORKS and
ROLLING MILLS.

Manufactured and Sold Direct by

LET US TELL YOU ABOUT THEM.

WE HAVE NO MIDDLE MEN.

THE SCIOTO FIRE BRICK COMPANY, - - Sciotoville, Ohio, U.S.A.

"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.

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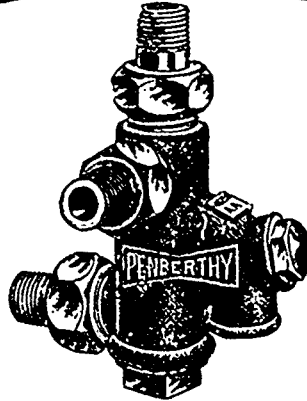
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**"PENBERTHY"
LOW PRESSURE INJECTOR**
FOR WATER PRESSURE.

WORKS LOW AT 10 LBS. PRESSURE.
WORKS HIGH AT 175 LBS. PRESSURE.

MADE IN CANADA



**"PENBERTHY"
HIGH PRESSURE INJECTOR**
THE "AUTOPOSITIVE"

WORKS HIGH AT 200 LBS.
WORKS LOW AT 15 LBS.

MADE IN CANADA

AUTOMATIC INJECTORS

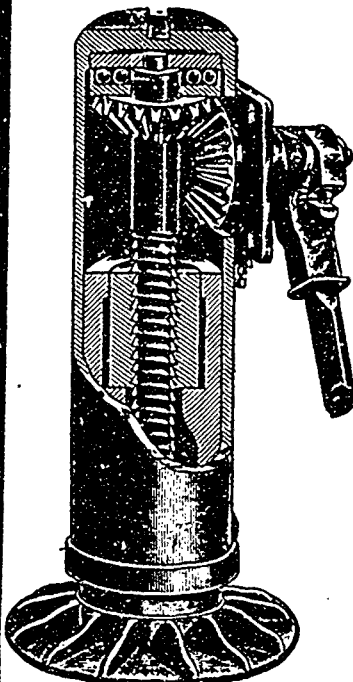
RANGE 22 to 150 LBS., GUARANTEED.

Also a Full Line of Oil and Grease Cups, Water Gages, Gage Cocks, Etc., Etc

MADE IN CANADA

PENBERTHY INJECTOR CO., LIMITED, WINDSOR, ONT.

Why The Norton Ball-Bearing Jack Is Better Than Any Other.



Sectional View of Norton Jack.

THE BALL-BEARINGS

reduce the friction and increase the power of the Jack.

THE GEARS

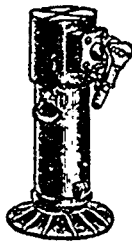
are cut from solid steel forgings, thereby giving highest efficiency and greatest durability.

THE SCREW

runs in a Phosphor Bronze Nut and is covered by a sliding sleeve which takes all the side strain, prevents the Screw from bending, and protects the working parts from Grit and Rust.



Foot-Lift Jack.



35 Ton Jack.



Journal Jack.

Made in 50 styles—8 to 70 tons capacity.

Manufactured by

A. O. NORTON,
COATICOOK, PROV. QUEBEC.

Stock carried by

W. H. C. MUSSEN & CO., Montreal.

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(American Branch of Leopold Cassella & Co.)

ARTIFICIAL
DYE STUFFS

New York, 182-184 Front Street.

Boston, 524 Atlantic Avenue.

Philadelphia, 126-128 South Front St.

Providence, 64 Exchange Place.

Atlanta, 47 North Pryor Street.

Montreal, 88-82 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'Y.

104 and 106 Murray St., NEW YORK

AMERICAN BRANCH OF THE

ANILINE COLOR & EXTRACT WORKS

(Formerly J. R. GEIGY).

BASLE, SWITZERLAND.

GRENZACH, GERMANY.

Aniline Colors, Calico Printers' Specialties
Dyewood and Sumac-Extracts.

CANADIAN REPRESENTATIVE:

T. D. WARDLAW, 29-33 Melinda St., Toronto

BRUNNER, MOND & CO., Limited,
NORTHWICH, ENGLAND.

PURE ALKALI

48% and 58% (Light and Heavy)

BLEACH^g PWD.

35% to 37% (Hardwood Casks)

CAUSTIC SODA

60% to 77%.



Winn & Holland,
MONTREAL,

Sole Agents for Canada.

SODA CRYSTALS

Lump and Crushed. Brls. and Bags.

CON^{CTD} SAL SODA

DOUBLE STRENGTH

BICARBONATE SODA

ABSOLUTELY PURE

Also for Mineral Water Manufacturers.

BELLHOUSE, DILLON & CO.

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

**Dyestuffs,
Chemicals and Extracts**

SOLE AGENTS IN CANADA FOR

**KUTTROFF, PICKHARDT & CO'S
ANILINE and ALIZARINE COLORS**

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A. KLIPSTEIN & CO.

122 Pearl St., New York

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

ANILINES

DYESTUFFS and CHEMICALS

Sole Agents for the SOCIETY OF CHEMICAL
INDUSTRY IN BASLE, SWITZERLAND.

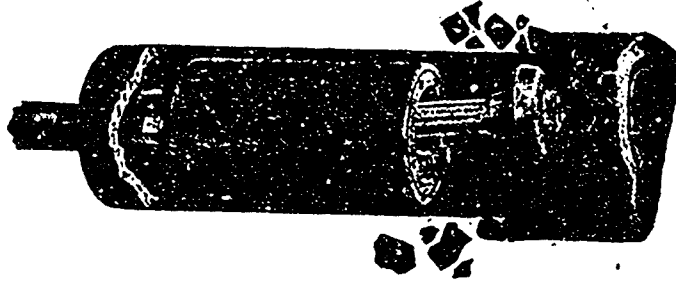
FAST COLORS FOR WOOL and COTTON

ALSO FULL LINE OF DIRECT COTTON COLORS

BRANCHES—BOSTON, 233 Congress St. PHILADELPHIA, 50-52 N. Front St.
CHICAGO, 136 Kinzie St. PROVIDENCE, 13 Mathewson St.

Don't be Buncoed by Imitations!

THERE IS JUST ONE



DEAN BOILER TUBE CLEANER

made, and sold in Canada, and we stand behind that machine with the guarantee that if it does not at least pay for itself in fuel saved in six months' use, your money will be refunded.

DON'T TAKE CHANCES ON COUNTERFEITS!

We'll lend you an original Dean Cleaner for a thorough free trial, and will guarantee it to remove all the scale from a water tube or return tubular boiler.

WRITE TO-DAY FOR OUR BOOKLET, "Economy in the Boiler Room."

WILLIAM B. PIERCE CO., 322 Washington St., BUFFALO, N.Y.

How About Your Incandescent Lamps For Fall and Winter Use?

Before you contract for your incandescent lamps for fall and winter use, we want to impress upon you the superiority of the Packard Lamp.

The Packard Lamp has all the requisites for the most economical usage, and no matter how perfect your installation may be, if you are not using Packard Lamps your lighting is costing more than it should.

Correspondence will doubtless reveal many important things to you and we are always glad to talk on this most interesting subject.

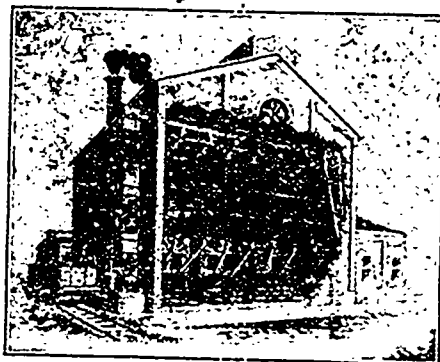
While the first cost of Packard Lamps is perhaps not as low as other lamps—the ultimate cost, the ratio of service and light given, makes them the cheapest lamp to use.

Let us hear from you to-day.

THE PACKARD ELECTRIC CO., Limited
ST. CATHARINES. MONTREAL.

Lamps—Transformers—Meters—Hylo Lamps.

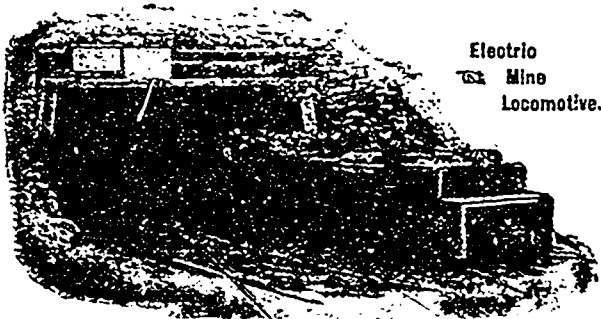
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COAL WASHING **MACHINERY**



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House
Equipment.

We make a speciality of designing
Coal and Ashes
Handling
Machinery.

Toronto Agents
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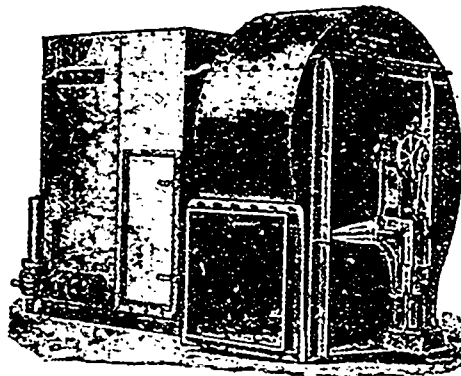


Electric
Mine
Locomotive.

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COLUMBUS, OHIO, U.S.A.

**THE STURTEVANT
DRYING APPARATUS**

Is Positive and Rapid



The Sturtevant Apparatus consists of a steel pipe steam heater through which a fan draws or forces the air. It can be applied for the drying of all classes of material, such as lumber, wool, cotton, grain, packing house products, etc. We furnish designs for drying rooms and beds, and design special apparatus for meeting exact requirements.

B. F. STURTEVANT CO.,

Boston, Mass.

New York. Philadelphia. Chicago. London.



YOU, Mr. Power User
are the one who
Should use the Famous

**DODGE
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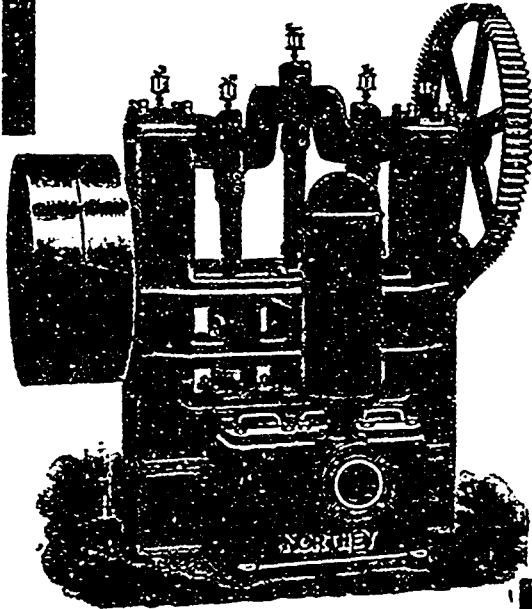
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Cable address: "CANAMAN." Western Union Telegraphic Code used.Classified Index..... Page 40
Index to Advertisers Page 46**J. J. CASSIDEY,** - - *Editor and Manager***THE STONE WHICH THE BUILDERS REFUSED.**

Canada observes with mild indifference the fierce fight now being waged in the United States between two factions of the Republican party, the political treatment of Canada being the bone of contention. One of these factions maintain ultra-protectionist views, and while insisting that there should be no abatement in their present tariff, and that it should not possess the least shadow of a reciprocal arrangement with Canada of any other country, the other faction demands that a system should be established under which reciprocity would be possible with any country with which terms could be effected, particularly with Canada.

This split became crystalized and accentuated over the fact that the United States Senate, controlled by the Republicans, declined last year, and is yet declining, to ratify the reciprocity treaties negotiated by ex-Minister Kasson, under the direction and with the approval of President McKinley. The Bourbon element of the party object to the ratification of these treaties, and oppose any deviation from the existing order of things, while the more progressive element favor the ratification of all the treaties, and insist upon a treaty being made with Canada if possible.

Under this stimulus the National Reciprocity League was organized in Chicago in April of last year; and the promoters of it build upon what President McKinley said in the matter in his last public address delivered at the Pan-American Exposition at Buffalo the day previous to his assassination. In his allusion to the vast and intricate business enterprises built up in the United States through years of toil and struggle, which would not permit of either neglect or of undue selfishness, and that only a broad and enlightened policy would keep what the country then possessed, Mr. McKinley said:

By sensible trade arrangements which will not interrupt our home production, we shall extend the outlets for our increasing surplus. A system which provides a mutual exchange of commodities is manifestly essential to the continued healthful growth of our export trade. We must not repose in fancied security that we can for ever sell everything and buy little or nothing. . . . Reciprocity is the natural outgrowth of our wonderful development under the domestic policy now firmly established. What we produce beyond our domestic consumption must have a vent abroad. The excess must be relieved through a foreign outlet, and we should sell everything we can, and buy whenever the buying will enlarge our sales and productions. The period of exclusiveness is past. Commercial wars are unprofitable. A policy of goodwill and friendly trade relations will prevent reprisals. Reciprocity treaties are in harmony with the spirit of the times; measures of retaliation are not.

THE CANADIAN MANUFACTURER

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The fight between the factions goes merrily on, in which Canada can take no part, nor does she desire to do so. When the American people settle the question, should it be in favor of the adoption of reciprocal treaties, and they have anything good in that line to offer to Canada, then would be the time for Canada to consider it, not before: but it can but be observed that adequate tariff protection is essential to any nation, because it makes it possible to negotiate advantageous reciprocity treaties. Both the factions of the Republican party adhere to protection, but it is yet to be decided whether reciprocity is to be the keystone of the arch which is to support and perpetuate the prosperity of the United States. To the National Reciprocity League and its adherents the keystone of their country's prosperity is reciprocity, and the question with them is whether that stone is to be put to its appropriate use, or shall it be rejected. To them the stone which the other builders refuse is necessary as the head stone of the corner. They recognize the similarity of the situation with that which existed at the building of King Solomon's Temple, when information was brought to the king that the temple was almost completed, but that the workmen were in confusion for want of a certain stone which could not then be found; but subsequently it was found and placed to its intended use, and the building was completed.

The Reciprocity League is endeavoring to elevate and establish the reciprocity stone in its appropriate position.

IRON AND STEEL BOUNTIES.

The Dominion Government's policy in regard to the iron and steel duties was announced on July 7. Wire rods, which are not now made in Canada and are on the free list, will, when manufactured here, earn a bounty of \$6 a ton, on condition that they are sold to the steel wire makers to undergo further finishing processes. The idea of this is to secure the establishment of a new industry in Canada. A bounty of \$3 per ton will also be paid on large-sized steel plates and structural iron when produced in Canada. At present these plates are not made here, and they enter at the low duty of 10 per cent., while structural iron is subject to a duty of 85 per cent. The reduction of the sliding scale of iron and steel bounties is postponed for one year. In 1897 the Government took power to grant the following bounties.—On steel ingots, \$3 a ton; on puddled iron bars, \$3 per ton; on the proportion of pig iron produced from Canadian ores, \$3 per ton; on the proportion of pig iron produced from foreign ore, \$2 per ton. In 1899, however, it was enacted that these bounties should be paid yearly in the following proportions, and cease in 1907: 1902.

1903, 90 per cent.; 1903-1904, 75 per cent.; 1904-1905, 65 per cent.; 1905-1906, 35 per cent.; 1906-1907, 20 per cent. The effect of the suspension is that 90 per cent. of the duties will be paid in 1903-1904, as well as during the fiscal year which has just closed, and thereafter in the following increased proportions: 1904-1905, 75 per cent.; 1905-1906, 65 per cent.; 1906-1907, 35 per cent. The announcement that the Government would grant a bounty of three-eighths of 1 cent. per pound, equal to the rebate which the American manufacturers enjoy, was made by Mr. Fielding in his budget speech.

The resolutions are as follows:

The Governor-in-Council may authorize payment of the following bounties on the undermentioned articles manufactured in Canada from steel produced in Canada, from ingredients of which not less than 50 per cent. of the weight thereof consists of pig iron made in Canada, viz.:

On rolled, round wire rods, not over three-eighths of an inch in diameter, when sold to wire manufacturers for use in making wire in their own factories in Canada, a bounty of \$6 per ton; on rolled angles, tees, channels, beams, joists, girders or bridge building or structural rolled sections, and on other rolled shapes not round, oval, square or flat, weighing not less than 35 pounds per lineal yard, and also on flat eye bar blanks, when sold for consumption in Canada, a bounty of \$3 per ton.

On rolled plates not less than thirty inches in width and not less than one-quarter of an inch in thickness, when sold for consumption in Canada for manufacturing purposes for which such plates are usually required, and not to include plates to be sheared into plates of less width, a bounty of \$3 per ton.

The Governor-in-Council may make regulations to carry out the intentions of the foregoing section.

That chapter 8 of the statutes of 1899 be so amended as to provide that the bounties on steel and iron authorized by chapter 6 of the statutes of 1897 shall be continued until June 30, 1907, and that the rates of such bounties shall be as follows:

From July 1, 1903, to June 30, 1904, both inclusive, the bounties shall be 90 per cent. of the amount fixed by the said chapter 6 of the statutes of 1897.

From July 1, 1904, to June 30, 1905, both inclusive, the bounties shall be 75 per cent. of the amount fixed by the said chapter.

From July 1, 1905, to June 30, 1906, both inclusive, the bounties shall be 55 per cent. of the amount fixed by the said chapter.

From July 1, 1905, to June 30, 1906, both inclusive, the bounties shall be 35 per cent. of the amount fixed by the said chapter.

The Government have decided not to treat the Newfoundland ore as a domestic ore in regard to the duties payable, although the Dominion Iron & Steel Co. made an application to that effect.

PRODUCTION OF PIG IRON IN CANADA.

The American Iron & Steel Association has received from the manufacturers the statistics of the production of pig iron in Canada in 1902. They show an increase of 74,581 gross tons, or over 30 per cent., as compared with the production in 1901.

The total production in 1902 amounted to 319,557 gross tons, against 244,976 tons in 1901 and 86,090 tons in 1900. In the first half of 1902 the production was 157,804 tons and in

the second half it was 161,753 tons, a gain of only 3,949 tons. Of the total production in 1902, 302,712 tons were made with coke and 16,845 tons with charcoal. A little over one-third of the total production was basic pig iron, namely, 107,315 tons. The Bessemer pig iron made amounted to about 9,000 tons. Spiegeleisen and ferro-manganese have not been made since 1899.

The following table gives the total production of all kinds of pig iron in Canada from 1894 to 1902, the statistics for each year having been received directly from the manufacturers. Prior to 1894 the statistics of the production of pig iron in the Dominion of Canada were not collected by the Association.

Years.	Gross tons.	Years.	Gross tons.
1894	44,791	1899	94,077
1895	37,829	1900	86,090
1896	60,030	1901	244,976
1897	53,796	1902	319,557
1898	68,755		

On December 31, 1902, the unsold stocks of pig iron in Canada amounted to about 20,000 gross tons, as compared with 59,472 tons at the close of 1901 and 12,465 tons at the close of 1900. Of the unsold pig iron on hand on December 31, 1902, over 19,000 tons were coke pig iron.

On December 31, 1902, Canada had 14 completed blast furnaces, of which 7 were in blast and 7 were idle. Of this total 9 were equipped to use coke for fuel, 4 to use charcoal, and 1 to use mixed charcoal and coke. In addition 1 charcoal and 5 coke furnaces were being built or were partly erected on December 31, but work on some of the coke furnaces was suspended.

The Algoma Steel Co., Limited, Sault Ste. Marie, Ont., one of the constituent companies of the Consolidated Lake Superior Co., commenced the erection of two charcoal and two coke furnaces at Sault Ste. Marie in 1901. The charcoal furnaces were to be 70x14 feet and the coke furnaces 90x21 feet. Subsequently work on the coke furnaces was suspended and one of the building charcoal furnaces was converted into a coke furnace, the size being changed from 70x14 feet to 80x15½ feet. The company now expects to have these furnaces ready for blast during the present summer.

The Cramp Steel Co., Limited, has put in the foundations for a blast furnace at Collingwood, Ont. The company expects to have the furnace ready for operation in the fall of 1903. Coke from the United States will be used for fuel and Bessemer pig iron will be made. The daily capacity of the furnace will be about 250 gross tons.

The Nova Scotia Steel & Coal Co., Limited, New Glasgow, N.S., broke ground in June, 1902, for a new furnace at Sydney Mines, Cape Breton, N.S. The furnace will be 85x17 feet and will have a daily capacity of about 200 tons of basic and foundry pig iron. Coke will be used and red and brown hematite ore will be obtained from Nova Scotia and Newfoundland. It is expected that the furnace will be ready for blast in September, 1903. The company now has a furnace at Ferrona, with an annual capacity of 33,000 tons.

