

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

- | | | | |
|--------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> | Coloured covers /
Couverture de couleur | <input type="checkbox"/> | Coloured pages / Pages de couleur |
| <input type="checkbox"/> | Covers damaged /
Couverture endommagée | <input type="checkbox"/> | Pages damaged / Pages endommagées |
| <input type="checkbox"/> | Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée | <input type="checkbox"/> | Pages restored and/or laminated /
Pages restaurées et/ou pelliculées |
| <input type="checkbox"/> | Cover title missing /
Le titre de couverture manque | <input checked="" type="checkbox"/> | Pages discoloured, stained or foxed /
Pages décolorées, tachetées ou piquées |
| <input type="checkbox"/> | Coloured maps /
Cartes géographiques en couleur | <input type="checkbox"/> | Pages detached / Pages détachées |
| <input type="checkbox"/> | Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire) | <input checked="" type="checkbox"/> | Showthrough / Transparence |
| <input type="checkbox"/> | Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur | <input checked="" type="checkbox"/> | Quality of print varies /
Qualité inégale de l'impression |
| <input type="checkbox"/> | Bound with other material /
Relié avec d'autres documents | <input type="checkbox"/> | Includes supplementary materials /
Comprend du matériel supplémentaire |
| <input type="checkbox"/> | Only edition available /
Seule édition disponible | <input type="checkbox"/> | Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées. |
| <input type="checkbox"/> | Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure. | | |
| <input type="checkbox"/> | Additional comments /
Commentaires supplémentaires: | | |

THE QUEEN CITY OIL CO. LIMITED, LUBRICATING AND REFINED OIL

SAMUEL ROGERS, President. TORONTO.

ANADIAN MANUFACTURER
 AND INDUSTRIAL WORLD.
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

From the Finest Bricks
 Sand to the Coarsest
 Pipe and Core Sand.
 WRITE FOR PRICES

ANIMATION THAT
 MANUFACTURES FOR ITSELF
 PROSPERS

VOL. 42.

TORONTO, MARCH 15, 1901.

No. 6.



Head Office for Canada—
 202 St. JAMES ST., - MONTREAL
 TORONTO OFFICE—114 KING ST. W.
 Send for large book, "STEAM."

MILL SOAPS

For all TEXTILE PURPOSES

MANUFACTURED BY

**Dominion Dyewood
 and Chemical Company,
 TORONTO**

Wire Rope

FOR....

Hoisting, Mining,
 and Other Purposes

IMPORTED PROMPTLY
 AT
 LOW PRICES.....

**A. C. LESLIE & CO.,
 MONTREAL**

Sanderson's Tool Steel in Stock.

RUBBER INSULATED WIRES AND CABLES

OF EVERY DESCRIPTION for

Telephone, Telegraph and Electric Lighting Purposes.

MAGNET WIRES

ANNUNCIATOR WIRES

The WIRE AND CABLE COMPANY, Montreal.

Fensom's

**ELECTRIC
 HYDRAULIC
 STEAM
 HAND-POWER**

All made of the best
 material and
 finest workmanship.

The Fensom
 Elevator
 Works....
 23, 24, 25
 Duke Street,
 Toronto, Ont.

Elevators

RUBBER GOODS OF ALL KINDS.



61 and 83 FRONT ST. WEST, TORONTO.

THE.....

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

Manufacturers of.

REFINED AIR FURNACE

Malleable Castings

ALSO LIGHT GREY IRON CASTINGS.

WALKERVILLE, ONTARIO.

From the Finest Bricks
 Sand to the Coarsest
 Pipe and Core Sand.
 WRITE FOR PRICES

MOULDING SAND
 FIRE BRICK, FIRE CLAY
 and FIRE SAND,
 also Extra Fine Quality

FOUNDRIES
 SUPPLIES
 Ceylon Plumbago

AND
 FOUNDRY
 SUPPLIES

Manufacturers of

The Hamilton Facing Mill Co., Limited,
 HAMILTON, ONT.

OUR
Universal Hand Drill
 INDISPENSABLE
A. B. DAVENPORT & CO.
 HESPELIER, ONT.

JOHN J. KELLER & CO., 104 and 106 Murray St.
NEW YORK
220 Church St., Philadelphia.
135 Pearl St., Boston. 18 Pryor St., Atlanta, Ga.