The Londonderry Iron & Mining Co., Limited, Londonderry, N.S., is the successor to the Londonderry Iron Co., Limited. It is rebuilding Furnace A, at Acadia Iron Mines, and expects to blow it in in July, 1903. The furnace will be 75x17 feet and will have an annual capacity of 48,000 tons of foundry iron. The company does not contemplate blowing in Furnace B in the near future, but may rebuild it later on.

The total production of steel ingots and castings in Canada in 1902 was 182,037 gross tons, against 26,084 tons in 1901, an increase of 155,953 tons. Bessemer and open-hearth steel

ingots and castings were made in each year. Almost all of the open-hearth steel reported in 1902 was made by the basic process. The direct castings made in 1902 amounted to 5,288 tons.

The following table gives the production of all kinds of steel ingots and castings in Canada from 1894 to 1902, in gross tons.

Years.	Gross tons.	Years.	Gross tons.
1894	25,685	1899	22,000
1895	17,000	1900	23,577
1896	16,000	1901	26,084
1897	18,400	1902	182,037
1898	21,540		

The large increase in the production of steel in Canada in 1902 over 1901 was caused by the starting up of the new open-hearth steel plant of the Dominion Iron & Steel Co., Limited, at Sydney, N.S., which first produced steel on December 31, 1901, and of the new Bessemer plant of the Algoma Steel Co., Limited, at Sault Ste. Marie, Ont., at which steel was first made on February 18, 1902. The latter company has two 3-gross-ton Bessemer converters, which were operated for a few months in 1902, producing in all 44,537 gross tons of ingots. The company also has a rail mill which first made Bessemer steel rails on May 5, 1902, and which also ran for a few months in that year, producing 32,878 tons. In addition this company produced 1,558 tons of other rolled products in 1902. The Dominion Iron & Steel Co. made 99,377 tons of basic open-hearth steel ingots, 48 tons of steel castings, and 86,424 tons of blooms, billets, and slabs. It did not make steel rails. It has ten 50-gross-ton open-hearth furnaces.

The production of Bessemer and open-hearth steel rails in 1902 amounted to 33,950 gross tons, against 891 tons of open-hearth rails in 1901; structural shapes, 423 tons, against 4,388 tons in 1901; cut nails made by rolling mills and steel works having cut-nail factories connected with their plants, 114,685 kegs of 100 pounds, against 126,891 kegs in 1901; plates and sheets, 2,191 tons, against 2,857 tons in 1901; all other rolled products, excluding muck and scrap bars, blooms, billets, sheet bars, etc., 119,801 tons, against 98,206 tons in 1901. Changing the cut-nail production to gross tons, the total quantity of all kinds of iron and steel rolled into finished forms in Canada in 1902 amounted to 161,485 tons, against 112,007 tons in 1901.

The following table gives the production of all kinds of iron and steel rolled into finished forms in Canada from 1895 to 1902.

Years.	Gross tons.	Years.	Gross tons.
1895	66,402	1899	110,642
1896	75,043	1900	100,690
1897	77,021	1901	112,007
1898	90,303	1902	161,485

On December 31, 1902, there were 19 completed rolling mills and steel works in Canada and 1 plant was being erected. Of the completed plants 2 were equipped for the manufacture of steel castings only, 4 for the manufacture of Bessemer or open-hearth steel ingots and rolled products, and 13 for the manufacture of rolled products only. The plant in course of construction was being equipped for the manufacture of Bessemer and open-hearth ingots and finished rolled products.

The Canada Switch & Spring Co., Limited, Montreal, has changed its name to the Montreal Steel Works, Limited, and has practically discontinued the manufacture of steel castings by the Bessemer process and will hereafter make steel castings by the open-hearth process only. Its Bessemer castings were

produced in a 3,000-pound modified acid converter, which was first put in operation in 1897. In 1901 the company erected and put in operation one 15-gross-ton acid open-hearth furnace and in 1903 it built another 15-ton acid furnace. Nearly all the steel castings made by the company in 1902 were produced by the open-hearth process.

The Page-Hersey Iron & Tube Co., Limited, is erecting a plant at Guelph, Ont., for the manufacture of wrought-iron pipe. It is the intention of the company to add in the near future a number of puddling and busheling furnaces and 2 trains of rolls (one 12 and one 16-inch) and to manufacture skelp for use in its pipe mill. Small quantities of bar iron may also be made. The plant will have an annual capacity of about 17,000 gross tons of finished rolled material and 15,000 tons of wrought-iron pipe.

The Cramp Steel Co., Limited, expects to have two 18-gross-ton basic open-hearth steel furnaces and 2 trains of rolls (one 10 and one 18-inch) in operation at its new plant at Collingwood, Ont., late in the spring of 1903. When completed the works will make steel rails, beams, plates, merchant bar iron, rods, shafting, etc.

The rolling mill formerly located at Guelph, Ont., and operated by the Guelph Iron & Steel Co., Limited, was removed to London, Ont., in the fall of 1902, and is now being operated at the latter place by the London Rolling Mill Co., Limited. A 14-inch roughing mill has been added, and the plant can now turn out annually about 15,000 gross tons of merchant bar iron and steel, and 6,000 tons of bolts, nuts, and hinges. Operations at London were commenced in March, 1903.

CANADIAN COAL.

As a consequence of the American coal strike and the resultant high range of prices, considerable attention has been drawn to the coal measures of Canada, and especially to those of Nova Scotia. This has been especially the case with the Canadian railway companies, which have hitherto been in the habit of drawing the bulk of their supplies from the States, and have for that reason seen expenses so enhanced that very handsome gross increases in earnings have been largely—in the case of the Grand Trunk Railway entirely—wiped out, much to the discomfiture of stockholders, who had not dreamed of such a contingency. There is no good reason why Canadian railways should not consume Canadian coal almost exclusively. It is of good quality, and compares favorably in price with the American sorts. Probably the simple explanation is that they have been in the habit of using American fuel and have not worried to make a change, despite the growing sentiment which suggests that Canadian commodities are good enough for Canadian citizens. Still it has to be allowed that the demand for Canadian fuel is increasing not only in the Dominion, but in the towns of the more Northerly Atlantic seaboard of the United States. The country is very well off for coal measures; the drawback is that capital for their proper development has not been forthcoming so freely as in the case of the American measures. The coal area of Canada is estimated at 97,200 miles, not including the areas in the far North which are known to exist, but are not yet developed. There are four main regions—the coalfields of Nova Scotia and New Brunswick; those of the Northwest Territories; those of the Rocky Mountains; and those of British Columbia. The coal areas of Nova Scotia cover about 635 square miles. They are divided into the Cape Breton, the Pictou and the Cumberland Basins. New Brunswick contains, so far as is known, no seams of sufficient magnitude to be worked suc-

cessfully in competition with the Cumberland mines. The workable thickness of the coal is very great—in Cape Breton a total of 25 feet to 60 feet; in Pictou at least 70 feet; and in Cumberland at least 30 feet. If the workable area is reduced one-quarter—say from 407,400 acres to 300,000 acres—and the average thickness of the workable area put at 25 feet, on the basis of 1,000 tons of coal, an acre for every foot of coal, the amount of coal in the measures of Nova Scotia is 7,000,000,000 tons. The present production of coal in the country is now about 6,000,000 tons of 2,000 pounds, as compared with 5,330,000 tons in 1900, and 4,172,000 tons in 1898. Of the present total nearly 4,000,000 tons are supplied by Nova Scotia.

The enormous annual output already attained by the soft coal fields of the United States—mining operations now being carried on in thirty states and territories, the annual production of which amounts to something like 250,000,000 tons—indicates the ultimate and perhaps speedy exhaustion of these fields. Each year the Canadian fields will be increasingly drawn upon by American fuel users, and the Canadian industry will increase in importance very rapidly. Aside from constantly increasing exports to the United States, Canadian coal fields will soon supply Ontario and other parts of Canada, supplanting American coal; and the future demand for the product of Canadian fields, and the development already attained, gives some idea of the great prosperity in store for the bituminous coal industry of Canada.

INSURING AGAINST BAD DEBTS.

Several recent failures in the business world have again called attention to the possibility of minimizing the effect of such failures by means of credit insurance. Almost every kind of catastrophe is now shorn of its full powers of destruction by means of insurance of one kind or another. Why not deal with the catastrophe of insolvency in the same way?

When a firm fails, the firms to which it owes money are injured not only in their potential assets, but in their commercial prestige. The firms to which they in turn owe money are alarmed. A owes B, B owes C. A fails. B loses the money which A would have paid him. C, therefore, begins to feel afraid that B may not be able to meet his obligations. He begins to press B for payment. B then gets after his own debtors, who are still solvent, and insists upon immediate attention. So everybody wants everybody else to settle, and one large failure may bring on a considerable panic.

The object of credit insurance is to prevent a sequence of this kind. Suppose that a man is insured against losses from bad debts. Suppose that one of his debtors fails. Without insurance his credit might be badly shaken, and his creditors, thinking that he was in a dangerous financial condition, might begin to demand a prompt satisfaction of their claims. Being insured, he is not exposed to any such embarrassing attack. He is able to show that he has been insured against loss from bad debts, and that the credit assurance company stands ready to reimburse him to the full extent of his loss. With full credit insurance, therefore, it would seem that the panic creating effect of a failure ought to be checked at the start.

The first attempt to use credit insurance in this way was made in England and in France about 200 years ago. Perhaps because they lacked the information which is now furnished by mercantile agencies, the credit insurance companies of century before last did not succeed. Of late years the credit insurance idea has been revived and has met with better luck. Its application to ordinary losses from ordinary insolvency and

to the extraordinary conditions resulting from extraordinary failures cannot but be of interest, both to the professor of political economy and to the practical business man.

CARING FOR THE INJURED.

The caring for injured workmen and employes in factories and industrial establishments is receiving much attention at the hands of manufacturers in the United States, and many of the large concerns there now maintain emergency hospitals and other facilities for this important work; and the matter is one well worthy of imitation by Canadian manufacturers. An example in this direction is shown by what is being done by the Jeffrey Mfg. Co., Columbus, Ohio.

This company have in their works two cases containing materials to be used as first aid to injured employes. One case is located centrally, and contains bandages and simple remedies such as may be necessary in cases of minor accidents. The other case is located in the tool room of main machine shop and has a larger supply of bandages, splints and remedies.

In the tool room they have a man who has made something of a study of first aid to the injured, and his knowledge and services have proven on many occasions of great value. He is always to be found at his post of duty, and he has everything which may be necessary ready at a moment's notice so that there is never any waiting or confusion. They keep constantly on hand supplies of antiseptic remedies, arnica, witch hazel, peroxide of hydrogen, whiskey, various salves, ointments, oils, etc.; and they have found that much suffering is relieved by keeping on hand a mixture of linseed oil and lime water to be used in case of ordinary burns such as are received generally about manufacturing institutions and especially in foundries. They always keep on hand picric acid, which is the best remedy found for burns received in electrical work.

By having a definite place to which injured men may be taken, they avoid the crowding due to sympathy and curiosity, and this renders the work of relief much easier and quicker. Foremen are instructed to report all accidents, no matter how trivial, to the man in the office who has charge of such matters, and to make request for conveyance for the injured employe to the office; and they have arrangements with a near-by livery stable so that they can always secure a conveyance in a very few moments.

They also have a physician employed by the year, whose office is near by, and there is always medical attendance to be found at his office, no matter what time of day or night men are sent there. When an injured man is sent to the physician, he is given a slip stating that he is from these works and everything possible is done in the way of relief.

Where the injury is serious, this physician has instructions to send the sufferer direct to a hospital.

The company have found these arrangements to be very satisfactory in every respect, and they believe that, aside from the humanitarian aspect of the matter, which, of course, must appeal to every one employing men, it really is best from a business standpoint.

EDITORIAL NOTES.

The pig iron output of the Dominion Steel Co. for the past eight months was 148,399 tons, or an average of 18,550 tons per month. The output of steel billets was 81,513 tons, or an average of 10,199 tons per month. The result of the operation of the company so far is to prove that its plant is able to produce pig iron and steel which meets the most exacting requirements of its customers. These include nearly all the

important manufacturing plants in Canada and some of the largest locomotive works and plate mills in the United States. The sales of coal by the Dominion Coal Co., for the ten months amounted to 2,836,321 tons, an average of 283,632 tons per month, as compared with 2,276,270 tons for the corresponding ten months of the previous year, an average of 227,627 tons. Development work has been fully carried out and the prospects for the present year are excellent. Notwithstanding the unfortunate fire at Dominion No. 1 colliery in March last, now it is believed extinct, the output from January 1 to May 1 in the current year is 966,097 tons, as compared with 881,714 tons in the same months of 1902.

The injunction case of the town of Fort William against the Bell Telephone Co. was held recently before Mr. Justice Teetzel at Port Arthur. This case was entered last February by the town. The court ordered that the case be dismissed; the plaintiffs shall not until judgment has been pronounced by the final appellate court, to which the action of the corporation of the city of Toronto against the Bell Telephone Co. of Canada, Limited, now pending, may be carried; or such action shall otherwise be disposed of, bring action or take any proceedings to interfere with the erection of poles or the stringing of wires by the defendants in the said town, or the erection or use of any other appliances permitted by their charter and necessary or convenient for carrying on the business of defendants in the said town. The court ordered that the plaintiffs pay the defendants one dollar damages for loss sustained by reason of the injunction orders granted; and also pay to the defendants their costs of this action, including the costs of February 17, 1903 and February 19, 1903, and of the motion and order permitting the defendants to deliver their statement of defence, June 19, 1903, as between solicitor and client forthwith after taxation.

There is said to be considerable elation among the Cramp Steel Co's officials at Collingwood, Ont., over the subsidy granted by the Dominion Government on wire rods. The subsidy will, it is said, mean an increased profit of about \$500 daily on the company's output. When the finishing mills were designed they were planned so that wire rods could be rolled as well as bars. In other words, the semi-continuous system in vogue in the Belgian and German mills was adopted, so that the mills could be run on bars until such time as something was done to make it profitable to roll rods. Now that it is possible to roll rods at a good profit, a large portion of the output of the company's mills will be wire rods. The mills are now completed, except the installation of an engine, now building in Toronto. Another thing that will tell favorably in this respect is that a large wire-drawing plant is being erected by the Imperial Steel & Wire Co. on land adjoining the Cramp Steel Co's works. Work is being rushed on this wire plant, which will have a capacity of fifty tons of wire daily. The wire rods will be obtained from the Cramp Steel Co.

Not only is Canada showing unexampled prosperity and demonstrating the great ability of its leading men, but she is also showing the world that her statesmen are men of pluck as well as capacity, who are not afraid to look the whole world in the face and claim from other nations that respect which they consider to be due to the country. This fact is being appreciated by Germany, and from all reports Canada's independent spirit is being much discussed there. That Germany will feel aggrieved at the attitude which Canada has taken up, we can well understand. At the same time we

can not see that the Germans have much real cause for complaint. The Merchant and Shipper, of London, England, says that the Germans themselves have been chiefly responsible for bringing about the surtax which Canada proposes to levy on German goods entering her ports, this even Germans themselves can hardly deny. Ever since the Dominion granted preferential tariffs to British goods Germany has manifested a very sore feeling, apparently forgetful of the fact that Canada is a part of the British Empire, and that the arrangement made was of a purely domestic character. Notwithstanding this, Germany has secured a very good share of the trade which has followed Canada's unexampled expansion, but, on the other hand, Canada, whose exports are mainly agricultural produce, has had to pay the maximum tariffs at German ports. This has been going on for some time, but now Germany has taken stronger measures. With the view, no doubt, of fostering the Prussian agricultural interests, a new tariff has been drawn up by Germany, which practically shuts the door against Canadian produce. In reply to this, Canada proposes to put a surtax of 33½ per cent. on German goods entering Canada. It will, without doubt, affect German trade in the Dominion; but they can hardly look upon Canada as the aggressors in the conflict.

Finance Minister Fielding stated in the House of Commons this week the accounts for the fiscal year ended June 30 are not yet closed, but up to date \$1,245,382.25 have been paid in bounties on iron and steel, including \$147,022.91 deferred payments from the previous year. The amounts paid on pig iron were: Dominion Iron & Steel Co., \$386,377.98; Hamilton Steel & Iron Co., \$90,914.73; Nova Scotia Steel & Coal Co., \$38,973.65; Canada Iron Furnace Co., \$87,472.22; John McDougall & Co., \$4,598.40; Deseronto Iron Co., \$12,409.20, making a total of \$620,706.18. On steel ingots, the Dominion Iron & Steel Co. were paid \$499,625.57; the Hamilton Steel & Iron Co., \$36,792.20, and the Nova Scotia Steel & Co., \$79,857.59, making a total of \$616,269.31. The Hamilton Steel & Iron Co. were also paid a bounty of \$8,406.26 on puddled iron bars.

Investigation has revealed the fact that all changes made in the freight classification of Canadian railroads since the issue of Schedule No. 11, January 1, 1900, have been without the approval of the Governor-General-in-Council, and are therefore unauthorized and illegal. In the meantime Freight Classification List No. 12, issued May 1, 1902, embodying all the changes up to date, has no authority to be recognized, wherein it may differ from Schedule No. 11; and any freight charges collected by the railway companies may be paid under protest. It is probable that the Government will call upon shippers to show cause why the increases made in Schedule No. 12 should not be sanctioned.

The Dominion Government has come to the relief of the binder twine industry in the following resolution passed last week:

The Governor-in-Council may authorize the payment of a bounty to any corporation, firm, or person manufacturing binder twine in Canada, such bounty to be equal to the amount paid as export duty in the Philippine Islands on Manila fibre produced in such islands and used in the manufacture of binder twine in Canada. Such bounty shall only be payable in respect of binder twine manufactured on or after the 1st day of September, 1902. Provided, however, that the bounty shall not exceed three-eighths of one cent per pound on the Manila fibre so used in the manufacture of binder twine. The Governor-in-Council may make regulations to carry out the intention of this act.

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 in 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 Toronto Cattle Market, Toronto, will be improved at a cost of \$30,000.

Mr. R. J. Disney, Hanover, Ont., is considering erecting a furniture factory at Collingwood, Ont.

The Grand Trunk Railway Co., have awarded the contract for the construction of another section of their main line on the Middle Division between Sarnia Tunnel and Hamilton, to Messrs. Ross & McCrae. The contract embraces that portion of the main line lying between Sarnia Tunnel and Kingscourt Junction—a distance of 22 miles, and the work will be continued eastward through Strathroy, London, Ingersoll, and Woodstock. The work of completing the second track on the Western Division between Port Huron and Chicago is progressing very favorably, and the total distance between Montreal and Chicago over the main line will be completed within a comparatively short time. There are only some 65 miles to be finished on the Western Division, and but a few miles between Toronto and Port Hope, and the line between Toronto and Niagara Falls is completed.

The gross earnings of the Toronto Street Railway Co. for the month of June were \$177,593.21, an increase of \$45,727.36, as compared with June of last year. The large increase is partially accounted for by the fact that there was a strike on in June of last year, the cars not running for three days. The monthly earnings this year, with increase over corresponding months of last year, are as follows:

	Earnings.	Increase.
January	\$161,938.14	\$24,802.93
February	146,539.21	17,306.00
March	159,942.82	18,261.53
April	162,276.36	29,729.80
May	174,519.58	29,324.04
June	177,593.21	45,727.36

Total..... \$982,809.32 \$166,151.76

The city's share has grown from \$73,653.47 during the first six months of 1902 to \$92,034.95.

The Huron Lumber Co., Spanish Station, Ont., have increased their capital from \$40,000 to \$75,000.

Mr. C. P. Holton's steam saw mill at Belleville, Ont., was destroyed by fire July 6. Loss about \$7,000.

The Blaine Harrow Mfg. Co., Toronto, has been incorporated with a capital of \$100,000, to manufacture harrows and other agricultural implements. The provisional directors include G. E. Blaine, G. Clatworthy and J. Buchanan of Toronto.

Messrs. Kalbfleisch Bros., Stratford, Ont., have awarded the contract for the erection of a new bicycle and automobile factory, 60 x 48 feet, three stories high.

The Empire Carpet Works, St. Catharines, Ont., was destroyed by fire June 30. Loss about \$45,000.

Building permits have been issued at Toronto, to Messrs. Robertson Bros., for the erection of a five story factory at a cost of \$7,500; Dr. J. B. Fraser, dwelling, \$5,000; F. B. Poucher, two pairs of dwellings, \$5,000, and W. G. Gooderham, for a brick and stone residence, \$45,000.

The managers of the Toronto Ferry Co. are contemplating the construction of a new ferry boat, built on the same lines as the Mayflower and Primrose, but about twice as large as those boats. Tenders will be called for soon, and the boat will be completed by May 24, 1904.

The town of Palmerston, Ont., propose making improvements to its electric light plant, and to install a new driving engine for it.