**Aniline Colors, Dyewood Extracts,
Sumac and Nutgall Extracts. . .**

FAST COLORS for Wool Dyeing, One Dip Cotton Colors,
Novelties and Specialties for Calico Printing.

MANUFACTURED BY

JOHN R. GEIGY & CO.
BASLE, SWITZERLAND.

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

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

Correspondence invited. **GEO. S. KILBOURN, Sec'y-Treas.**

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

New Black for Cotton

Colonial Black

Double Strength. Unequaled for Depth of Shade.

Users of Black should investigate

Fastest Black on the Market.

F. E. ATTEAUX & CO.,

BOSTON, MASS., U.S.A.

CANADIAN BRANCHES:—63 Colborne Street, TORONTO.
13 Lemoine Street, MONTREAL.

CANADA CHEMICAL MANUFACTURING CO.

— MANUFACTURERS OF —

Sulphuric, Nitric, and Muriatic Acids—Commercial and
Chemically Pure.

Mixed Acids for Explosives.

Liquid Ammonia, Glauber Salts, Copperas, Muriate Tin
Tin Crystals, Acetic Acid, Nitrate Iron, Bisulphite
Soda, Acid Phosphate for Baking Powders
and General Chemicals, Fertilizers, etc.

LONDON, - ONTARIO.

HAMILTON COTTON CO.,

HAMILTON, ONTARIO.

Yarn Manufacturers, DYERS AND BLEACHERS.

Warp Yarns of all descriptions, in Skein, Chain or on Beams.
Hosiery Yarns in single or double, in Cop, Skein or Cone.
Yarns of all kinds for Manufacturers' use.

Twines, Lampwicks, Webbing, Etc.

Dyeing of all Colors, including **GENUINE FAST BLACK.**

CANADA IRON FURNACE CO., LIMITED

Montreal, Radnor and Three Rivers

Manufacturers of the well-known

"C.I.F." Three Rivers Charcoal Pig Iron

Suitable for Car Wheels, Cylinders and Fine Castings,
where the utmost strength is required.

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

Offices: *Canada Life Insurance Bldg., Montreal.*

MONTREAL PIPE FOUNDRY CO.,

SUCCESSORS TO (Limited)

DRUMMOND-McCALL PIPE FOUNDRY CO. (Limited)

Manufacturers of



"Specials," Hydrants, Valves, Etc.

Offices: - - - **Canada Life Building,
MONTREAL**

A Great Saving

In fuel and repair bills—coupled with good regulation and simplicity of design—as gained for **THE WHELOCK and IDEAL ENGINES** their great popularity. If you are interested in steam power write to us about these engines. Ask for catalogue.

The Goldie & McCulloch Co., Limited, - Galt, Ont.

WE ALSO MAKE GAS AND GASOLINE ENGINES, BOILERS, PUMPS, WATER WHEELS, FLOUR MILL MACHINERY, OATMEAL MILL MACHINERY, OATMEAL STEAM PAN KILNS, WOODWORKING MACHINERY, IRON PULLEYS, WOOD RIM SPLIT PULLEYS, SHAFITING, HANGERS, GEARING, FRICTION CLUTCH PULLEYS, Etc., Etc. SAFES, VAULTS and VAULT DOORS.

THE IMPERIAL OIL COMPANY, Limited.

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

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

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

Refineries at **SARNIA** and **PETROLIA, CANADA.**

Merchandising Branches at:

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

Branch Offices and Agencies:

Vancouver B.C.

Wm. Hamilton Mfg. Co.

Winnipeg, Robt. Douglas, 84 Alexander Avenue.

Montreal, 321 St. James Street.



John Bertram & Sons

DUNDAS, ONTARIO.

Canada Tool Works

MANUFACTURERS AND BUILDERS OF

**METAL-WORKING
MACHINE TOOLS**

—FOR—

Machine Shops,
Ship Yards, Boiler Shops
Rolling Mills,
Locomotive and Car Shops,
Brass Shops.

PAPER MILL MACHINERY.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE NOVA SCOTIA STEEL CO., LIMITED

MANUFACTURERS OF

BRIGHT COMPRESSED STEEL SHAFTING

FROM $\frac{3}{8}$ TO 5 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN $\frac{1}{100}$ 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.

"FERRONA" PIG IRON, For Foundry Use.