J. Bradley, Aylmer, Ont., is inviting tenders for the supply of materials and the construction of a nine inch glazed tile conduit 9,688 feet long and 175 feet 10 inch cast iron conduit.

J. W. Siddall, architect, Toronto, is inviting tenders for the erection of a new town hall at Bowmanville, Ont.

James Thomson, architect, Sault Ste. Marie, Ont., is revising the plans for a new Methodist church building and tenders will be invited.

The Independent Order of Foresters will erect a lodge hall in Hamilton, Ont.

The town of Iroquois, Ont., is inviting tenders for the construction of water mains and hydrants.

The Grand Trunk Railway Co's passenger depot at New Hamburg, Ont., was destroyed by fire July 7.

A large marl bed has been discovered at Ellaton, Ont., and a company will be formed to work same for the manufacture of Portland cement.

During the absence in Europe of the Lieutenant-Governor, Hon. Wm. Mortimer Clark, the Government House, Toronto, will be renovated, at a cost of about \$3,000.

Messrs. Mackenzie & Mann, of the Canadian Northern Railway, intend to build two more large grain elevators at Fort William, Ont., with a capacity of about one and a half million bushels each, and have made arrangements with the town council to be supplied with 2,000 h.p. They also propose to install a system of wireless telegraphy, with stations between Toronto and Port Arthur, for the benefit of their fleet of steamers.

The United States Steel Corporation have announced their intention of beginning work on their new plant at Port Colborne, Ont., at an early date. The company have already secured concessions from the Dominion Government for dredging a basin at the entrance of the Welland Canal, and have arranged for 6,000 electric h.p. from Niagara Falls, Ont.

Canadian Iron & Foundry Co. of Montreal, will erect a new foundry 250 x 150 feet, for heavy castings at their plant at Hamilton, Ont. The present plant will be used for the manufacture of car wheels and for light castings.

The Gould Mfg. Co. of Smith's Falls, Ont., are making some important additions to their foundry in order to handle their increasing business.

Plans and specifications have been prepared by the government for a steel bridge of three spans of 135 feet each, with concrete abutments, over the Winnipeg river at Rat Portage, Ont. Tenders will be called for immediately.

D. O'Conner, Esq., K.C., of Ottawa, is at the head of a company formed for the manufacture of silicate brick under the Anderson patents. They will erect a plant near Ottawa.

Messrs. C. Wilson & Son, Toronto, whose foundry was recently destroyed by fire, will build a much larger foundry, up to date in every particular. They are now using a leased building.

The Elliott Paper Box Co's works, at Toronto, were partially destroyed by fire July 8. Loss about \$5,000.

The plant of the Electro-Chemical Co., St. Sault Marie, Ont., which has been closed for some time, has commenced operations again. The capacity of the plant has been increased by one-third. They manufacture caustic soda, bleaching powder and bye products, for the markets of the world. This is said to be the only Canadian plant turning out these products.

The F. Hamilton Co., Hamilton, Ont., has been incorporated with a capital of \$40,000, to manufacture hardware, etc. The provisional directors include F. Hamilton, N. Slater and J. Adam, of Hamilton.

The Toronto city engineer has reported to the Board of Control that the freight houses to be erected on the new city docks will cost about \$10,000.

The Glen Road Bridge, Rosedale, Toronto, will be reconstructed at a cost of \$20,000.

The Canadian Westinghouse Co., Hamilton, Ont., has been incorporated with a capital of \$2,500,000, to manufacture electrical machinery, safety devices, etc. The provisional directors include P. J. Mylor, Hamilton, W. Y. Soper, Ottawa, Geo. Westinghouse and G. C. Smith, of Pittsburg, Pa.

The ratepayers of Fort William, Ont., have voted favorably on a bylaw to raise \$40,000, for the erection of a new town hall.

The Provincial Grocers, Limited, Toronto, has been incorporated with a capital of \$250,000, to carry on a manufacturing grocery business. The provisional directors include M. M. Clancy, W. B. Rogers and John Medland, of Toronto.

Mr. Jas. N. Noxon, Inspector of Public Institutions, and Provincial Architect Heakes, were at Woodstock, Ont., a few days ago to select a site for the New Hospital for Epileptics which the Government are about to erect.

The new Y.M.C.A. building at Stratford, Ont., costing \$20,000, has been fully subscribed for, and the contracts let. The Grand Trunk Railway Co., gives a free site and \$4,000. The building will be one of the finest in Western Ontario.

Messrs. Vigers & Co's planing mill at Port Arthur, Ont., was destroyed by fire July 8. Loss about \$7,000.

Mr. J. J. Joint's apple evaporator, and Mr. J. Pennel's cider and flax mill at Teeswater, Ont., were destroyed by fire July 9. Loss about \$2,000.

Plans will shortly be submitted for the erection of a cottage at Orillia, Ont., as a home for weakminded women.

The Ottawa East Water Co., Ottawa East, Ont., has been incorporated with a capital of \$40,000, to supply cities and towns with gas and water. The provisional directors include J. Ballantyne,

C. F. Winter and W. A. D. Lees, of Ottawa East.

The Canadian Transit Co., Ottawa, has been incorporated with a capital of \$1,000,000, to construct basins, docks, elevators, etc. The provisional directors include R. Bickerlike, A. Lemieux and C. N. Blakeley, of Montreal.

The Industrial Packing Co., Palmerston, Ont., has been incorporated with a capital of \$300,000, to carry on a general packing and canning business. The provisional directors include W. J. Falconer, John Burns and John Oliver, of Palmerston.

The Brazing Co. of Canada, Guelph, Ont., has been incorporated with a capital of \$1,000, to manufacture solder, etc. The provisional directors include A. G. Spencer, W. C. Adams and J. H. Bell, of Montreal.

The Church Mfg. Co., Fenelon Falls, Ont., has been incorporated with a capital of \$40,000, to manufacture furniture, wire-screens, etc. The provisional directors include W. H. Church, D. Gould and Geo. Martin, of Fenelon Falls.

The Tavistock Malleable Iron Co., Tavistock, Ont., has been incorporated with a capital of \$100,000, to manufacture malleable and grey-iron and iron-castings. The provisional directors include F. Krug, Geo. Staebler and John Kalbfleisch, of Tavistock.

The Anchor Knitting Co., Almonte, Ont., will increase their capital from \$50,000 to \$150,000.

The Robert Greig Co., Ltd., Toronto, has been incorporated with a capital of \$65,000, to manufacture baking powders, foods, drugs, etc., and to acquire the business of Robert Greig & Co. The provisional directors include R. Greig, Wm. Cook, and S. T. Bastedo, of Toronto.

The Berlin Foundry Co., Berlin, Ont., has been formed by Philip Gies and others of that city, and will manufacture heating apparatus, etc.

The Wallingford Mica & Milling Co., Ottawa, Ont., has been formed to operate mica properties near that city.

The Polson Iron Works, Toronto, have added largely to their accommodation at their shipbuilding yard and have installed

much new machinery. One of the principal pieces of machinery on the shipyard is an electric travelling crane. The rails are 70 feet, apart and extend for about 500 feet, so that the steel work for two or three boats under construction at the same time may be readily delivered at the proper place. The boom is 120 feet long and is about 60 feet from the ground. The electrical equipment consists of two 25 h.p. and one 5 h.p. multipolar type motors in weather-proof casings, together with the usual reversible controllers, trolley fittings, etc. A motor has been installed for the reversible hoist for operating the sheer legs used for placing machinery in vessels and for other purposes.

The new plant of the Owen Sound Iron Co., Owen Sound, Ont., is now well under construction. The main building will be 337 feet long. South of the main building will be the boiler shop, 49 x 34 feet, while the box shed facing Water street will be 72 x 31 feet. There will be a pattern storage building 52 x 34 feet and a pattern shop 35 x 20 feet, two stories high. The company will install its own electric light plant.

The Industrial Soap & Oil Co., Toronto, of which Mr. H. E. Cardinal is general manager, have purchased the plant of the Brantford Soap Co. of Brantford, Ont., and are removing to that city. The plant has been thoroughly equipped with up-to-date machinery, and will enable the company to handle their rapidly increasing business.

Mr. W. C. Bonnell, who lately purchased the Quetton St. George estate on Yonge Street, about 18 miles from Toronto, has disposed of the marl deposits in St. George and Wilcox Lakes, which are on the estate, to the recently formed Toronto-Hamilton Cement Co. St. George Lake is 160 acres and Wilcox Lake 40 acres in area. Each has a bottom, it is said, of solid marl, suitable for cement making. The Toronto-Hamilton Cement Co. is composed of local and Hamilton capitalists. Messrs. A. E. Osler and C. E. Ryerson have been prominent in organizing the company.

The flint house of the Sydenham Glass Co., at Wallaceburg, Ont., was destroyed by fire, July 16. Loss about \$15,000.

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Air Hoists,
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Syrups in Ro-
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for use by Ma-
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BRANCHES - - ROSSLAND, B.C. RAT PORTAGE, Ont. HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Mr. F. H. Clergue announces that the construction of that portion of the Manitoulin and North Shore Railway, running down to and across the Manitoulin Island, will be built simultaneously with the line along the north shore.

The contract for the steel rails for the Nipigon Railway has been awarded to A. Seaman, of Port Arthur, Ont. Work on the road will be commenced at once.

The Gas and Gasoline Engine Co., of Toronto Junction, Ont., will make important additions to their plant.

The farmers of Ontario seem to be wide awake to the benefits of the "good roads" policy of the Ontario Government, for the correspondence received by Mr. Campbell, of the Department of Works, shows that at least \$750,000 will be spent this year in settled counties for the repair of main roads. Of this amount the Government's share will be \$250,000. In addition to all this, Mr. Campbell has practically arranged for the overhauling and repair of 500 miles of old roads or trails in New Ontario, the construction of 250 miles of new roads, the building of a number of new bridges and the repair of many old ones, all in New Ontario. This will mean an expenditure of about \$250,000, and will be of immense benefit in opening out new territory and helping places already settled.

Professor Miller, of the Ontario Bureau of Mines, who has just returned from the mining regions of Eastern Ontario, states that the Canadian Corundum Co., which has been treating about 20 tons of rock daily at its plant at Craigmont, South Renfrew, is preparing to increase its capacity to 200 tons daily. From 50 to 100 men are now employed, but this number will be considerably increased. Large extensions are also proposed at the Belmont gold mine in Hastings, which is the largest gold mine in operation in Ontario. The water-power plant of 1,000 h.p. will be increased, the sorting plant—large enough for 120 stamps—will be installed and the hoisting capacity increased. At present the plant has 30 stamps and the power is conveyed two and a half miles by means of compressed air.

The Sawyer-Massey Co., Hamilton, Ont., will enlarge their works by adding a three-storey structure.

Tenders will shortly be invited for the improvements to the Windsor Hotel building at Stratford, Ont.

The city engineer of Ottawa, estimates the cost of an auxiliary steam water-works pumping plant at \$85,000 including \$44,000 for two pumping engines, \$16,000 for boilers, \$25,000 for building, and \$2,510 for stack for boiler house.

The Canadian Copper Co., Sudbury, Ont., have placed an order for two switching engines from the Baldwin Locomotive Co. to be delivered in January. Their weight, with tender, is to be 234,000 pounds, with 154,000 pounds on the drivers.

The Ontario Government have purchased property to be used for an extension to the Hamilton Asylum.

The Dominion Government is considering the installation of a complete electric light system of their own for the Houses of Parliament at Ottawa.

Mr. A. P. Damon, of The Sub-Target Gun Co., of Boston, Mass., was in Hamilton, Ont., a few days ago in connection with establishing a branch works at that city for the manufacture of the gun machine.

The Canadian Northern Railway Co. are considering the erection of an elevator with a capacity of 5,000,000 bushels at Port Arthur, Ont.

Mr. Wm. Bright, Town Clerk, Listowel, Ont., is inviting tenders for the installation of a water works system at that town.

The Allith Mfg. Co., of Chicago, Ill., will establish branch works at Hamilton, Ont., for the manufacture of track door hangers and overhead carrying machinery.

The Comfort Soap Co. will erect a four-storey building at Toronto Junction, Ont.

The Grand Trunk Railway have agreed to construct a connecting line with the Canadian Pacific Railway at London, Ont., and to enter into negotiations with other railways for general inter-switching arrangements. The proposed spur will afford to established industries switching arrangements common to all railways, and provide ample accommodation for new industries.

Mr. David Russell, head of the Abbey Salt Co., has purchased the hotel at Caledonia Springs, in East Ontario, close to L'Orignal, with 270 acres of land adjoining. He purposes to establish a health resort with all modern appliances for giving invalids and others the use of the healing waters of that locality.

The Canadian Pacific have given an order to the Canada Foundry Co., Toronto, for the construction of ten compound ten-wheel consolidation engines, to be ready by September of next year. Their weight will be 164,000 pounds, with 144,800 on the drivers, which are to be 57 inches in diameter. The tender is to have a capacity for water of 5,000 gallons, and for coal of ten tons.

The Canadian Pacific Railway have just completed in their own shops 50 ore cars of 60,000 pounds capacity, and are about to commence work on ten fruit cars of 30,000 pounds capacity, and on 200 stock cars of 60,000 pounds capacity.

The steamer White Star, a Toronto excursion boat, was destroyed by fire July 12, at the city dock.

Machinery is being installed in the new mill of the Montrose Paper Co., at Thorold, Ont. The Crocker patent turbine wheels were made by the Jenckes Machine Co., Sherbrooke, Que. They are twin wheels, set up on twenty two-foot girders. They are forty-inch wheels, having a capacity of 300 h.p. under twelve feet of head, enclosed in a steel case. The connection with the main shaft is direct, there being no gearing. In each wheel cas. are twelve gates. The escape is made by a draught tube eight

feet in diameter. The water is admitted by a ten-foot oval feed pipe.

Mr. J. R. Booth, Ottawa, has decided to extend his lumbering railroad, known as the Macaulay road. It runs from Egan Estate on the Western Division of the Canada Atlantic Railway, a distance of eight miles, tapping the Booth limits. The forward march of the choppers has made it necessary to extend the road five miles, giving it a total length of thirteen miles. Engineers are now surveying the route. When business is slack on the Canada Atlantic during the winter months, logs are hauled from the limits by way of the branch and main line to the Booth mill at Ottawa.

The Toronto & Niagara Power Co. have called for bids on what will be the largest power wheel pit in the world. It is to be 480 feet long, 180 feet deep and 27 feet wide, cut through the solid rock. The work will cost \$1,250,000, and will develop 225,000 h.p.

Mr. J. H. Widdicombe, Hamilton, Ont., has invented a fruit picker, and has formed a company with \$15,000 capital, and is arranging to begin the fruit-picking business in due season. He is associated in the enterprise with Mr. Willis H. Coon, of Rochester, N.Y., and Charles E. Hollan, of Toronto.

The D. Moore Co., tinware manufacturers, etc., at Hamilton, Ont., will erect a moulding shop at a cost of \$9,000.

The ratepayers of Alliston, Ont., have voted a bonus of \$7,000 to the proposed Alliston shoe factory.

One of the most interesting features of the new Manufactures and Liberal Arts Building, at the Dominion Exhibition, Toronto, August 27 to September 12, will be the process section, in which 27 different processes of manufacture will be shown in active operation. All these manufactures will include the very latest inventions in the different lines, and on that account will be of the greatest interest, not only to Canadian visitors, but also to visitors from the United States. A few of the processes that will be on view are:—Printing vast numbers of tickets by multiple press, book-binding and box-making, all by the same firm, spectacle making, diamond cutting, glass blowing, die sinking, boot and shoe making, umbrella making, paint mixing, the manufacture of cotton and canvas bags, cotton spinning, elastic stocking making, chain making, electric light bulb blowing, button making, binder twine making, electric welding, needle and pin making, flax spinning, soap making, metal spinning, carpet weaving, cloth making, broom making, and a variety of others, including the process of photogravure. These processes will be in constant operation, and are expected to lend greatly to the attraction of the building.

The Stratford Mill Building Co., Stratford, Ont., are making extensive changes in their plant, largely increasing their machine shop both in size and the number of tools, and have also added a first-class

up-to-date boiler plant. Their brown engine is already well known throughout the country, and they inform us they are meeting with a very large demand for their popular and reliable engines, so that they have orders ahead for some months to come in this department. They are in a position, however, to give quick shipment for any orders that they may be favored with for their boilers. They guarantee the boiler equal to anything that is manufactured in the country, and shall be pleased to quote prices on application. The gas engine department is very busy with orders for gas engines, a large number of which they are shipping to the North-West for elevator purposes.

The contracts for the installation of a hot water apparatus and also for electric light wiring for the new monastery at Hedleyville, Que., have been awarded to Mr. G. Simard, of Montreal.

The Sherbrooke Lumber Co., Sherbrooke, Que., will apply for incorporation with a capital of \$200,000. Saw and pulp mills will be erected at the most convenient places for the shipment of lumber to the United States and European markets. Mr. H. M. Price, Quebec City, is interested.

It is reported that a large manufacturing concern, attracted by the unrivalled railway and water facilities of St. John's, Que., as well as by the other advantages of the town as a manufacturing centre, are about to acquire 25 acres of land near the junction of the Grand Trunk and

Canadian Pacific railways, and in the neighborhood of the Standard Drain Pipe Co., and transport their industry there.

The ratopayers of St. Hyacinthe, Que., have voted favorably on a by-law granting a bonus of \$15,000 and exemption of taxes for ten years to Messrs J. A. & M. Cote, shoe manufacturers, whose factory was recently destroyed by fire. They will erect a three-story brick building 130x40 feet for the manufacturing of shoes, to employ at least 150 people.

The Ewart Co., Montreal, Que., has been incorporated with a capital of \$90,000 to manufacture patent fuel and artificial ice. The provisional directors include D. W. Lockerby, F. Bayard and G. Maybury, of Montreal.

The International Paper Co., of New York, have purchased 197 square miles of timber land near Three Rivers, Que. This brings the area of timber limits which the company owns in Canada to 1,000,000 acres. The Gros Falls Co., controlled by shareholders of the International Paper Co., owns a saw-mill and water power, as well as spruce lands near Three Rivers. The company are considering building pulp and paper mills at this water power.

The Jondro boot and shoe factory, Rock Island, Que., was recently destroyed by fire. Loss about \$14,000.

The Canada Wood Mfg. Co., Farnham, Que., will erect a saw-mill at the rear of their building, where the raw material will receive its initial change. Adjoining

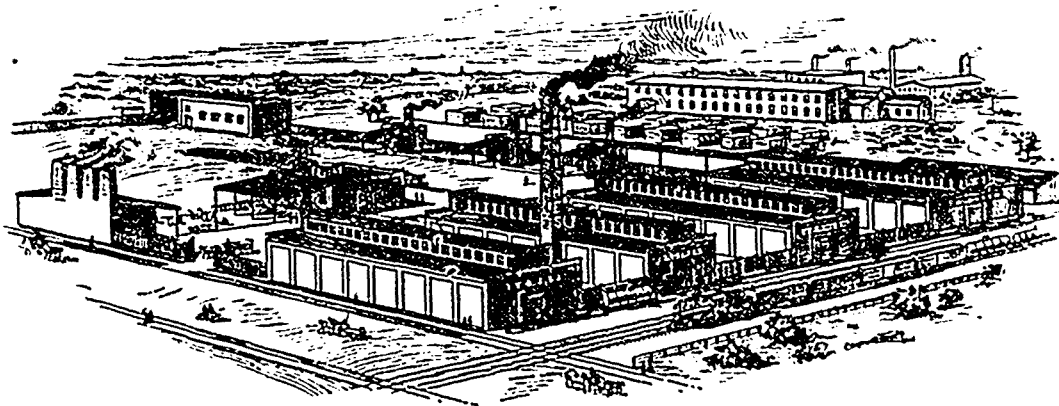
this the lighting plant will be situated, and to the east of these and thirty feet distant will be built a dry kiln with a capacity of 90,000 feet of lumber. In the centre of the building a room 120x80 feet will be set apart for the cabinet department. The shipping department is situated in the front, where tracks connecting it with the saw-mill will be laid. The remaining portions of the ground flat will be taken up with boiler, machinery rooms and offices, while the second and third storeys will be fitted up for sundry uses.

The Canadian Pacific Railway Co. are instituting a water system in their new car shop works at Montreal, Que.

E. L. Horwood, architect, Ottawa, is inviting tenders for the enlargement of the Presbyterian church at Buckingham, Que.

The Electric Purifying Co. of Canada, Montreal, has been incorporated with a capital of \$20,000, to manufacture machines for purifying fluids, and to acquire the business of the Electric Purifying Co. The provisional directors include J. Beaudry, W. R. Roberts, and A. L. J. Desnoyers, of Montreal.

The Cooper-Hopkins Supply Co., Montreal, has been incorporated with a capital of \$100,000, to acquire the business of James Cooper and to manufacture mining and railway supplies. The provisional directors include Jas. Cooper, F. H. Hopkins and J. M. Ward, of Montreal.



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.



The Syr. use Smelting Works, Montreal, has lately received an order for 20 tons of high grade babbitt metal from one of the largest manufacturers in Canada. They are also turning out for exportation very large orders for babbitt, linotype and stereotype metal. - We are informed that this company employ about 60 men, who are kept busy day and night turning out rush orders.

The Easton Steamboat Co., Quebec City, has been incorporated with a capital of \$10,000, to erect ships, vessels, etc. The provisional directors include W. Easton, New York City, L. A. Cannon and G. F. Gibson, of Quebec City.

The Mica Boiler Covering Co., Montreal, reports that their business showed a great improvement in both Canada and England last year. Arrangements have been already completed for manufacturing mica pipe and boiler coverings at Widnes, Lancashire, England, and it is probable that the company will manufacture in France in the very near future.

The Simplex Railway Appliance Co. of Canada, which has a plant at St. Henri de Montreal, finds their business increasing so rapidly that they have decided to secure a site, probably near Montreal, on which they will erect a manufacturing plant for making bolsters, roller side bearings and brake beams, also steel underframings and other parts for freight cars. It is probable the company will also go into car building.

The Water Works Department, of Montreal, is preparing to commence the work of laying a new sixteen-inch main, connected with the low-level reservoir for fire purposes only, at a cost of \$43,000.

It has been stated that James Ross will join the Grand Trunk Pacific syndicate at a very early date, and that Senator Cox, James Ross, and other magnates will form a construction company, and that they will be given the contract to build the Grand Trunk Pacific from Moncton to the Pacific Ocean.

The city clerk, Montreal, will receive tenders for the supply of the following articles: cast iron pipes, special castings, lead pipe, pig lead and tin, brass castings, general stores, lumber, and also for the purchase of iron and lead scrap.

Mr. Chas. Twining, representing a number of English lace manufacturers, was in Montreal a few days ago investigating with a view to establishing a lace-making factory after the models which prevail in Nottingham, Eng.

The City and District Savings Bank, Montreal, will erect a banking building at a cost of \$12,000.

The Department of Public Works, Ottawa, is inviting tenders for the erection of a post-office building at Thetford Mines, Que., also for additions to the post office building at Charlottetown, P.E.I.

As a result of the new bounties granted by the Dominion Government, the Dominion Iron & Steel Co., Montreal,

will desist from the manufacture of pig iron, and will convert their entire material into steel.

The Robb Engineering Co., Amherst, N.S., are building two vertical engines of marine type, and of 600 h. p. for the Nova Scotia Steel Co., to be used at Sydney Mines for electric lighting.

The Wire & Cable Co., Montreal, will erect a \$30,000 building in that city.

The Cumberland Railway & Coal Co. have completed a water system for the use of the company, at Springhill, N.S. The water is taken from the Maccan River. The distance the water has to be pumped before it reaches the necessary elevation to carry it to the collieries is two miles.

The Central Telephone Co., Belleisle Creek, N.B., has been incorporated with a capital of \$10,000, to carry on a telephone operating business. The provisional directors include W. Pugsley, James Domville, of Rothesay, N.B., and E. G. Evans, of Hampton, N.B.

Messrs. Rhodes, Curry & Co., Amherst, N.S., are installing a telephone system in their plant.

The Truro Condensed Milk Co., Truro, N.S., has been incorporated with a capital of \$600,000, to acquire the business of The Truro Condensed Milk Co., and to manufacture condensed milk, etc. The provisional directors include D. H. Muir, M. Dickie, of Truro, and S. H. Holmes, of Halifax, N.S.

Messrs. Murray & Gregory's sawmill, and two million feet of lumber, at St. John, N.B., were destroyed by fire July 4.

Architect Brodie, St. John, N.B., has submitted plans for improvements to the General Hospital of that city, to cost about \$20,000.

A twelve foot coal seam has been discovered at Grand Lake, N.B.

Hon. Mr. Emmerson, who is president of the New Brunswick Petroleum Co., has received a telegram from Mr. M. Lodge, the secretary of the company, which reads as follows: "Struck a big well at Dover. Nothing like it before. Oil flowing very fast." The company have sunk some twenty oil wells at Dover and other parts of New Brunswick, and expects to erect and operate a refinery before long.

It is stated a new iron foundry and machine shop is to be located near Truro, at Bible Hill, N.S. Those interested in the new venture are G. W. Blaikie, Great Village, N.S., P. McG. Archibald, Bible Hill.

A new court house will be erected at Hopewell Cape, N.S.

The Canada Atlantic Steamship Co., are considering the erection of a large hotel at Charlottetown, P.E.I.

The Nova Scotia Wood Pulp & Paper Co., of Mill Village, N.S., are just completing an up-to-date ground wood mill, replacing the one burned last year.

The ratepayers of Woodstock, N.B., have voted favorably on a by-law to

give the Meductic Meat Co., a bonus of \$45,000, to establish a packing house in that town.

Messrs. Andre Cushing & Co., St. John, N.B., have been successful in making wood board from the saw dust and small refuse from their mills.

The output of the Dominion Coal Co.'s collieries at Sydney, N.S., for the month of June totalled 283,300 tons, an increase of 7,000 tons over the same month last year, and 20,000 tons more than for the month of May this year.

The Cape Breton Coal, Iron & Railway Co., are taking active steps towards the development of their coal areas at Cochrane's Lake and Black Brook, Mira. The company is capitalized at \$4,000,000, and has 57 square miles of coal in seams from five to seven feet in thickness. They have made arrangements for the building of a railway and the beginning of operations at the mine, which will be opened at Cochrane's Lake, twelve miles from Sydney, N.S. The coal will be shipped at South Bar, four miles below Sydney. The shipping pier will be connected with the colliery by an electric road, as the company will use electric cars in shipping their coal.

The Cement Building Block Co., Winnipeg, Man., has been incorporated with a capital of \$40,000, to manufacture building materials, machinery, etc. The provisional directors include A. T. R. Blackwood, J. A. Hunter and A. T. Hawley, of Winnipeg.

The Standard Construction Co., Winnipeg, Man., has been incorporated with a capital of \$100,000, to manufacture brick, tile, lime, cement, etc. The provisional directors include J. W. Stewart, J. B. Hugg and G. H. Monkhouse, of Winnipeg.

The North-West Lumber Commission Co., Winnipeg, Man., has been incorporated with a capital of \$20,000, to manufacture lumber, wood pulp, etc. The provisional directors include J. W. Brown, J. C. Kyle and J. Carman, of Winnipeg.

The Manitoba Iron Works, Winnipeg, Man., are erecting a new foundry, machine shop and other departments of a manufacturing establishment which will be put in operation at an early date.

Nine large cattle sheds at the Winnipeg Industrial Exhibition grounds, Winnipeg, Man., were destroyed by fire July 5. Loss about \$10,000.

The Rat Portage Lumber Co. will erect a mill with an annual capacity of 25,000,000 feet at Norwood, across the river from Winnipeg, Man.

Messrs. Campbell & Ferguson, Ltd., Melita, Man., have been incorporated with a capital of \$60,000, to acquire the business of Messrs. Campbell & Ferguson, and to manufacture paints, oils, etc. The provisional directors include J. L. Campbell and A. B. Estlin, of Melita, and C. W. MacLennan of Elva, Man.

Geo. F. Bryan, cigar manufacturer, Winnipeg, Man., will engage in the mak-

ing of brooms and whisks. The building at present occupied is to be enlarged to accommodate the necessary plant which is now being purchased. Tenders are being called for the erection of a new building.

Messrs. Brown & Rutherford, Winnipeg, Man., will erect a two-story sash and door warehouse, and make extensive alterations to their plant.

Messrs. Brodie & Stafford's furniture warehouse at Lethbridge, N.W.T., was destroyed by fire July 1.

J. C. Elliott, Oakville, Man., is inviting tenders for the construction of a brick church at that place.

A Presbyterian church building will be erected at Arcola, N.W.T., at a cost of about \$5,000.

The Brandon Binder Twine Co., Brandon, Man., will increase their capital from \$100,000 to \$200,000.

The brick plant of Jacob Purmal, of Medicine Hat, N.W.T., will be enlarged, and new presses and other machinery installed.

The Dominion Elevator Co's elevator at Napinka, Man., was destroyed by fire, July 9. Loss about \$10,000.

The chairman of the Fire, Water and Light Committee, of Winnipeg, Man., is inviting tenders for the supply of 20 tons of pig lead.

The Ogilvie Flour Mills Co., Montreal, announces that this season they will build

18 new elevators in Manitoba and the North-West Territories. This will bring the total number up to 100.

The James Drake Lumber Co., Winnipeg, Man., has been incorporated with a capital of \$100,000, to carry on a general lumbering business. The provisional directors include Jas. Drake and S. J. Drake, of Winnipeg, and J. Morrison, of West Selkirk, Man.

The Arrow Milling Co., Birtle, Man., will instal new machinery in their mill.

The Hunting-Lee Lumber Co. has been incorporated at Victoria, B.C., with a capital of \$20,000, to operate saw-mills, shingle mills, etc.

The Aztec Mining Co. has been incorporated at Victoria, B.C., with a capital of \$15,000, to carry on a mining, milling, and smelting business.

The White Bear Co., Rossland, B.C., will erect new head works and compressor buildings, with a framing shop to be added later, and concentration works as soon as a satisfactory method of treating the ore is adopted.

Messrs. Stanley, White & Co., Vancouver, B.C., will erect a new building at a cost of about \$12,000.

A syndicate backed by J. J. Hill, president of the Great Northern Railway, after purchasing iron deposits in various parts of the state of Washington, have turned their operations to the Colville reservation. R. W. Hunner, of Republic, representing this syndicate, recently bonded the Combination and Golden

Zone claims in Wolf's camp, half a mile from Curlew Lake, B.C. These properties are owned by George L. Wolf, a pioneer prospector. The deposit of iron, where the lime capping has been crowded, is shown in places to be over 1,200 feet wide. The ore is a typical hematite, running 82 per cent. in iron, and is said to be admirably adapted for manufacturing steel, an industry the Hill company propose to establish.

The Hudson's Bay Co., Vancouver, B.C., will add two stories to their wholesale warehouse.

The city council of Vancouver, B.C., are considering the expenditure of \$130,000, for sewer extension.

The Barclay Sound Pulp Co. has been incorporated at Victoria, B.C., with a capital of \$100,000, to manufacture wood pulp and paper.

Messrs. Blackmore, Son & Guenthen, Vancouver, B.C., have been awarded the contract for the new high school building, to be 232 x 180 feet, containing 35 rooms, at a cost of \$70,000.

The first electric locomotive to enter the "Dark Continent" has just been shipped by the C. W. Hunt Co., of West Brighton, S.I., to the De Beers Consolidated Mines, Ltd., the most powerful mining syndicate in South Africa, for use on one of its plants. The locomotive is of the latest storage battery type, standard throughout, with the exception of the gauge of the wheels, which is special, to suit the track now in use at the mines.

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CEMENT WORKS ENGINEERING.

The Robert F. Wentz Engineering Co., with offices in the Manning Chambers, Toronto, and at Nazareth, Pa., have lately secured a number of important cement engineering contracts in which line of work the company are specialists, and have had a wide experience both in Canada and the United States. They have charge of the work of the Raven Lake Portland Cement Co., which plant is now well under construction and which will be one of the finest of the kind in Canada. The St. Mary's Portland Cement Co., of St. Mary's, Ont., has recently retained the Robert F. Wentz Engineering Co., as engineers for the new plant which they are about to erect. Among the American contracts for engineering and equipment recently received by the company may be mentioned the El Cajon Portland Cement Co., of Alpha, Mich., a 1,500 barrel plant, and the Louisiana Portland Cement Co., of Louisiana, Mo., who will erect a 2,500 barrel plant. The Robt. F. Wentz Engineering Co. are also in charge of the work of the Farwell Portland Cement Co., of Farwell, Mich., and are doing other important work both in Canada and the United States.

THE ROSSENDALE BELTING CO.

The Rossendale Belting Co., patentees and sole makers of the well-known anti-friction edged belting, whose headquarters are in Manchester, Eng., have been rapidly increasing their Canadian business. For some years the company have maintained offices and salesrooms in Montreal, and has recently opened a branch at 59 to 63 Front Street East, Toronto, in charge of Mr. L. J. Rowland. The Toronto office is carrying a full stock of the M. A. Y. Brand, "Rossendale Mayave Belt," Belt Fasteners, and "Rossendale Special Belt Dressing." The "M. A. Y. Belts" are in wide use all over Canada, and are giving the best satisfaction.

\$50 TO CALIFORNIA AND RETURN.

Via the Chicago and North-Western Railway. First-class round trip tickets on sale from Chicago, August 1 to 14, to San Francisco and Los Angeles, also to Portland, Tacoma and Seattle. Correspondingly low rates from other points. Favorable stop-over privileges. Return limit October 15, 1903. Three trains daily from Chicago to California, through without change, with first-class Pullmans' and tourist sleeping cars. For special folder and all information, write B. H. Bennett, General Agent, 2 East King St., Toronto, Ont.

BELLEVILLE PORTLAND CEMENT COMPANY.

A novel application of induction motors is to be made by the Belleville Portland Cement Co. in their cement plant at Belleville, Ont., which is to be equipped throughout with Westinghouse electrical apparatus.

A recent order placed with the Westinghouse Electric & Manufacturing Co. comprises two 450-kilowatt, engine-type alternators, one 100 kilowatt, D.C., engine-

type generator and a motor generator set consisting of a 100 kilowatt, D.C., generator and a 150 h.p., three-phase, type C induction motor. These two D.C. machines are to be used for exciting the fields of the A.C. generators, for supplying lighting circuits and for the operation of a tramway locomotive.

Sixty-two induction motors will supply the motive power. These include 46 type C constant speed motors, ranging in capacity from 10 to 50 h.p.; ten type F, variable speed induction motors, each to be direct geared to a rotary kiln and provided with a controller permitting the operation of the motor at any one of four speeds; two type F motors, each to be direct connected to a hoist and provided with standard non-reversing hoist controller; also four 400 volt, type C variable-speed induction motors for the operation of two overhead travelling cranes, these being provided with reversible crane controllers.

Included in the equipment is a Baldwin-Westinghouse mining locomotive for operation on a 24-inch gauge track with double trolley.

The ten-panel switchboard consists of two generator panels, three A.C. feeder panels, a double exciter panel, a D.C. feeder panel for the control of the tramway circuit and another to control the circuits of the generator fields, and two D.C. feeder panels for the lighting circuits.

Altogether this will be a novel and interesting plant, as the operation of rotary kilns by direct connection to variable speed induction motors is a new departure from the usual method of supplying power to this class of machines.

THE JENCKES MACHINE CO'S
NEW ENTERPRISE.

The Jenckes Machine Co., Sherbrooke, Que., write THE CANADIAN MANUFACTURER regarding their new enterprise at Niagara Falls, Ont., as follows:

This contract is with the Ontario Power Co., and comprises the supplying, erecting and painting of a steel flume, 5,880 feet in length, 18 feet in diameter, built of half-inch steel plate, strengthened at short intervals by an outside band formed of heavy bulb tee steel.

This flume is to furnish water for the turbines of the Ontario Power Co., and work on it will be commenced within a few weeks. It being manifestly impracticable to roll and punch such sheets here in our shops, and ship them knock down, on account of the heavy freight charges—the sheets being rolled to a nine-foot radius, but few would be able to be shipped on a car—it becomes necessary to set up temporary shops at the site.

Some sixty men or more will probably be employed at the site, and a temporary establishment will be set up there, including a power house, a small machine shop, a shop for containing the boiler shop machinery, an office, and boarding house for the men. It has not yet been definitely decided how these buildings will be arranged, but it seems probable that all the shops will be under one roof.

A track will be laid, connecting with the railway, along the site of the flume

or penstock, and every means will be taken to insure the rapid and economical accomplishment of the work. As it is, the work will probably occupy an appreciable portion of the year 1904 to finish, in addition to several months in this year.

To give an idea of the immense amount of material required, over two hundred tons of rivets alone have been ordered for this contract.

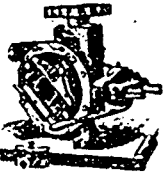
A NEW STEEL AND IRON CO.

The works of the Clearfield Steel & Iron Co. have been formally turned over to the officers of the company by Hyde Bros. & Co., of Pittsburg, Pa., who designed, built and put them in operation. The plant is of modern design and well equipped for the production of high grade muck bar, chain iron, bolt and rivet iron, skelp and light iron and steel rails for lumber and mining purposes. The buildings, which are of steel, cover a floor space of over 73,000 square feet, the main building being 34 feet high and equipped with a 15-ton electric travelling crane for changing rolls, etc. Practically all the steam power required is derived from the waste heat of puddling and heating furnaces, there being nine waste heat boilers aggregating 1,200 h.p. attached to different furnaces. The company has its own coal mines, of low sulphur coal, within half-a-mile of the plant, and is well situated on the banks of the Susquehanna river for an ample supply of pure water.


The works are situated on the line of the B. R. and P. Ry., about two miles from Clearfield, Pa., and have switching arrangements to the Pennsylvania Railroad and the New York Central. The capacity of the plant, when running full, will be about 50,000 tons a year of iron and steel. The Pittsburg offices of the company are in the German National Bank Building, Wood St. and Sixth Ave.

MANITOBA CEMENT CO.

The large Portland cement plant to be installed in Manitoba by the Manitoba Cement Co. is to be located at Morden. The directors of the company met in Toronto last Saturday, with Superintendent C. F. Lake, of the Osborn Engineering Co., Cleveland, Ohio., and Milton DeLano, Jr., of the DeLano-Osborn Engineering Co., Toronto, present. Engineer Lake, who has just returned from Manitoba, where he examined the different deposits and locations, recommended that the location offered by Morden was the best, considering its railway facilities, close proximity to the deposits, the free site and tax exemption, and substantial subscription and right of way for railway. The proposition from Morden was accepted by the directors, and building operations will be commenced immediately. The directors of the company are Justus Chancellor, Chicago; Wm. Whyte, Winnipeg, Man.; T. S. Hobbs, London, Ont.; G. M. Bosworth, Montreal; Sir D. H. McMillan, Winnipeg, Man.; B. J. McConnell, Morden, Man.; J. A. Hunter, Winnipeg, Man.; T. C. Irving, Toronto.



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ONTARIO WIND ENGINE AND PUMP CO.

Just now when the Imperial politics tend towards amalgamating the British Empire into one solid, compact, commercial bond, it is interesting to know that Canada is considerably benefitted by being under the folds of the British flag.

The Ontario Wind Engine & Pump Co., Toronto, advise us that in their foreign mail, which has just come to hand, they have received an order from Australia for three Canadian air motors, in three sizes; and they anticipate that their trade with this far away continent will rapidly increase. They also received from the Imperial Government an order for two 16-foot air motors and four large pumps.

The product of this firm must be of standard quality to enable them to merit the Imperial favor for windmills destined for the Levant.

DOMINION LINEN MILL CO.

There is a hopeful outlook for an early establishment of the linen industry in Canada. At present representatives of English manufacturers are looking over the provincial field, and a Canadian company has been formed to engage in the industry. At present every yard of linen sold in Canada is imported, although Western Ontario is a good flax-growing country. In the counties of Perth and Waterloo a great deal of flax is grown by the farmers, but chiefly for the seed. Some of the straw goes in to coarse products like twine, but finer industries are unknown. The Canadian company which is to operate is known as the Dominion Linen Mills, Limited, and has already a bonus, and a mill site at Bracebridge. The president of the company is Dr. Beattie Nesbitt, M.P.P., Toronto, and others interested are Christian Kloepfer, Guelph; J. A. Kammerer, Hamilton, Ont.; J. D. Shier, Bracebridge, Ont.; J. H. Van Dusen, Reuben Millichamp and Ewan Mackenzie, Toronto. The late R. Shaw-Wood, London, Ont., was also interested. At first it will be necessary to import the linen yarns from Ireland, but these come in duty free, and it is claimed that the cheap water power at Bracebridge is a compensating advantage. In time, the promoters hope to be able to utilize Canadian-grown flax.

THE GRAND RIVER PULP & LUMBER CO.