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

Head Office—NEW GLASGOW, NOVA SCOTIA

GALT Machine Knife Works

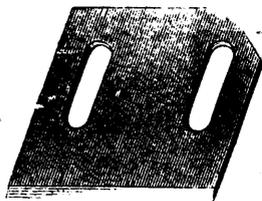
PETER HAY,



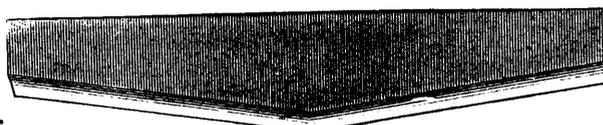
GALT, ONT.

Manufacturers of Every Description of.....

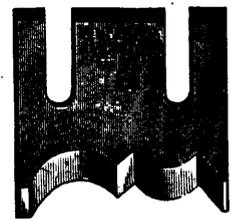
KNIVES, For Wood-Working, Paper Cutting and Leather-Splitting Machines



BARK KNIVES
PULP KNIVES
RAG KNIVES
Etc., Etc.



Shear Blades,
Straw Knives,
Paper Knives,
Etc., Etc.



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

DOMINION BRIDGE CO., Limited,



MONTREAL AND

LACHINE LOCKS, P.Q.

Steel Bridges for Railways and Highways,
Steel Piers and Trestles, Steel Water Towers and Tanks,
Steel Roofs, Girders, Beams, Columns for Buildings.

A large Stock of **ROLLED STEEL BEAMS, JOISTS, GIRDERS, CHANNELS, ANGLES, TEES, Z BARS and PLATES**

Tables, giving Sizes and Strength of Rolled Beams on application.

ALWAYS ON HAND

IN LENGTHS TO THIRTY-FIVE FEET.

Post Office Address,
MONTREAL.

GEORGE E. EVANS, Agent, 38 Canada Life Building
TORONTO ONT.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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

PURE ALKALI

48% and 58% (Light and Heavy)

BLEACH^g PWD.

35% to 37% (Hardwood Casks)

CAUSTIG SODA

60% to 77%



TRADE MARK

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.

Wm. J. MATHESON & CO., LIMITED

NEW YORK

BOSTON

PHILADELPHIA

PROVIDENCE

CHARLOTTE, N.C.

MONTREAL, CANADA

DYE . . .

STUFFS

The Polson Iron Works, TORONTO CANADA.

THE BEST EQUIPPED BOILER AND ENGINE WORKS IN CANADA.

We Manufacture—

STEEL BOILERS

The BROWN AUTOMATIC ENGINE, MARINE ENGINES (SINGLE, COMPOUND AND TRIPLE), Hoisting and Mining Engines

STEEL STEAM VESSELS OF EVERY DESCRIPTION.

STEAM YACHTS AND LAUNCHES.

GET OUR PRICES BEFORE ORDERING.

ESPLANADE EAST, Foot of Sherbourne St., - - Toronto, Canada

The universal satisfaction given by our DERBY and REECE SCREW PLATES, cutting from 1/16 to 1/2 inch, including all the machine screw sizes, has created a demand for a plate made on the same principle, to cut bolts to 1 inch in diameter. To meet this demand we have brought out these sizes.



DERBY SCREW PLATE NO. 101
1/4 TO 1 9 SIZES WITH TWO STOCKS
1/4, 3/16, 1/8, 7/16, 1/2 IN SMALL STOCK
1/2, 3/8, 3/4, 7/8, 1 IN LARGE STOCK

SIZE 10 1/2 STOCKS 14 IN. AND 26 IN. LONG

BICYCLE SCREW PLATES, REECE SCREW PLATES, DERBY SCREW PLATES, BLACKSMITH'S STOCKS AND DIES, BLACKSMITH'S IMPROVED SCREW PLATES, HAND TAPS, MACHINE TAPS, PIPE TAPS, EVERY KIND OF TAPS AND DIES.



REECE'S NEW SCREW PLATE
WITH ADJUSTABLE TAP WRENCH.

SIZE EE STOCKS 14 AND 26 INCHES LONG

BUTTERFIELD & CO., - Rock Island, Que.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ALBERT MANUFACTURING CO.

MANUFACTURERS OF THE
WELL-KNOWN

"HAMMER BRAND"

Calcined Plaster

AND

Patent Rock Wall Plaster
HILLSBOROUGH, N. B.,
CANADA.

KEMP MNFG. CO.

TORONTO.