Mr. Alfred Dickie, president, and Mr. John A. Gillis, manager and treasurer, both of Halifax, N.S., constitute the Grand River Pulp & Lumber Co., who control some 400 square miles of exceedingly valuable timber lands on the Grand River, in Labrador. Mr. Gillis, writing to THE CANADIAN MANUFACTURER, says:

This river is wide and is navigable for tugs and small schooners. Ten miles from the mouth of the river is Muskrat Falls, a nice water power of 25-foot fall. Our timber extends one-and-a-half miles back from the river bank, or rather the timber begins at the river bank and runs back

one-and-a-half miles on each side of the river. There is an enormous growth of pulp wood and saw logs, and the cost of getting same to river is practically the cost of cutting and will be for years to come. The spruce trees in the land are something remarkable, the timber running from 60 to 80 feet long, 10 to 12 inches in diameter at top end. As a pulp problem I am candid in saying that pulp wood enough exists there to run the largest mill for all time. We are starting for this country on July 13 with a sawmill outfit for the erection of a mill 153 feet long, 50 feet wide, with brick power house 60 by 40 feet. This mill will contain live gang, stock gang, and one of Killam's double circular sawmills. The power house will contain an engine 300 h.p., with a battery of three return tubular boilers, which will be fired entirely by sawdust carried to the furnaces by automatic chains, thereby burning all the sawdust and refuse. The mill will be built at the entrance to Goose Bay, so that a ship of 2,000 tons can load at the mill. We propose cutting about 10,000 feet per season, which will be shipped to English, French and South American ports. In addition to our cut of long lumber we purpose sawing lathes, shooks, palings, staves and shingles.

PORT SIMPSON, B.C.

Port Simpson, in British Columbia, is just now attracting very much interest as the proposed terminus of two transcontinental roads, and the wonder is that more has not been said before of its great natural facilities as a harbor and a shipping point.

Mr. Hill and Mr. C. E. Perry, the engineer in charge of surveys for the Trans-Canada Railway from Quebec to Port Simpson, have just made a survey of the harbor and approaches, and they are most enthusiastic about it, stating that it is the most beautiful city site, undoubtedly the best on the Pacific coast, not even excepting the far-famed harbor of San Francisco.

Besides completing plans of the terminals and proposed docks, the locations have been made for 100 miles westward.

The main harbor is approached from the open sea, Dixon entrance through the Inskip Passage one-half mile in width; soundings from 13 to 29 fathoms. The Birnie Island and harbor reef protect the harbor from northerly and westerly winds. The harbor has a length of 3½ miles, with an average width of 1½ miles; soundings from 13 to 29 fathoms, with good mud and gravel anchorage ground. Three-thirds of a mile south of Inskip Passage is Cunningham Passage, 1,300 feet wide; soundings from 13 to 30 fathoms. This inner harbor has a length of 3½ miles, with an average width of 1,300 feet. It is entirely protected from all winds.

The present population of Port Simpson is about 250, of which 100 are white. There are Episcopal, Roman Catholic, and Methodist churches. The Indians are expert fishermen, and earn large wages during the months of June, July, August and September. The climate in

winter is never very cold, and the summer is very fine. All cereals, flowers, and fruit thrive well. Port Simpson boasts of a telegraph station, Government agent's office, Hudson Bay Co's store, and a post office.

ELECTRICITY IN THE HOUSEHOLD.

For ordinary work in the home, it is usually necessary to keep a hot fire and employ three or more flat irons in order that one of them may always be hot and ready for use. But if you use an electric flat iron it is always hot, always ready, clean and bright. No matter where you want to use it, whether in kitchen, sewing room or laundry, it is but a small matter to connect it to the electric light circuit. It is quickly heated and remains heated as long as the current is on. Especially in the sewing room, where a hot iron is often needed, will this be appreciated from the fact that it requires no fire and no running to and from the kitchen.

Electric flat irons do not differ materially from ordinary flat irons, except that they are always hot without being in contact with a flame or a red hot stove. In torrid summer weather this fact will be appreciated by the average housewife.

These irons are made in a variety of shapes and sizes for a variety of uses. Some are provided with automatic switches shutting off the current when the iron is not in use.

Electric irons are largely used in laundries, hotels, restaurants and public institutions; by tailors, dressmakers, milliners and cleaners, and wherever used, more and better work is accomplished in less time than by the old method where the heat in the iron is not constant. No useless rubbing as is often the case by the old method.

Recent developments in the uses of electricity are revolutionizing modern living. No home is now complete without electric light and a few of the most useful electrical appliances to be used in connection with same—such as the electric flat iron.

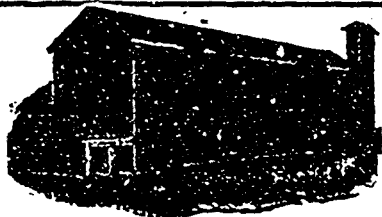
For prices and any further information in regard to electric heating appliances, electrical supplies or electric light, address the Canadian General Electric Co., Toronto.

INDUSTRIAL PUBLICATIONS.

The Oil Well Supply Co., Petrolia, Ont., has issued a new catalogue of tools, machinery and supplies for boring, equipping and operating oil, salt, gas and water wells and for mineral prospecting. The catalogue is well bound, contains more than 150 pages and describes, illustrates and gives the price and specifications of about everything pertaining to these lines of work.

The Eighteenth Edition of Trautwine's Civil Engineer's Pocket Book recently issued is invaluable to all engaged in the engineering professions. This work embraces more than 370 pages of new matter and altogether makes up a book

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of 1,100 pages every one of which contains information of daily use to the engineer. 16mo, 1,100 pages, illustrated, morocco, \$5, postpaid by the publishers, John Wiley & Sons, New York.

"Modern Machine Shop Tools," by W. H. Vandervoort, M.E., just issued by Norman W. Henley & Co., publishers, 132 Nassau St., New York, is a work which no machinist can afford to be without. It is a book in which the apprentice will find a thorough course of instruction, the mechanic, a valuable manual of practice, and the superintendent and foreman many valuable suggestions. The work is logically arranged; the various hand and machine tools being grouped into classes, and description of each is given in proportion to their relative importance. The illustrations represent the very latest tools and methods, all of which are clearly described. Large 8vo.; 555 pages; 673 illustrations; price \$4.

The Geo. L. Squiers Co., Buffalo, N.Y., now owned by the Buffalo Forge Co., have a very attractive illustrated and descriptive catalogue in Spanish, devoted to the line of coffee machinery manufactured by them, and now in wide use throughout the coffee raising countries of the world. The catalogue contains more than 60 pages and half a hundred illustrations.

The Ball Check Light Co., New York City, whose Canadian offices in charge of Mr. W. W. Mitchell are located at 29 Toronto Arcade, Toronto, has issued an illustrated booklet describing their appliance for economy in lighting by gas.

The latest stock list of Wickes Bros., Saginaw, Mich., contains full description and price list of boilers, engines and machinery carried in stock by them.

Catalogue No. 19 of the Jeffrey Mfg. Co., Columbus, Ohio, refers to the coal cutters and coal drills operated by electricity and compressed air, electric locomotives for mine and surface haulage, and complete electric power plants for mining properties which form an important department of the business of the company. The catalogue contains more than 125 pages and several hundred illustrations.

Luther L. Miller, 1237 Monadnock Building, Chicago, has issued a little booklet giving the law of trade marks of every country in the world which manufacturers will find of much value. Price 25 cents.

Five excellent classes of steel and iron construction are illustrated in "Colors and Specifications" just issued by the Joseph Dixon Crucible Co. The specifications suggest best methods for construction and maintenance painting of steel and iron, based on our experience of forty years as manufacturers of a protective paint and with an intimate knowledge of the paint requirements of civil engineers, architects, painters and owners of steel and iron structures. Accompanying the specifications are the four shades in which they manufacture Dixon's Silica-Graphite Paint.

"Noiseless Gearing" is the suggestive title of a little booklet just issued by the

New Process Raw Hide Co., Syracuse, N.Y., giving a vast amount of condensed information about new process noiseless gearing, and its use in transmitting power in the most economical manner.

The Westinghouse Electric & Mfg. Co., East Pittsburg, Pa., has issued in booklet form the address of Robt. L. Warner on "Electrically Driven Shops" delivered at the last annual convention of the N. E. Railroad Club.

The 1903 catalogue of the W. E. Caldwell Co., Louisville, Ky., describes and illustrates the well known line of tanks, steel towers, etc., which the company manufactures.

"Buffalo Gas Blowers and Exhausters" is the title of the latest booklet of the Buffalo Forge Co.

WHAT ROTHSCHILD SAID ABOUT PETERBOROUGH.

A few years ago when travelling through Canada, "spying out the land," a representative of the Rothschild Banking House, of London, England, stated that Peterborough was destined to be one of the greatest manufacturing centres of the continent.

This statement, no doubt, was made on account of Peterborough's water-powers, shipping facilities and natural resources as regarded grain and minerals in the country contiguous thereto, it being in the heart of the population of Canada, and in the centre of the rich Province of Ontario.

The remarkable industrial growth of Peterborough during the last two years has shown the coming fulfilment of the Rothschild prediction. In fact many new factories have been located in Peterborough recently, three of which are immense works, perhaps the largest of their kind in Canada, and a fourth immense factory is now being constructed.

It would surprise many Canadians to know the vast amount of wealth that American manufacturers have put in bricks and mortar and factory plant in Peterborough of late, in fact there seems to be an exodus of American manufacturers to Peterborough.

Peterborough's population, with its suburb Ashburnham, is now about 15,000, and is rapidly growing, and so quickly that there is at the present time a house-famine, which condition offers a splendid chance for house-building contractors with capital.

The shipping facilities of Peterborough are unique, being on the main line of the Canadian Pacific Railway, the Grand Trunk Railway, and the Trent Canal, now rapidly approaching completion, and which will connect Georgian Bay and the Upper Lakes with Lake Ontario by short route navigation to the seaboard. It will be a steam tug canal which will accommodate barges three times the capacity of those of the Erie Canal.

It did not necessarily take a Rothschild to appreciate Peterborough's future opportunities.

Mr. J. Alexr. Culverwell, who is chairman of the Finance Committee of the Toronto Engineers' Club, a young

Canadian, and one of the pioneers of the electrical business of Canada through having promoted the business interests of the Edison Electric Co. of New York from its inception in Western Ontario in 1891, and later helping to build up that business in the Province of Quebec before the General Electric Co. consolidated the Edison and Thompson-Houston interests in Canada, was so fully convinced of the future industrial prosperity of Peterborough that a couple of years ago he, along with his associates, purchased water-power properties some eighteen miles north of Peterborough, while other valuable water-powers were lying idle on the main street and in the outskirts of Peterborough itself, at the time. Notwithstanding the skepticism of the public and the determined opposition which he encountered, he was foresighted enough to spend thousands of dollars and much energy in drawing the attention of the public to the utility of Peterborough's water-powers, which idly washed the rocks of the river, and unused water-wheels within a stone's throw of the Post Office building, thus benefiting his competitors' as well as his own future interests. Now these local water-powers are all utilized, and great factories are in operation and an immense market opened at last to his and his associates' water-power interests.

From the fact that nature has been so gracious in the natural development of these water-powers, The Central Ontario Power Co., which has been projected by Mr. Culverwell, and of which he is managing director, is offering electric power at Peterborough to manufacturers at remarkably low cost.

The movement, for annexing to Peterborough the Town of Ashburnham and incorporating both as a city with a population of 15,000, was recently brought to a head by Mr. Culverwell's vigorous correspondence in the local press, and has resulted in the Councils of both towns unanimously adopting a resolution favoring that union. Peterborough has now assumed the sobriquet of "The Waterpower City."

PERSONAL.

Mr. R. W. Hussey, vice-president and general manager, and his brother, Mr. F. S. Hussey, assistant manager of the Hussey Mower & Implement Co., manufacturers of the Hussey "No-Pitman" mowing machine, Knightstown, Indiana, were in Toronto last week with a view to manufacturing their specialties in Canada. It is probable that they will either arrange with some existing Canadian concern to make their goods, or establish a factory of their own and employ a large number of hands.

Matthew Neilson, manager of the St. John Street Railway Co., St. John, N.B., has been appointed manager of the Mexico Heat, Light & Tower Co., of which Senator Cox, Sir William Van Horne, and other Canadian capitalists are the promoters.

Le Canada, a paper published in Paris, France in the interest of Canada, says: There has been a rumor in circulation

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for some time in political circles that Mr. Thomas C. Irving, the general manager in Canada for Bradstreets', will soon be created a Senator for the Province of Ontario.

Mr. James Bannon, engineer in charge of the mechanical department of the Toronto City Hall, designed the system by which the electrical lighting of the City Hall clock was effected, and which was put in operation a few days ago.

The eighteenth annual outing of the employes of the Jeffrey Mfg. Co., Columbus, Ohio, was held on June 27. It is interesting to note in connection with this, the growth of that business, for the program is introduced thus. It is with some regret, knowing the preference of many for an excursion to some distant place, that we announce that we have been unable this year, on account of our numbers, to obtain accommodations from the railroads centering in Columbus. We have grown to such proportions that it will require from 65 to 75 coaches to carry us, and the managers of the roads claim they can not furnish them. So it was held in Olentangy Park, Columbus.

The well known Glacier Metal Co., of London and New York, which has for some time been doing considerable Canadian business in babbitt metal have opened an office at 320 St. James street, Montreal.

The American Silver & Brass Co., 117 Bay street, Toronto, have succeeded the Canadian Metal & Milling Co., and will manufacture railway, steamship and plumbers' supplies. R. R. Ditzel is manager of the company.

Mr. J. Alexr. Culverwell, the managing director of the Central Ontario Power Co., of Peterborough, Ont., is a vice-president of the Upper Canada Old Boys' Association, which is the governing body of that great educational establishment, and he is also chairman of the finance committee of the Engineers' Club of Toronto.

Mr. Geo. H. Gibson has resigned as manager of the Advertising and Publication Department of the B. F. Sturtevant Co., of Boston, Mass., to accept an appointment with the International Steam Pump Co., having offices at 114-118 Liberty St., New York City. Mr. Gibson was formerly connected with the Westinghouse Co's Publishing Department, of Pittsburg, Pa., and was for two years a member of the editorial staff of the Engineering News of New York City.

Mr. James Cooper, one of the best known and most popular business men in Montreal, died in that city July 11, aged 68 years. Mr. Cooper was a man of genial disposition and generous feelings. He was a governor of the Montreal General Hospital, and was connected with a large number of civic institutions. He took a deep interest in public matters and philanthropic work. He was first with the firm of Rice, Lewis & Co., Toronto, and later with Frothingham & Workman, of Montreal. He started in business for himself in 1872, and later in the same year, associated Mr. Fred Fairman with him, under the firm name of Cooper, Fairman & Co. The business

at this stage was chiefly heavy hardware. The firm became one of the pioneers in the manufacture of barbed wire, which business was gradually developed, until it assumed such proportions that it was formed into a distinct corporation under the name of the Dominion Wire Mfg. Co., of which company he was president. Being at this time interested in wire, the firm took up a patented machine for the manufacture of wire rope, and working this out on the same line, formed what is now the Dominion Wire Rope Co., of which he was also president. The firm took up the manufacture of mining machinery, and also held the controlling interest in what is the present Dominion Bridge Co. up to the time of the dissolution of the firm of Cooper, Fairman & Co., in 1889, since which time Mr. Cooper has remained a director of the company. In addition to his many company interests, he did a very large general contractors' and railway supply business, representing such English firms as Chas. Cammell & Co., Sheffield; John Henry Andrew & Co., Sheffield; as well as large American manufacturing concerns.

OPPORTUNITES.

The following enquiries have been received at the offices of the High Commissioner for Canada in London, and at the Canadian Section of the Imperial Institute, London, England.

NOTE.—Those who may wish to correspond with any of these enquirers can obtain the names and addresses by applying to the CANADIAN MANUFACTURER, Toronto. No charge for giving information. When writing refer to the numerals opposite the enquiries, and enclose 2c. postage stamp for reply.

1050 A London, England, house has asked to be referred to Canadian firms who might be open to take up the agency for electric lamps and electric light accessories.

1051. The manufacturer of a new patent electricity meter is desirous of bringing it to the notice of those in Canada who are interested in such goods.

1052. A Zurich, Switzerland, firm asks to be placed in touch with Canadian cheese exporters.

1053. Enquiry has been made for the addresses of Canadian makers of brick-making machinery.

1054. A north of England house possessing a large connection in box shooks and excelsior asks to be placed in touch with Canadian manufacturers of same who can fill orders.

1055. A manufacturing firm wishes to hear from Canadian manufacturers of extension dining tables.

1056. A company dealing in teas and coffees asks to be placed in correspondence with Canadian wholesale importers.

1057. A Bristol, England, firm desires addresses of Canadian shippers of seeds, peas, etc.

1058. A firm in Rennes, France, reports a considerable demand for apples, suitable for the production of cider, and

asks to be placed in correspondence with Canadian shippers of apples.

1059. A correspondent wishing to acquire a first-class manganese deposit would like to hear from Canadian owners of properties.

1060. A Liverpool firm invites quotations from Canadian shippers for box shooks, for direct shipment to South Africa, in lots of from ten to twenty thousand boxes each shipment.

THE CANADIAN MANUFACTURER is in receipt of an enquiry for names and addresses of manufacturers of foundrymen's clogs or boots with wooden soles. Makers of such articles please send address.

A BESTOS.—The location of an asbestos mine would have a great deal to do with its value, and as different conditions exist in the various countries where asbestos is found, it would be practically impossible to make any hard and fast rule as to size of vein. The value of the product depends largely upon the length and strength of the fibre, and in order to make it of use commercially, it should be capable of being spun, woven, or felted. For this reason it would be next to impossible to form an idea of the value of any particular asbestos property, without first having a careful examination of the product made by an expert, or one qualified to judge of its adaptability to commercial uses. Though asbestos has been found in all quarters of the globe, the varieties which attract the most serious consideration at the present time are the Russian, Italian, Canadian, and South African. Large deposits have been found in East Russia, but this yield is used almost entirely in Europe, being mixed with the Canadian for the manufacture of paper and other purposes where it is possible to use an inferior grade. The weak point of the South African variety, or blue asbestos, found in the Orange River mountains, about seven hundred miles from the Cape of Good Hope, is its lack of fireproof qualities. It contains but little lime or magnesia, and consequently weakens and crumbles when exposed to fire. The Italian product is found near the Susa valley, from six thousand to ten thousand feet above the sea level, and in the same locality is found a fine white asbestos powder, which serves for paint and other purposes. The chief faults to be found with the Italian variety are that it is comparatively poor in alumina, holds considerable water and cannot easily be spun into thread for commercial uses. For these reasons the Italian industry is on the down grade.

The Canadian product is found in practically unlimited quantities and possesses many qualities not possessed by the other varieties, and the demand is said to be steadily increasing, new uses being found for it constantly. The fibre is suitable for spinning, and is of a quality which fully meets the requirements of the many uses now being found for it. It is used for steam pipe packing, asbestos paint, electric insulating, roofing, building paper, sheathing, etc.

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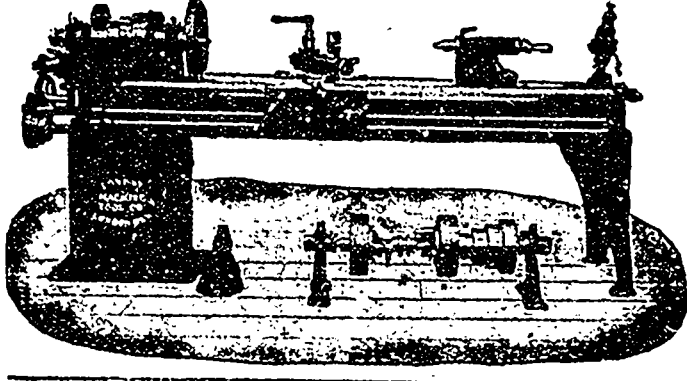
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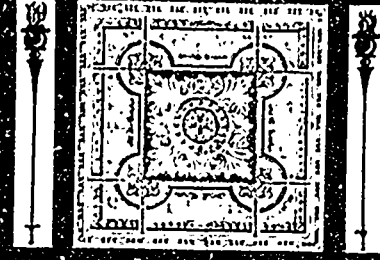
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CANADIAN MINERAL RESOURCES.—Mr. Vaughan M. Roberts, C.E., has just returned to Quebec City after a long exploration trip in Northern Ontario and Quebec. The Peace River country, most of the territory in Northern Ontario drained by the Moose River and its tributaries, the east coast of Hudson's Bay, and the Ungava country have all been visited by Mr. Roberts. Interviewed in regard to Northern Ontario, Mr. Roberts was very enthusiastic over the enormous water powers of that territory, and the vast supply of pulp-wood for the manufacture of which the powers in question might be utilized.

The Abitibi River, for instance, which at a distance of 100 miles from its junction with the Moose averages 400 feet in width, contains numbers of magnificent water powers, awaiting development, varying from 15,000 to 150,000 h.p. each. The banks of the river are lined with the best of pulp-wood of all descriptions, which is practically valueless, however, until it is made available by the construction of a railway into the territory.

The other tributaries of the Moose River possess powers equally good, if not better, than those of the Abitibi. There is one alone on the Missanabie, not far from the proposed crossing of the river by the railway, which is capable of developing at least a quarter of a million h.p. Above this fall there are three others within a distance of four miles, having altogether a fall of about 300 feet, capable of furnishing fully half a million h.p. Apart from its great wealth of timber and pulpwood, there is much excellent agricultural land in this north country, and indications of very great mineral wealth. The signs of bituminous coal are very much in evidence in a strip of country of very good width, which crosses the Abitibi and other tributaries of the Moose, and these deposits have given the name of Coal River to one of the tributaries of the Missanabie. Kaolin, which is much sought for in the manufacture of china, is also to be found on the banks of the Abitibi, while an enormous bed of gypsum extends for at least a mile along the Missanabie.

The Abitibi flows for 200 miles through a magnificent agricultural country, having a large clay belt. Mr. Roberts believes this territory to be as good as any in the country. Immense quantities of peat are to be had in it, the bed in some places being twelve feet deep. Mr. Roberts mentions the interesting fact that the whole of this country is supplied with provisions via England and Hudson's Bay. The flour and pork respectively which are consumed there are shipped from Winnipeg and Chicago to England, and thence to Hudson's bay. Potatoes have ripened 200 miles farther north than Fort George, on the east coast of Hudson's Bay, and Mr. Roberts has eaten beautiful green peas, lettuce, radishes and currants at Moose Factory.

THE CANADIAN LOCOMOTIVE CO.—A brief history of the Canadian Locomotive Co's works, at Kingston, Ont., is given in the News of that city as follows:—

The history of the Locomotive Works

is that of an industry which, running on and off for fifty years, has always been of a decided benefit to Kingston. The works were established in 1850 and were then known as "The Ontario Foundry," the firm being called "Tutton & Duncan." Stationary engines and various kinds of machines were made and repaired for several years.

In 1854 the business was sold to Messrs. Hinds & Morton and the new firm started to make locomotives for the Grand Trunk and Northern Railways.

In 1865 a new company known as the "Canadian Engine & Machinery Co." was organized with a stock of \$250,000, and having for its directors some very prominent men of that day, including W. G. Hinds, then of Kingston. For thirteen years this company was in business but did not make much money and another start under new management was made in 1878. The company starting business in 1878 was known as "The Canadian Locomotive & Engine Co.," and although in the business for three years, did not find it profitable, and after trying to sell the works, was about to go into the hands of the liquidators, when a number of Kingston gentlemen decided to purchase the works. Among these were the late Sir Geo. A. Kirkpatrick, the late John Carruthers, Sir Richard Cartwright, Hon. Wm. Harty, M.P., the late James Richardson, Mr. John McKelvey and others. The new company was organized in 1881 with the late Sir G. A. Kirkpatrick as president and Mr. Harty as managing director, the head office being transferred from Montreal to Kingston.

The Canadian Pacific Railway and the Intercolonial Railways needed engines about this time and the tariff on American locomotives was raised from 17½ to 35 per cent. These caused an increase of business and for two or three years the stock holders received very fair dividends. In 1886 the Messrs. Dubbs & Co., of Glasgow, Scotland, contemplated starting competing works in Canada, so negotiations were entered into whereby they obtained an interest in the Canadian company, Mr. Harty resigning as managing director, and Mr. Leigh, representing the new Scotch firm as superintendent. For the next four or five years the work did not prosper. From five hundred the number of men employed dropped to two hundred, and the Scotch firm were about to place the company in insolvency when in 1900 Messrs. Harty, Haney & Birmingham purchased the property and started in business as the "Canadian Locomotive & Engine Co., Limited."

The history of the industry since then is well known. Generally speaking there has been lots of work on hand, but frequent labor troubles to prevent progress at times. There seems to be a disposition on the part of Canadian railways to give the works plenty of orders and now around 500 men have steady employment.

The industry is Kingston's most important one, and it is to be hoped the time is not far distant when the possibility of doubling the present output will become an actual fact.

LABRADOR.—Progressive and far-seeing capitalists are now coming to regard Labrador as an Eastern Klondike. Scientific investigation has determined that the territory is rich in timber, minerals and farm lands, and its extensive exploitation is assured in the near future.

As an indication of its potentialities, it is only necessary to state that three lumber mills are operating in the Hamilton Inlet region; that two large sulphide and iron deposits are to be worked at Rowsell's Harbor; that an extensive copper bed is to be developed near Nain at the same time; that a gold bearing reef of much promise has been discovered near Cape Chudleigh, and that A. P. Low, formerly of the Canadian Geological Survey, has been engaged by a Philadelphia syndicate to prospect the northland at an annual salary of \$10,000, besides being allowed to furnish the Canadian Government with geological and other data.

The position of Labrador on the eastern side of the continent is almost identical with that of Alaska on the western, and research has disclosed that the rock formations are virtually the same.

Labrador has an area of 516,000 square miles. It forms an immense peninsula, extending 700 miles between Bellisle and Hudson Straits, and stretching back 600 miles from its Atlantic seaboard to the head waters of James Bay. Its total extent is about twelve times that of New York State, and except on the seaboard, it is absolutely unpeopled, save for a few wretched tribes of wandering Indians, woefully reduced.

Administratively it is divided between Newfoundland and Canada, the former occupying the seaboard and the latter holding sway over the interior. Along the shore all the codfishing is done, which is the industry the Newfoundlanders pursue. They visit the coast every summer, to the number of 20,000, and, establishing themselves in convenient harbors, carry on their trawling from July to November. There are also 3,500 permanent white residents on the coast, known as "livyeres" (livehere), to distinguish them from the "summerers" (Newfoundland fisher folk.) Outside the belt of islands lie a series of submarine banks, frequented by halibut, which are the quest of many venturesome American fishing craft and all the rivers and inlets are the home of the salmon, which are taken in nets to the extent of 400,000 pounds annually.

The coast line and hinterland which form Newfoundland's appenage are not very definitely limited, but are estimated to be about 196,000 square miles in extent. The remainder belongs to Canada, and there is a boundary dispute between them. The whole country is thickly wooded as far north as the 57th parallel, and dotted with lakes and streams, fully one-fourth of its surface being covered with water.

Some of the rivers of Labrador are of great size. The Hamilton is over 600 miles long, and is navigable by boats for half that distance, until stopped by the famous Grand Falls, a natural wonder

exceeding Niagara. The river in its inland reaches drains six lakes varying in size from 250 to 550 square miles in extent, and all this immense volume of water surges seaward through a gorge 310 feet wide and inclosed between walls of rock 1,200 feet high. The river drops 700 feet in three miles, and the torrent that pours over the falls is stupendous in its size and force, 50,000 gallons of water descending every second. The roar of the rushing river can be heard twenty miles away, and the few travellers who have penetrated to it declare that the world holds no other such spectacle.

The soil of the interior of Labrador is suitable for wheat growing, as it is part of the rich arable belt which embraces Ontario, Manitoba and the Canadian North-West. There is an idea abroad that a railroad will be built through the peninsula to a deep water terminus in Hamilton Inlet, from where ocean freighters should carry grain to Europe for six months of the year. It is, indeed, said that James J. Hill paid his visit to the Labrador coast last summer with this object in view, and that the Glazier expedition was dispatched to report upon the feasibility of the same scheme.

But in the meantime Labrador's future depends mainly upon her minerals and timber, the former to the chief extent. The metaliferous areas are in the remote northern parts of the territory. The whole region north is a paradise for geologists and mineralogists, and the past summer three parties from the American universities spent a time there,

exploring the fiords along the coast and obtaining much data of commercial as well as scientific value.

The subject of iron deposits at Rowsell's Harbor will be worked by the Dominion Steel Co., and the Nova Scotia Steel Co., the two concerns which are operating smelting works and the steel furnaces at Sydney, N.S.

The iron ore deposits of Labrador suffer from the same disadvantage as those of Sweden, because the Labrador coast is ice-bound for half the year; but this drawback is neutralized in a large measure by the fact that the ore is on the seacoast and involves no long railway haul, while the cheap labor and the proximity of the region to Britain, only 1,800 miles, as compared with the longer distances to American ports, insures that the output can be laid down with British ironmasters at a figure that will defy competition.

The newly discovered copper deposit is in a similar position. The only copper mine now working in Newfoundland, that at Tilt Cove, yields a profit of \$300,000 a year. It is ice-bound for four or five months of every season, but that does not detract from its value. Its output is shipped to Swansea, Wales, where it is refined, and the gold extracted from the ore is one of the principal sources of profit. The same policy can be adopted with respect to the Labrador deposits.

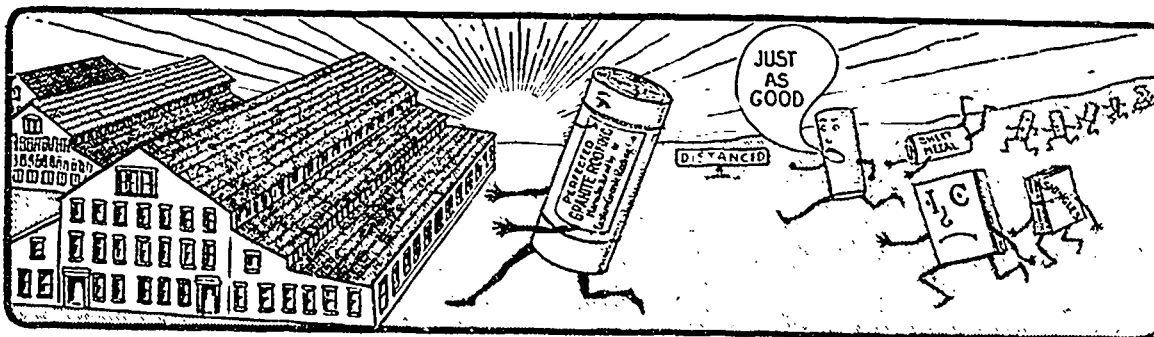
In lumbering operations a long winter is an advantage rather than otherwise, because it admits of the easy hauling of logs to the river side, and in the case of

the three mills now at work in Hamilton Inlet, the owners count on making a large cut and stacking their output until summer frees the coast of ice, when they will quickly rush the material to market. The timber limits are spacious and well wooded, and a force of expert lumbermen has been located there. The only drawback from which industrial enterprises will suffer in Labrador is the same as in the Klondike, that for so many months it is almost inaccessible. Beginning in December and lasting until April, the only means of reaching there is to go to Quebec, then travel down the north shore of the St. Lawrence to the Straits of Belle Isle, a distance of 1,100 miles, from which point a further journey northward must be made of 700 miles if the furthest posts are the objective, and of lesser distances, according to the terminus in mind.

This trail is covered by the small couriers every month, but no others venture upon it yet. The Labrador trail is not beset with the perils which abounded along the road to the Yukon, but the journey is sufficiently long and trying to exclude any from attempting it but the strongest and most experienced. There is, though, the compensation that, during the summer, the remotest parts of Labrador are reached every fortnight by a steamer from St. John's, and that, apart from its commercial resources, it possesses scenic beauties equal to those of Norway, and which are certain to make it a favorite resort for tourists within the next few years.

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BRITISH PIG IRON MARKETS.—Messrs Wm. Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of July 2, 1903, quote as follows:

Since writing you last our markets have been strong on continued withdrawals from store caused chiefly by the large home consumption and considerable shipments to the continent. For the moment it looks as if we did not require any more American orders.

To-day's prices are as follows:

No. 1 Gartsherrie.... 63/6 p.t. f.o.b. Glasgow

No. 3 " 57/6 p.t. f.o.b. Glasgow

M/Nos. Cumberland

Hematite..... 64/6 p.t. f.o.b. L'rp'l

No. 3 Foundry

Middlesbro 47/8 p.t. f.o.b. m'k's whf, including dues.

MINING NOTES.—Mr. Thomas Gibson, Director of the Bureau of Mines, has received a budget of news as to the progress of mining in various parts of the Province. Three diamond drills are at work on the iron range along the line of the Port Arthur, Duluth and Western Railway under Mr. F. Hille, of Port Arthur, and his associates.

Mr. Rinaldo McConnell has also a diamond drill at work searching for iron at Loon Lake, east of Port Arthur.

Prof. A. P. Coleman, who is exploring the northern nickle range, reports that he has covered half the range. He is engaged in ascertaining the relationship between nickle bearing eruptive rocks and the ore deposits. This involves the mapping of the inner as well as the outer edges of the eruptive banks.

From Madoc it is reported that the Harrison asbestos mine on lot 8 of the 11th concession of Elzevir township, is being operated by American capitalists. The mills work night and day, and the plant is being enlarged.

The Nichol Chemical Co. has put in operation a power plant to operate the deposits of iron pyrites in Hungerford township, and is also shipping pyrites from its mine near Bannockburn.

It is also reported that the Hollandia lead mine at Bannockburn has been sold and is being worked.

THE REVENUES OF QUEBEC.—It is interesting to learn whence are derived some of the larger revenues of the Province of Quebec. In the speech from the throne at the recent opening of the Quebec Legislature, the following references were made to matters affecting the water power policy of the Government:

My Government considered that the various industries of the province would be capable of greater development under a system which would comprise the utmost facility for the improvement of the water powers with which our country is so abundantly provided. It has endeavored, in a bill which will be submitted to your consideration, to remove the obstacles which prevent such development, without, at the same time, neglecting to protect the interests of those who might be affected by the new legislation.

The sale of certain water powers and timber limits has largely contributed to the development of this province, especially by the creation of new centres of population.

The annual report of the Department of Crown Lands for that province shows that of the total revenue derived from the department, which includes lands, mines and fisheries, amounting to \$1,291,111.75,

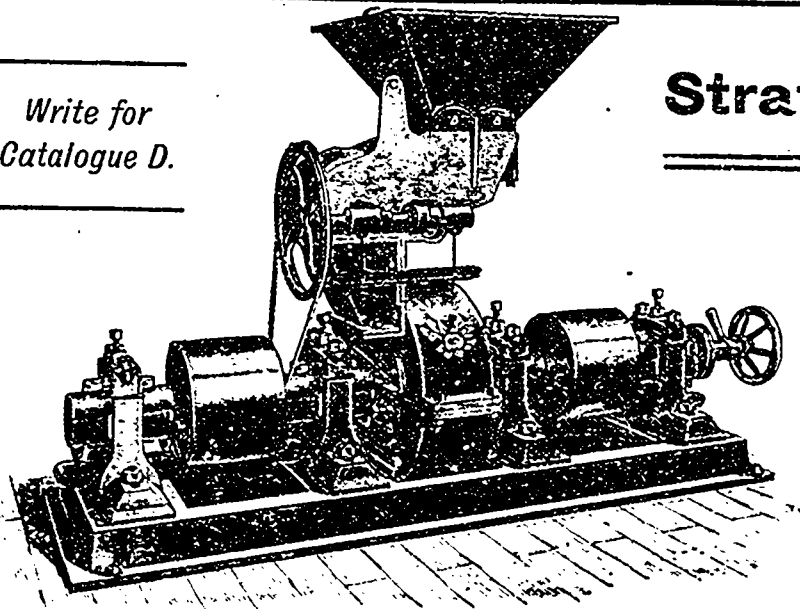
the largest portion, \$1,055,087.48, came from the woods and forests branch, which constitutes the chief provincial asset. This sum was made up of \$854,034 of ordinary revenue from stumpage and dues, ground rents, an excess of \$28,160 over that of the previous year, and of a special receipt of \$201,002, the proceeds of the sale of timber limits in 1902. This shows not only that the era of prosperity enjoyed by the lumbermen contributes in a great manner to maintaining the high figure of the yearly revenue derived from the Quebec forests, but that the value of the timber limits continues to increase.

It is estimated that the Province of Quebec furnished the United States with fully 400,000 cords of pulp wood last year, cut on limits and settlers' lands. From the preparations made in the fall, and the progress made during the winter in the line of cutting, it is estimated that the figure for 1903 will be almost double that of last year. Reports from different points in the province show that there is unprecedented activity in the cutting of pulp wood. Natural conditions for hauling to the rivers and railways have, on the whole, been favorable, as the snow came early and promises to stay late. In the northerly regions the clearing of the land is producing a good harvest of pulpwood, much of which will find its way to American mills. The production of poplar promises to be a big item.

BUSINESS EMBARRASMENTS.—According to Bradstreet's, the number of business embarrasments in Canada for six months of 1903 and 1902, with assets and liabilities, were as follows:

PROVINCES.	NO. OF FAILURES.		ASSETS.		LIABILITIES.	
	1903.	1902.	1903.	1902.	1903.	1902.
Ontario.....	211	230	\$1,317,189	\$655,631	\$2,631,180	\$1,782,133
Quebec.....	184	221	502,291	731,500	1,248,484	1,770,590
New Brunswick.....	9	17	10,925	52,925	33,200	112,525
Nova Scotia.....	15	40	46,726	66,651	111,300	148,782
Prince Edward Island.....	7	5	62,900	17,800	21,500	35,925
Manitoba.....	19	21	42,980	39,988	89,433	81,390
North-West Territories.....	4	12	6,337	51,335	11,796	88,268
British Columbia.....	27	33	121,830	624,220	198,300	1,073,791
Yukon Territory.....	1	1	1,000	5,000	1,500	10,000
TOTALS.....	480	603	\$2,115,301	\$2,247,210	\$4,446,743	\$5,163,404

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Catalogue D.



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Company**

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Stationary and Mounted.

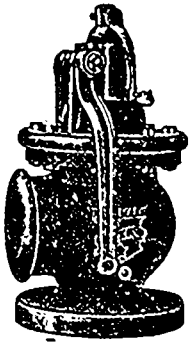
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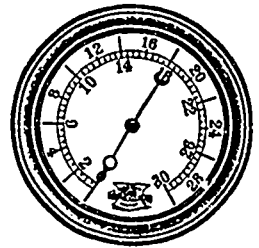
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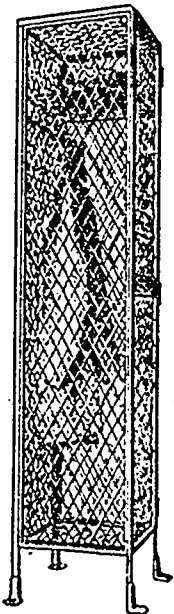
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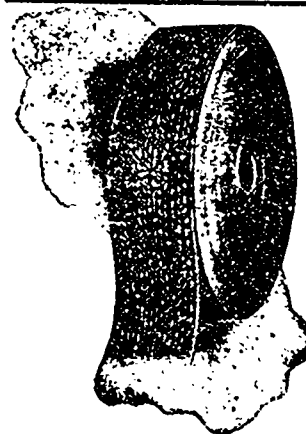
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- 13 x 6 Sebastian
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- 16 x 6 Perkins
- 16 x 10 Bridgeport
- 18 x 6 Perkins with chuck
- 18 x 6 New Haven
- 18 x 8 Lodge & Shipley
- 18 x 10 Lodge & Davis
- 20 x 8 Latho & Morse
- 21 x 8 Blaisdell
- 23 x 20 Blaisdell
- 23 x 12 Wood Light
- 48 in. Pulley Latho

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- 18 x 6 Universal, Lodge & H.
- 18 in. Warner & Swasey
- 16 in. Jones & Lamson
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- 18 in. Hendey

Screw Machines

- 14 in. Garvin
- 15 in. Garvin
- 14 in. Warner & Swasey
- No. 2 Pratt & Whitney

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- 60 in. Bleckford, 3 heads
- 60 in. Niles, 1 head

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- 12 in. two-spindle adj., Foot-
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- 36 in. Snyder

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chine Co.
- 14 ft. Plate Planer, Sillers
- 16 in. x 12 in. x 21 in. Brad-
ford
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Shapers

- 6 in. Boynton & Plummer
- 13 in. dbl. hd. trav. Bellon
- 18 in. Travero Id. Shaper
- 15 in. Hando
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- 25 lb. Poppet Drop
- 27 lb. Scranton, power
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- No. 500 Trethewey
- 250 lb. Bell steam
- 10.0 lb. Board Drop Hammer
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- 14 in. Keyseater, Mitts & Merrill
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- 52 in. Foot Power Squaring Shear, Niagara
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- 14 in. Double Head Bolt Cutter, Adams
- Wire Former
- Horizontal Keyseaters
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- 14 in. Schlenker Bolt Cutter
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- No. 1 Garrin Hor. Tapping Machine
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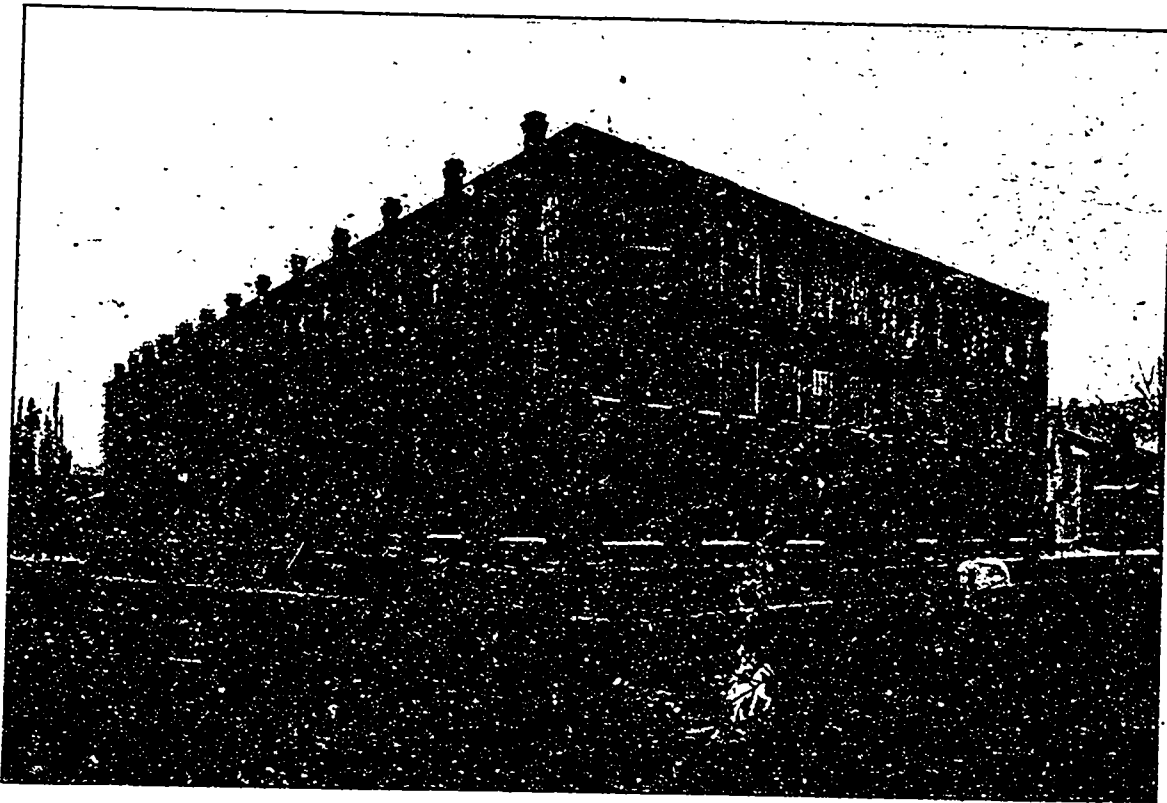
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The Gondron Mfg. Co's Building heated by the "Webster System of Steam Heating."