Galvanizing

DONE FOR THE TRADE.

GET OUR PRICES.



For IRON FENCING,
BANK and OFFICE RAIL-
INGS and all kinds
of IRONWORK

Address:

Toronto Fence & Ornamental Iron Works
99 Queen St. East, Toronto.

BROWN & CO.

Manufacturers of
Square and Hexagon

HOT PRESSED NUTS.

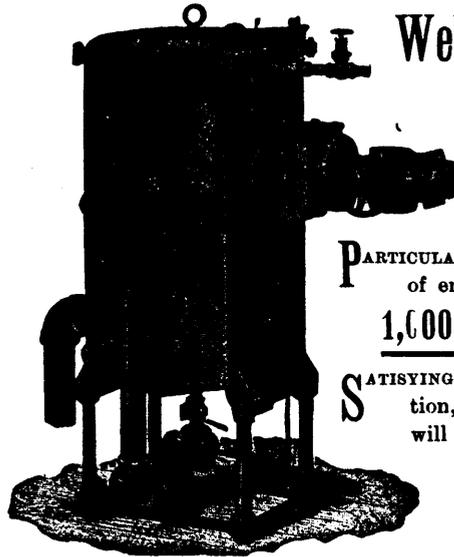
PARIS, - ONT.



Send for Catalogue and Price
List to

THE JOHN MORROW MACHINE SCREW CO.
INGERSOLL, ONT.

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



Webster Feed Water Heater AND PURIFIER

BEFORE PURCHASING ELSEWHERE
ENTERTAIN A BID FROM US.

PARTICULAR experience for ten years in this department
of engineering, and the fact that over
1,000 WEBSTER HEATERS are in use, is
self-explanatory.
SATISFYING particulars, embracing details of construc-
tion, materials, operation and exclusive results,
will be sent on application.

DARLING BROTHERS,
Reliance Works, MONTREAL.

A. KLIPSTEIN & CO. 122 Pearl St. New York

Anilines, Dyestuffs & Chemicals

DELIVERY MADE AT NEW YORK, MONTREAL OR HAMILTON.

AGENTS,
WRIGHT & DALLYN, HAMILTON, ONT.



"Robb-Armstrong" Engines at
Sao Paulo, Brazil

BUILT BY

ROBB ENGINEERING CO., LIMITED, Amherst, N.S.

Agents { WILLIAM McKAY, - 19 McKenzie Crescent, Toronto
WATSON JACK & CO., - 7 St. Helen Street, Montreal

HAVE YOU HEARD
 ABOUT OUR
STEEL POINTED
CORE DRILL?
 CUTS ANY ROCK. NO DIAMONDS.
Davis Calyx Drill Co.

Canadian Rand Drill Co.
 Agents.
 18 VICTORIA SQ.
MONTREAL.

RUBBER 
BELTING

"The large 28-inch driving belt you made for us is the admiration of everyone."
 THE CONGER LUMBER Co.,
 Toronto.

THE
CANADIAN RUBBER Co

MONTREAL  **TORONTO**
WINNIPEG

BUYERS' GUIDE
OF CANADA

Book 8 x 10 inches. 488 Pages.
Price, - \$5.00

SENT ON RECEIPT OF PRICE.

THE CANADIAN MANUFACTURER PUBLISHING CO.,
TORONTO.

See particulars in Advertisement on page 39.



DODGE
PATENT WOOD SPLIT PULLEYS

WITH INTERCHANGEABLE BUSHING SYSTEM.

Standard of Excellence Everywhere.

OVER 2,000,000 IN DAILY USE

Sales Agencies all over the World.

SOLE MAKERS . . .

Dodge Mfg. Co. **TORONTO**
ONT.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Pumps

"FOR ALL DUTIES"

We invite enquiries from engineers in need of any description of Pumping Machinery. We manufacture over five hundred varieties and sizes of Steam and Power Pumps for stationary and marine purposes. We will be pleased to furnish plans and specifications for any special types. Our Catalogue, giving a good idea of our standard patterns, sent free to all enquirers.

Northey Gas and Gasoline Engines

To anyone requiring a compact, thoroughly reliable engine, especially suited for users of intermittent power, we recommend our Gas and Gasoline Engine. We shall be glad to furnish estimates for Gas or Gasoline operated pumps, electric light plants, etc., etc. Explanatory Booklet free on request.