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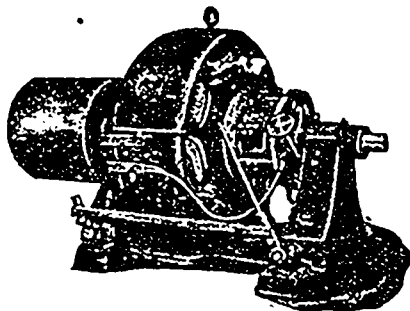
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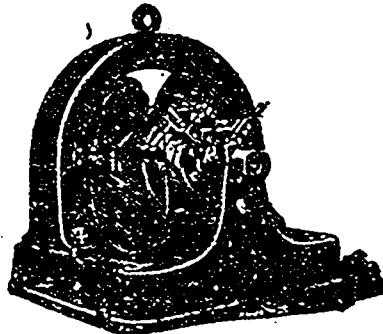


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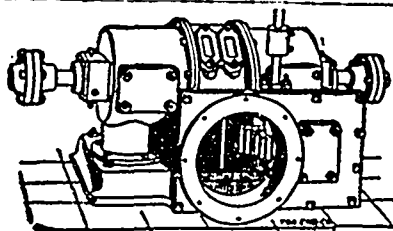
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Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings. Catalogue and Gear List mailed on application. Correspondence Solicited.

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...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.

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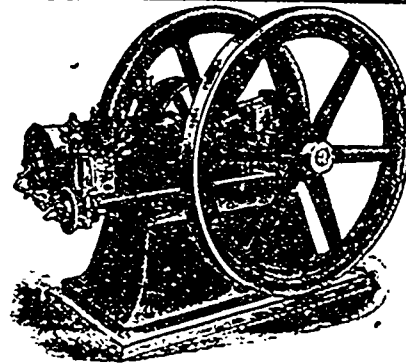
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CANADIAN FACTORY—MONTREAL

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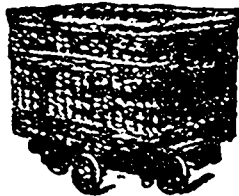
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NOTHING BUT THE BEST

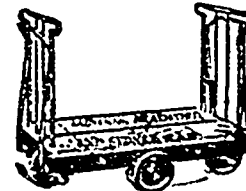
For the Warehouse, Factory, Brewery, Stores, Hospitals—in fact for every conceivable purpose—all on the famous Slingsby Patent Sliding Wheel Principle.

HAVE YOU SEEN IT?

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



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Runs either way.

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A decided difference in the Coal Bill

By using the Mumford Standard Boiler instead of a return tubular, there will be a reduction in the coal bill of 10 to 25 per cent.

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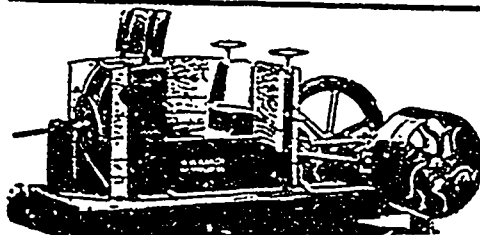
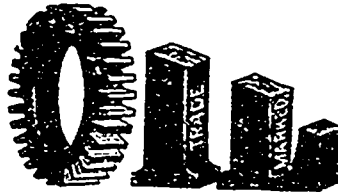
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RATES ON APPLICATION

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Abrasives.

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

Air Compressors

American Steam Pump Co., Battle Creek, Mich.
Canadian Rand Drill Co., Sherbrooke, Que.
Cooper, James, Mfg. Co., Montreal.
Darling Bros., Montreal.
Jenckes Machine Co., Sherbrooke, Que.

Air Reservoirs.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Aluminum

Syracuse Smelting Works, Montreal.

Angles, Beams and Girders

Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
No. 1 Scotia Steel & Coal Co., New Glasgow, N.S.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Annealing Boxes.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Annealing Muffles and Furnaces.

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio

Antimony

Samuel, M. & L. Benjamin & Co., Toronto.
Syracuse Smelting Works, Montreal.

Anvils and Vices.

Leslie, A. C. & Co., Montreal.

Architects

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

Assayers.

Metallurgical Laboratory, Pittsburg, Pa.
Wentz, R. F. Engineering Co., Toronto.

Axles

Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Babbitt Metal

Samuel, M. & L. Benjamin & Co., Toronto.
Syracuse Smelting Works, Montreal.

Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Rice Lewis & Son, Toronto.
Samuel, M. & L. Benjamin & Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Belt Dressing.

Rosendale Belting Co., Toronto.
Williams, A. R., Machinery Co., Toronto.

Belt Fasteners.

Bristol Co., Waterbury, Conn.
Rosendale Belting Co., Toronto.
Williams, A. R., Machinery Co., Toronto.

Belting (Cotton.)

Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Rosendale Belting Co., Toronto.

Belting (Leather.)

McLaren, D. E., Montreal.
Rice, Lewis & Son, Toronto.
Williams, A. R., Machinery Co., Toronto.

Belting and Supplies

Bristol Co., Waterbury, Conn.
Carrier, Laine & Co., Leno, Que.
Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
McLaren, D. E., Montreal.
Rice Lewis & Son, Toronto.
Rosendale Belting Co., Toronto.
Smith, N., Toronto.
Williams, A. R. Machinery Co., Toronto.

Bobbins

Wilson Bros. Bobbin Co., Liverpool, England.

Boiler Tube Cleaners

Pierce, Wm. B. Co., Buffalo, N.Y.

Bolt Taps

Butterfield & Co., Rock Island, Que.

Brass

Samuel, M. & L. Benjamin & Co., Toronto.

Brass Foundries

Hamilton Brass Mfg. Co., Hamilton, Ont.
Incadova, Geo. B. Wire, Iron & Brass Works Co., Toronto.
McDougall, R. Co., Galt, Ont.
McKinnon Dash & Molal Works Co., St. Catharines, Ont.

Bridges.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Building Iron and Steel.

Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

CLASSIFIED INDEX.

(CONTINUED).

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
 Buffalo Forge Co., Buffalo, N. Y.
 Canada Foundry Co., Toronto.
 Canadian Otis Elevator Co., Toronto.
 Canadian Portland Cement Co., Deseronto, Ont.
 Dominion Radiator Co., Toronto.
 Eastern Granite Roofing Co., New York City.
 Expanded Metal & Fireproofing Co., Toronto.
 Gartshore, John J., Toronto.
 Metallic Roofing Co., Toronto.
 McEachren Heating & Ventilating Co., Galt, Ont.
 Owen Sound Portland Cement Co., Owen Sound Ont.

Canada Plates

Leslie, A. C. & Co., Montreal.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.
 Samuel, M. & L. Benjamin & Co., Toronto.

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Cast Iron Pipe

Canada Foundry Co., Toronto.
 Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
 Rice Lewis & Son, Toronto.
 Montreal Pipe Foundry Co., Montreal.

Cement

Canadian Portland Cement Co., Deseronto, Ont.
 Owen Sound Portland Cement Co., Owen Sound, Ont.

Cement Machinery.

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

Chain Making Machinery

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

Channels

Bourne-Fuller Co., Cleveland, Ohio.
 Leslie, A. C. & Co., Montreal.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.
 Samuel, M. & L. Benjamin & Co., Toronto.
 Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
 Deseronto Iron Co., Deseronto, Ont.

Chemicals and Dye Stuffs

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

Chemists

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

Clay Working Machinery.

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

Coal and Coke

Milnes, James H. & Co., Toronto.

Coal Cutting Machines

Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples.

Jeffrey Mfg. Co., Columbus, Ohio.
 Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Coil Chains.

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

Conveying Machinery

Dodge Mfg. Co., Toronto.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Perrin, William R. & Co., Toronto.
 Stevens, Alfred J., Toronto.

Copper Materials

Greening, B. Wire Company, Hamilton, Ont.
 Samuel, M. & L. Benjamin & Co., Toronto.
 Syracuse Smelting Works, Montreal
 Wire & Cable Co., Montreal.

Corrugated Iron and Steel.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Corundum.

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

Corundum Wheels.

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

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THE GARTSHORE-THOMSON PIPE & FOUNDRY CO.

Limited

CAST IRON PIPE

For Water, Gas, Culverts and Sewers

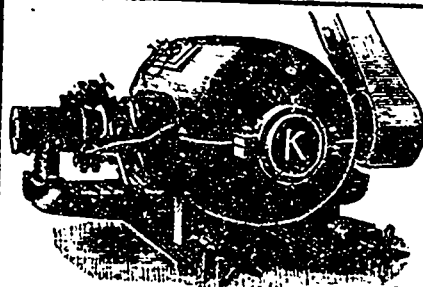
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Special Castings and all kinds of

FLEXIBLE AND FLANGE PIPE.

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Special Attention Given to Electrical Repairing.

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MULTI-POLAR MOTORS.

BI-POLE MOTORS

ALTERNATING CURRENT MOTORS.

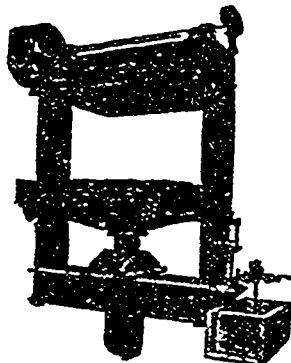
INDUCTION MOTORS.

DYNAMOS for Incandescent and Arc Lighting.

DYNAMOS for Electro-plating and Electrotyping.

ELECTRIC CONTROLLERS for Elevators.

ELECTRIC ORGAN BLOWERS.



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and

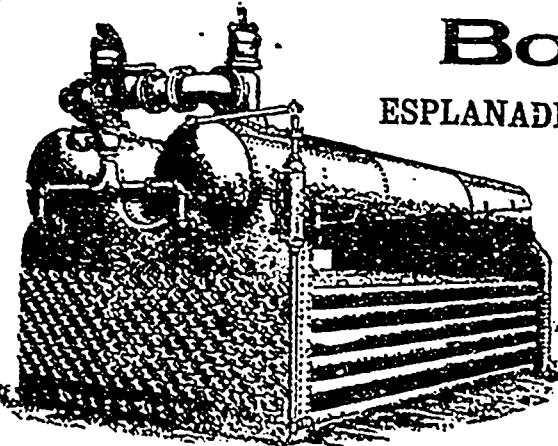
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WILLIAM R. PERRIN & COMPANY

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The Canadian Heine Safety Boiler Co.

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Water Tube Steam Boilers..

FOR ALL PRESSURES
 DUTIES AND FUEL

From 75 to 600 H.P. Each

REFERENCES:

N.B.—We do not make small Boilers

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HARDWARE and METAL**

BAR IRON, STEEL, BOILER PLATE TUBES

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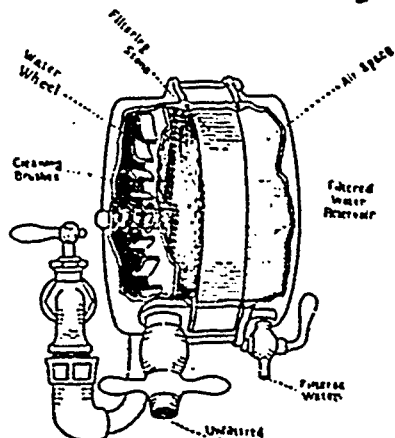
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**D. K. McLAREN, - 751 Craig Street, - MONTREAL
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The Filter Business in your Town
if you secure this Agency



The water cleans the stone.
The stone cleans the water.

THE ROTA FILTER

is guaranteed to deliver pure, sparkling, aerated water, at 1 pint to 1 quart per minute, depends on water pressure.

It never requires cleaning—IT CLEANS ITSELF.

It will last a life time. It sells on sight.

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(CONTINUED).

Covers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Crayons

Lowell Crayon Co., Lowell Mass.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Samuel, M. & L. Benjamin & Co., Toronto.
Syracuse Smelting Works, Montreal.

Crucible Caps and Nozzles

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Crucible Covers and Stoppers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Detective Agencies

Noble's Dominion Detective Agency, Toronto.

Dies

Hamilton Stamp & Stencil Works, Hamilton, Ont.
Dies (Socket, Sewer Pipe and Tile—Clay.)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Dean & Son, London, E. C., England.
Kelly's Directories, Limited, Toronto.

Draw Benches (Wire.)

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

Drills

Bertram, John, & Sons Co., Dundas, Ont.
Canadian Hand Drill Co., Sherbrooke, Que.
Cooper, James, Mfg. Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
London Machine Tool Co., London, Ont.

Dry Kilns.

Buffalo Forge Co., Buffalo, N.Y.
McEachren Heating & Ventilating Co., Galt, Ont.
Stevens, Alfred J., Toronto.
Sturtevant, B. F. Co., Boston, Mass.

Dust and Shavings Separators

Buffalo Forge Co., Buffalo, N.Y.
McEachren Heating & Ventilating Co., Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Electric Mine Locomotives

Jeffrey Mfg. Co., Columbus, Ohio.

Electrical Supplies

Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo & Motor 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.

Electro-Plating

Brantford Plating Co., Brantford, Ont.

Elevators

Canadian Otis Elevator Co., Toronto.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.

Emery and Emery Wheels.

Canadian Corundum Wheel Co., Hamilton, Ont.
Forman, John, Montreal.
Hart Emery Wheel Co., Hamilton, Ont.

Engineers (Cement).

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

Engineers (Chemical.)

Heys, Thos. & Son, Toronto.
Metallurgical Laboratory, Pittsburg, Pa.

Engineers (Civil)

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

Engineers (Consulting)

Electrical Construction Co., London, Ont.
Parke, R. J., Toronto.
Perrin, Wm. R. & Co., Toronto.
Simpson, T. T., Desclunes, Que.
Vogel, C. H., Ottawa.
Wentz, R. F. Engineering Co., Toronto.

Engineers (Contracting)

Darling Bros., Montreal.
Electrical Construction Co., London, Ont.

Engineers (Electrical)

Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Electric Engineering & Supply Co., Montreal.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo & Motor Co., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

CLASSIFIED INDEX.

(CONTINUED).

Engineers (Mechanical)

Carrier, Laine & Co., Levis, Quebec.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Kerr Engine Co., Walkerville, Ont.
McEachron Heating & Ventilating Co., Galt, Ont.
Northey Co., Toronto.
Robb Engineering Co., Amherst, N.S.
Wentz, R. F. Engineering Co., Toronto.

Engineers (Mill and Hydraulic)

Vogel, C. H., Ottawa.

Engineers (Mining)

Heys, Thos. & Son, Toronto.
Metallurgical Laboratory, Pittsburg, Pa.
Mills, S. D., Toronto.

Engineers and Contractors.

Jeffrey Mfg. Co., Columbus, Ohio.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Engines and Boilers

Babeock & Wilcox, Limited, Montreal.
Buffalo Forge Co., Buffalo, N.Y.
Canadian Heine Safety Boiler Co., Toronto.
Cowan & Co., Galt, Ont.
Goldie & McCulloch Co., Galt, Ont.
Hyde Bros. & Co., Pittsburg, Pa.
Leonard, E. & Sons, London, Ont.
McDougall, R. Co., Galt, Ont.
Robb Engineering Co., Amherst, N.S.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.
Stratford Mill Building Co., Stratford, Ont.
Williams, A. R., Machinery Co., Toronto.

Engravers

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

Exhaust Hoops

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

Factory Sites

Central Ontario Power Co., Peterboro, Ont.
Great Northern Railway of Canada, Quebec, Que.
Sweeney, James Jr., North Tonawanda, N.Y.

Films

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

Financial

Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postlethwaite, Toronto.
South American Trade Journal, London, England

Filters

Burt Mfg. Co., Akron, Ohio.
Darling Bros., Montreal.
Perrin, Wm. H. & Co., Toronto.
Rota Filters, Limited, Windsor, Ont.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Fire Brick

Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Scioto Fire Brick Co., Sciotoville, Ohio.

Fluo Cleaners

Pierce, Wm. H. Co., Buffalo, N.Y.

Founders

Buffalo Forge Co., Buffalo, N.Y.
Canada Foundry Co., Toronto.
Cowan & Co., Galt, Ont.
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
Karch, H. W., Hespeler, Ont.
McDougall, The R. Co., Galt, Ont.
Northey Co., Toronto.

Foundry Facing

Hamilton Facing Mill Co., Hamilton, Ont.

Galvanized Iron and Steel.

Leslie, A. C. & Co., Montreal.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Galvanizing

Brantford Plating Co., Brantford, Ont.
Ontario Wind Engine & Pump Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Galvanizing and Tinning Machinery and Furnaces (Clay.)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Gas and Gasoline Engines

Dominion Motor & Machine Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Morrison, T. A. & Co., Montreal.
Northey Co., Toronto.
Stratford Mill Building Co., Stratford, Ont.

Gas Producers.

Smythe, S.R. Co., Pittsburg, Pa.

Generators

Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo & Motor Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Grinding Machinery

Hart Emery Wheel Co., Hamilton, Ont.

Hardware

Butterfield & Co., Rock Island, Que.
Cooper, James, Montreal.
Empire Machine & Metal Stamping Co., Toronto.
Gartshore, John J., Toronto.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Heco Lewis & Son, Toronto.
Samuel, M. & L. Benjamin & Co., Toronto.

Heating and Ventilating

Buffalo Forge Co., Buffalo, N.Y.
Darling Bros., Montreal.
Dominion Radiator Co., Toronto.
Leonard, E. & Sons, London, Ont.
McEachron Heating & Ventilating Co., Galt, Ont.
Stevens, Alfred J., Toronto.
Sturtevant, B. F., Co., Boston, Mass.

Hydraulic Machinery

Darling Bros., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Northey Co., Toronto.
Perrin, Wm. H. & Co., Toronto.
Smythe, S.R. Co., Pittsburg, Pa.
Wilson, J. C. & Co., Glenora, Ont.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Brown & Co., Paris, Ont.
Dodge Mfg. Co., Toronto.
Karch, H. W., Hespeler, Ont.
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.
McDougall, R. Co., Galt, Ont.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Heco Lewis & Son, Toronto.
Samuel, M. & L. Benjamin & Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.
Smythe, S.R. Co., Pittsburg, Pa.

Japans.

Berry Bros., Walkerville, Ont.

Lamps—Electric

Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.

Lathes

Bertram, John, & Sons Co., Dundas, Ont.
London Machine Tool Co., London, Ont.
McDougall, R. Co., Galt, Ont.
Williams, A. R., & Co., Toronto.

Leather Bolting

Fleming, W. A. & Co., Montreal.
McLaren, D. K., Montreal.
Smith, N., Toronto.

Lifting Jacks

Norton, A. O., Boston, Mass.

Machinists.

Worth & Martin, Toronto.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Cooper, James, Montreal.
Goldie & McCulloch Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Worth & Martin, Toronto.

Machine Tools

Bertram, John, & Sons Co., Dundas, Ont.
Darling Bros., Montreal.

Malleable Iron Castings

Frost, Wm. H., Smith's Falls, Ont.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Ontario Malleable Iron Co., Oshawa, Ont.
Walkerville Malleable Iron Co., Ltd., Walkerville, Ont.

Manufacturers' Agent.

Phillip, David, Winnipeg, Man.

Metal Specialties

Brantford Plating Co., Brantford, Ont.

Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.

Metallurgists.

Metallurgical Laboratory, Pittsburg, Pa.
Mills, S. D., Toronto.
Wentz, R. F. Engineering Co., Toronto.

Hyde Water Tube Safety Boiler

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

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CLASSIFIED INDEX.

(CONTINUED).

Mica

Wickramanayaka, J. & Co., Kalutara, Ceylon,
India.

Mill Machinery and Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Cooper, James, Montreal.
Cooper, James Mfg. Co., Montreal.
Cowan & Co., Galt, Ont.
Darling Bros., Montreal.
Flaming, W. A., & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Joffroy Mfg. Co., Columbus, Ohio.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hay, Peter, Galt, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Karch, H. W., Hespler, Ont.
Leonard, E. & Sons, London, Ont.
London Machine Tool Co., London, Ont.
McDougall, R. Co., Galt, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Rico Lewis & Son, Toronto.
Robb Engineering Co., Amherst, N.S.
Samuel, M. & L. Benjamin & Co., Toronto.
Smythe, S.R. Co., Pittsburg, Pa.
Spence, R. & Co., Hamilton, Ont.
Stratford Mill Building Co., Stratford, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Mining Machinery

Canadian Rand Drill Co., Sherbrooke, Que
Cooper, James, Montreal.
Cooper, James Mfg. Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Perrin, Wm. R. & Co., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo and Motor Co., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.

Novelty Manufacturers.

Worth & Martin, Toronto.

Nozzles.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Office Furniture and Supplies

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

Oils and Lubricants

Dixon, Jos., Crucible Co., Jersey City, N.J.
Flaming, W. A., & Co., Montreal.
Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

Oil Filters

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

Paints and Colors

Bellhouse, Dillon & Co., Montreal.
Berry Bros., Walkerville, Ont.
Flaming, W. A., & Co., Montreal.
Geigy Aniline & Extract Co., New York City.
Klipstein, A., & Co., New York City.
McArthur, Cornelio & Co., Montreal.

Paper Manufacturers

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

Patents

Budden, Hanbury A., Montreal.
Case, Egerton R., Toronto.
Fotherstonhaugh & Co., Toronto.

Perforated Metals

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

Phosphorizers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Deseronto Iron Co., Deseronto, Ont.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Samuel, M. & L. Benjamin & Co., Toronto.
Syracuse Smelting Works, Montreal.

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Rice Lewis & Son, Toronto.

Pipe (Riveted Iron and Steel.)

Scalfo, Wm. B. & Sons Co., Pittsburg, Pa.

CLASSIFIED INDEX.

(CONTINUED).

Pipes and Tubes

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.
Samuel, M. & L. Benjamin & Co., Toronto.

Plaster

Albert Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Rico Lewis & Son, Toronto.
Samuel, M. & L. Benjamin & Co., Toronto.
Scalfo, Wm. B. & Sons Co., Pittsburg, Pa.

Plating

Brantford Plating Co., Brantford, Ont.

Plumbago

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Wickramanayaka, J., & Co., Kalutara, Ceylon,
India.

Pneumatic Tools

Cooper, James, Mfg. Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.

Pointers (For Rods and Wire.)

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.
Great Northern Railway of Canada, Quebec, Que.

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American Steam Gauge & Valve Mfg. Co., Boston,
Mass.
Buffalo Forge Co., Buffalo, N.Y.
Canadian General Electric Co., Toronto.
Cooper, James, Mfg. Co., Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo & Motor Co., Toronto.
Leonard, E. & Sons, London, Ont.
Northey Co., Toronto.
Perrin, Wm. R. & Co., Toronto.
Phillips, Eugeno F., Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Smythe, S.R. Co., Pittsburg, Pa.
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 (Tilo, Sewer Pipe, Nozzles and
Sieves.)**

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

Darling Bros., Montreal.
Dodge Mfg. Co., Toronto.
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Pulp and Saw Mill Sites

Great Northern Railway of Canada, Quebec.

Purifiers

Cowan & Co., Galt, Ont.
Goldie & McCulloch Co., Galt, Ont.
Scalfo, Wm. B. & Sons Co., Pittsburg, Pa.

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Railroads

Chicago & North-Western Ry., Toronto & St.
Paul, Minn.
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Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.
Cooper, James, Montreal.
Gartshore, John J., Toronto.
Greening, B. Wire Co., Hamilton, Ont.
Montreal Steel Works, Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugeno F., Electrical Works, Montreal.

CLASSIFIED INDEX.

(CONTINUED).

Rivets
Bourne-Fuller Co., Cleveland, Ohio.

Roofing
Eastern Granite Roofing Co., New York City.
Metallic Roofing Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Rubber Goods
Gutta Porcha & Rubber Mfg. Co., Toronto.

Scale Removers
Pierce, Wm. B. Co., Buffalo, N.Y.

Second-Hand Machinery.
Wormer, C. C., Machinery Co., Detroit, Mich.

Shafting
Bourne-Fuller Co., Cleveland, Ohio.
Jeffroy Mfg. Co., Columbus, Ohio.
Nova Scotia Steel & Coal Co. New Glasgow, N.S.

Shear Knives
Hay, Peter, Galt, Ont.

Sheets (Iron and Steel.)
Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Shellac Gums.
Berry Bros., Walkerville, Ont.

Smoke Stacks.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Softening Systems (Water.)
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Solder
Syracuse Smelting Co., Montreal.

Stamps & Stencils
Hamilton Stamp & Stencil Works, Hamilton, Ont.

Stand Pipes,
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Steam Gauges
American Steam Pump Co., Battle Creek, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Northey Co., Toronto.
Williams, A. R., Machinery Co., Toronto.

Steam Pumps
American Steam Pump Co., Battle Creek, Mich.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Leonard, E. & Sons, London, Ont.
Northey Co., Toronto.
Williams, A. R., Machinery Co., Toronto.

Steam Separators
Darling Bros., Montreal.

Steam Specialties
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Steam Valves
American Steam Pump Co., Battle Creek, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Williams, A. R., Machinery Co., Toronto.

Steel Rails
Algoma Steel Co., Sault Ste. Marie, Ont.
Cooper, James, Montreal.
Drummond, McCall & Co., Montreal and Toronto.

Steel Shafting
Darling Bros., Montreal.
Dodge Mfg. Co., Toronto.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Wilson, J. C. & Co., Glenora, Ont.

Stocks and Dies
Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Rico Lewis & Son, Toronto.
Worth & Martin, Toronto.

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

Structural Steel.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Tags
Morton Co., Toronto.

Tanks (Iron and Steel.)
Efros, Chas. Co., Bayonne, N.J.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Tees
Bourne-Fuller Co., Cleveland, Ohio.

CLASSIFIED INDEX.

(CONTINUED).

Textile Manufacturers
Canadian Colored Cotton Mills Co., Montreal.
Cantile, James, A. Montreal.
Dominion Oil Cloth Co., Montreal.
Hamilton Cotton Co., Hamilton, Ont.
Morris, D., Sons & Co., Montreal.
Relcho & Co., Bradford, England.
Smith Wool Stock, Toronto.
Storey, W. H., & Sons, Acton, Ont.

Tin
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Syracuse Smelting Works, Montreal.

Tin Plates
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.

Tool Steel
Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.

Trucks
Shingsby, H. C., Montreal.

Trucks (Wire Mill)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tubs (Cleaning and Coating Wire)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Turbines
Jonckes' Machine Co., Sherbrooke, Que.
Wilson, J. C., & Co., Glenora, Ont.

Valves
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Williams, A. R., Machinery Co., Toronto.

Varnishes.
Berry Bros., Walkerville, Ont.

Ventilators
Buffalo Forge Co., Buffalo, N.Y.
Darling Bros., Montreal.
McEachern Heating & Ventilating Co., Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Wagons and Carriages
Hore, F. W., & Son, Hamilton, Ont.

Washers or Rollinders (Cleaning Rubber.)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Water Filters and Filtering Systems.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Water Softening and Purifying Systems.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Water Tanks
Caldwell, W. E. Co., Louisville, Ky.

Water Towers
Caldwell, W. E. Co., Louisville, Ky.
Efros, Chas. Co., Bayonne, N.J.

Weaving Machinery
Karch, H. W., Hespeler, Ont.

Wire and Wire Rope
Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Wire & Cable Co., Montreal.

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

Wire Drawing Machinery
Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

Wire Specialties
Empire Machine & Metal Stamping Co., Toronto.
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.

Wood-Working Machinery
Carrier, Laine & Co., Levis, Que.
Cowan & Co., Galt, Ont.
Karch, H. W., Hespeler, Ont.
London Machine Tool Co., London, Ont.
McEachern Heating & Ventilating Co., Galt, Ont.
Wormer, C. C., Machinery Co., Detroit, Mich.

Zinc
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
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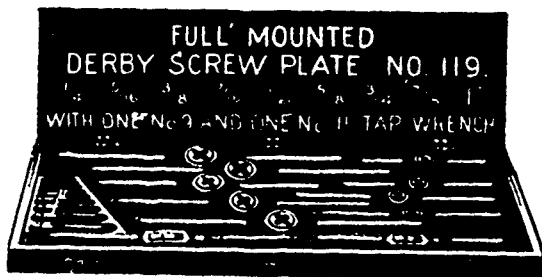
INDEX TO ADVERTISEMENTS.

Where the follo is not given the Advertisement appears at intervals.

Agriculture, Ontario Minister of, Toronto.....	45	Expanded Metal & Fireproofing Co., Toronto.....	7	Northoy Co., Toronto.....	12
Albert Mfg. Co., Hillsborough, N.B.....	7	Fetherstonhaugh & Co., Toronto.....	ofc	Norton, A. O., Boston, Mass.....	8
Algoma Steel Co., Sault Ste. Marie, Ont.....	2	Firstbrook Box Co., Toronto.....	47	Nova Scotia Steel & Coal Co., New Glasgow, N.S.....	4
American Steam Pump Co., Battle Creek, Mich.....	35	Fleming, W. A. & Co., Montreal.....	35	Oakley, John & Sons, London, England.....	3
Archbold, Dr. Geo., Pres.-cont. Ont.....	27	Forman John, Montreal.....	12	Ontario Malleable Iron Co., Oshawa, Ont.....	ofc
Armstrong Mfg. Co., Bridgeport, Conn.....	25	Frost, W. H., Smith's Falls, Ont.....	ofc	Ontario Wind Engine & Pump Co., Toronto.....	39
Babcock & Wilcox, Limited, Montreal.....	ofc	Gartshore, John J., Toronto.....	47	Owen Sound Portland Cement Co., Owen Sound Ont.....	7
Bull Check Light Co., Toronto.....	31	Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.....	41	Packard Electric Co., St. Catharines, Ont.....	10
Barber, Wm. & Bro., Georgetown, Ont.....	43	Goldie & McCulloch Co., Galt, Ont.....	3	Parke, Rodrick J., Toronto.....	27
Bellhouse, Dillon & Co., Montreal.....	9	Great Northern Railway, Quebec City.....	37	Pouberthy Injector Co., Windsor, Ont.....	8
Benson, W. T. & Co., Montreal.....	21	Greening B. Wire Co., Hamilton, Ont.....	6	Pennsylvania Fire Brick Co., Lock Haven, Pa.....	7
Berry Bros., Walkerville, Ont.....	9	Gutta Percha & Rubber Mfg. Co., Toronto.....	ofc	Perrin, Wm. R. & Co., Toronto & Chicago, Ill.....	41
Bertram, John & Sons Co., Dundas, Ont.....	36	Hamilton Brass Mfg. Co., Hamilton Ont.....	30	Peterborough Cance. Co., Peterborough, Ont.....	43
Blagden, Waugh & Co., London, E.C., England.....	23	Hamilton Cotton Co., Hamilton, Ont.....	ofc	Phillip, David, Winnipeg, Man.....	42
Bourne-Fuller Co., Cleveland, Ohio.....	45	Hamilton Facing Mills Co., Hamilton, Ont.....	44	Phillips, Eugeno F., Electrical Works, Montreal.....	30
Bradstreets, Toronto and New York.....	25	Hamilton Stamp & Stonell Works, Hamilton, Ont.....	2	Pierce, Wm. B. & Co., Buffalo, N.Y.....	10
Brantford Plating Co., Brantford, Ont.....	44	Hart Emery Wheel Co., Hamilton, Ont.....	4	Queen City Oil Co., Toronto.....	ofc-40
Bristol Co., Waterbury Conn.....	ofc	Hay, Peter, Galt, Ont.....	27	Reiche & Co., Bradford, England.....	ofc
Brown & Co., Paris, Ont.....	47	Hays, Thomas & Son, Toronto.....	4	Reinlein, Fred, Mount Vernon, Ill.....	37
Brunner, Mond & Co., Northwich, England.....	27	Hors, F. W. & Son, Hamilton, Ont.....	36	Rice Lewis & Son, Toronto.....	42
Budden, Hanbury A., Montreal.....	29	Hyde Bros. & Co., Pittsburg, Pa.....	47	Ridout & Maybee, Toronto.....	37
Buffalo Forge Co., Buffalo, N.Y.....	23	Imperial Oil Co., Petrolca, Ont.....	47	Robb Engineering Co., Amherst, N.S.....	40
Bureau of Mines, Toronto.....	39	Industrial Publication Co., New York, N.Y.....	47	Rossendale Bolting Co., Toronto.....	ofc
Burt Mfg. Co., Akron, Ohio.....	29	Industries, Youngstown, Ohio.....	47	Rota Filters Limited, Windsor, Ont.....	42
Butterfield & Co., Rock Island, Que.....	46	International Safety Solvent Co., Providence, R. I.....	11	Samuel, M. & L. Benjamin & Co., Toronto.....	25
Caldwell, W. E. Co., Louisville, Ky.....	8	Jeffrey Mfg. Co., Columbus, Ohio.....	5	Scaife, Wm. B. & Sons Co., Pittsburg, Pa.....	25
Canada Foundry Co., Toronto.....	35	Jonckes Machine Co., Sherbrooke, Que.....	39	Scotco Fire Brick Co., Scotoville, Ohio.....	7
Canada Iron Furnace Co., Montreal.....	25	Jones & Moore Electric Co., Toronto.....	45	Simpson, T. T., Deschenes, Que.....	27
Canadian Colored Cotton Mills Co., Montreal.....	35	Jones, J. L., Engraving Co., Toronto.....	40	Slingsby, H. C. for Canada, Montreal.....	39
Canadian Corundum Wheel Co., Hamilton, Ont.....	ofc	Karch, H. W., Hespeler, Ont.....	41	Smith, N., Toronto.....	44
Canadian General Electric Co., Toronto.....	41	Kay Electric Dynamo & Motor Co., Toronto.....	9	Smith Woolstock Co., Toronto.....	43
Canadian Hoine Safety Boiler Co., Toronto.....	47	Keller, John J. & Co., New York, N.Y.....	31	Smythe, S. R. Co., Pittsburg, Pa.....	27
Canadian Manufacturer Pub. Co., Toronto.....	43	Kelly's Directories, Toronto and London, England.....	37	South American Trade Journal, London, E.C. England.....	44
Canadian Office & School Furniture Co., Preston, Ont.....	ofc	Kerr Engine Co., Walkerville, Ont.....	9	Spence, R. & Co., Hamilton, Ont.....	43
Canadian Otis Elevator Co., Hamilton, Ont.....	7	Kilpstein, A. & Co., New York, N.Y.....	3	Stevens, Alfred J., Toronto.....	27
Canadian Portland Cement Co., Deseronto Ont.....	33	Leonard, E. & Sons, London, Ont.....	2	Storey, W. H. & Son, Acton Ont.....	27
Canadian Hand Drill Co., Sherbrooke, Que.....	44	Leslie, A. C. & Co., Montreal.....	42	Stratford Mill Building Co., Stratford, Ont.....	34
Canille, James A., Montreal.....	ofc	Lewis, Rice & Son, Toronto.....	31	Sturtevant, B. F. Co., Boston, Mass.....	11
Carrier, Laine & Co., Levis, Que.....	ofc	London Machine Tool Co., London, Ont.....	45	Sweeney, James, Jr., North Tonawanda, N.Y.....	37
Case, Egerton R., Toronto.....	29	Lowell Crayon Co., Lowell, Mass.....	36	Syracuse Smelting Co., Montreal and New York.....	6
Casella Color Co., New York and Montreal.....	8	Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.....	31	Toronto File Co., Toronto.....	
Central Ontario Power Co., Peterborough, Ont.....	29	Metallic Roofing Co., Toronto.....	27	Toronto & Hamilton Electric Co., Hamilton, Ont.....	39
Chicago & North-Western Railway, B. H. Bennett, General Agent, Toronto.....	47	Metallurgical Laboratory, Pittsburg, Pa.....	27	Toronto Paper Mfg. Co., Cornwall, Ont.....	43
Coal Trade Journal, New York, N.Y.....	4	Mills, S. D., Toronto.....	25	Turner, Vaughan & Taylor, Cuyahoga Falls, Ohio.....	27
Cooper, James, Montreal.....	19	Milnes, J. H. & Co., Toronto.....	31	United Electric Co., Toronto.....	ofc
Cooper, James Mfg. Co., Montreal.....	5	Mitchell, W. W., Toronto.....	2	Vogel, C. H., Ottawa.....	27
Cowan & Co., Galt, Ont.....	35	Montreal Pipe Foundry Co., Montreal.....	ofc	Walkerville Malleable Iron Co., Walkerville, Ont.....	ofc
Crosby Steam Gauge & Valve Co., Boston, Mass.....	38	Montreal Steel Works, Montreal.....	25	Wardlaw T. D., Toronto.....	9
Darling Bros., Montreal.....	25	Morrison, T. A. & Co., Montreal.....	36	Wentz, R. F. Engineering Co., Toronto.....	27
Doan & Son, London, E.C., England.....	31	Morrow, John, Machine Screw Co., Ingersoll, Ont.....	6	Wickramannayaka, J. & Co., Kalutara, Ceylon, India.....	47
Deseronto Iron Co., Deseronto, Ont.....	11	Morton Co., Toronto.....	39	Williams, A. R. Machinery Co., Toronto.....	
Dixon, Jos., Crucible Co., Jersey City, N.J.....	39	McArthur, Cornelle & Co., Montreal.....	25	Winn & Holland, Montreal.....	9
Dodge Mfg. Co., Toronto.....	47	McCullough-Dalzell Crucible Co., Pittsburg, Pa.....	42	Wilson Bros. Bobbin Co., Tadmorden England.....	39
Dominion Belting Co., Hamilton, Ont.....	2	McDougall, R. Co., Galt, Ont.....	27	Wilson J. C. & Co., Glenora, Ont.....	ofc
Dominion Motor & Machine Co., Toronto.....	45	McEachren Heating & Ventilating Co., Galt, Ont.....	31	Wire & Cable Co., Montreal.....	ofc
Dominion Oil Cloth Co., Montreal.....	33	McKinnon Dash & Metal Works Co., St. Catharines, Ont.....	27	Wormer, C. C. Machinery Co., Detroit, Mich.....	37
Dominion Wire Rope Co., Montreal.....	27	McLaren, D. K., Montreal and Toronto.....	27	Worth & Martin, Toronto.....	
Drummond, McCall & Co., Montreal, Que.....	27	Neff & Postlethwaite, Toronto.....	27		
Dun R. G. & Co., Toronto.....	12	Noble's Detective Agency, Toronto.....	31		
Eastern Granite Roofing Co., New York City.....					
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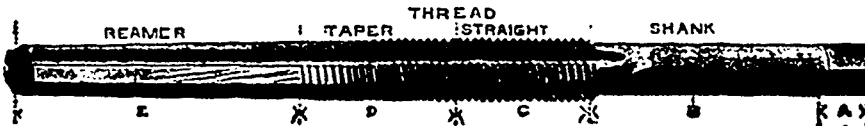
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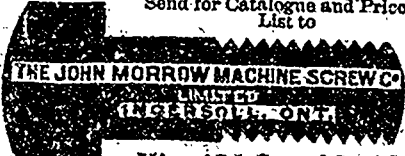
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