Northey Mfg. Co., Limited, 1000 KING ST. SUBWAY, **Toronto, Ont.**

BUYERS' GUIDE OF CANADA

Book 8 x 10 inches. 488 Pages.

PRICE, - \$5.00.

SENT ON RECEIPT OF PRICE.

THE CANADIAN MANUFACTURER PUBLISHING CO., TORONTO.

See particulars in Advertisement on page 39.

RODERICK J. PARKE, CONSULTING ENGINEER TO MANUFACTURERS:—Competent and impartial advice on Industrial Electrical Systems of Lighting, Power Distribution, Heating and Welding, Etc. Plans, Specifications, Tests, Reports, Valuations.

Temple Bldg., - TORONTO.
Long Distance Telephone.



Reflectors, Shades, Lamps

We Stock a Large Variety of SHADES
and REFLECTORS in

ALUMINUM, MIRROR, CELLULOID, PAPER, PORCELAIN,
FOR FACTORY AND OFFICE.

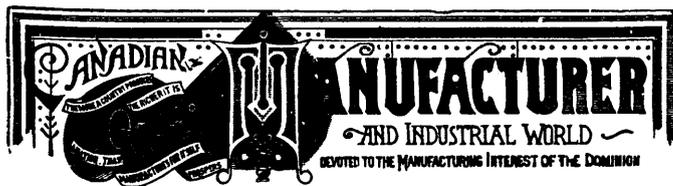
Imperial Lamps and Helios Upton Enclosed Arcs Give BEST LIGHT with LEAST CURRENT

ELBRIDGE Sparking Dynamos, SAMSON Batteries and IMPERIAL Salts, for Gas or Oil Engines.

Write us about Lighting
your Factory or Office.

JOHN FORMAN, 708 and 710 Craig St., MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



ESTABLISHED IN 1880.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

SUBSCRIPTIONS :

CANADA AND UNITED STATES, - - - \$1.00 PER YEAR.
 ALL OTHER COUNTRIES IN POSTAL UNION, EIGHT SHILLINGS
 STERLING PER YEAR, INCLUDING POSTAGE.

The Canadian Manufacturer Publishing Co., Limited.

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

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

MESSRS. DAVISON & CO.,

164 Federal Street, - Boston, Mass.

AGENTS FOR UNITED STATES.

Index to Advertisers Page 42

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

THE TORONTO INDUSTRIAL EXHIBITION.

The special committee of the Toronto City Council, appointed to enquire into the affairs of the Toronto Industrial Exhibition Association, have reported their findings, etc., to the City Council, which will take action thereon at an early day. Some of the more important suggestions made by the committee include that application be made to the Ontario Legislature to abolish the representation of the Electoral District Society on the Industrial Exhibition Board; that the mayor of Toronto and all the aldermen be made members of the Association and that the mayor be ex-officio a director of the Board, and that at least five of the directors be appointed by the City Council. While not condemning the presence on the fair grounds of proper amusing entertainments, the committee are of the opinion that side shows and special attractions should be assigned locations specially set apart for that purpose, and not in close proximity to any of the exhibition buildings, and that the unseemly noises of shouters and fakirs should be suppressed. Alluding to the friction that has for some time existed between certain of the exhibiting manufacturers and the management of the Fair, in the opinion of the committee enough had not been done to remedy the evils complained of; and they urge that special efforts should be made not only to get the dissatisfied manufacturers, who have withdrawn from exhibiting at the Fair to return, but endeavors should be made to induce many more exhibits of processes of manufacture. The committee believe that the inadequate accommodations offered to manufacturing exhibitors had much to do with the unpleasant conditions that have prevailed; and while they recognize that new buildings and similar improvements are necessary, they consider the estimates made by the Association excessive, and suggest that the City Council submit a by-law to the ratepayers to sanction the expenditure of a sum not greater than \$131,000 for such purposes.

Regarding the management of the Fair, the committee, while unable to report the exact causes of dissatisfaction with

it, have no doubt that some of them were unimportant, at the same time expressing the opinion that the management have not exerted themselves as they should have done to remedy obvious defects nor to meet the views of the manufacturers in matters in which, as exhibitors, they were so much interested.

The committee express their disapproval of the manner in which the Exhibition Association elect their Board of Directors; and one of their most important recommendations is that its by-laws be amended to provide for sending to each member a list of all the members, at least fifteen days before the annual meeting, so that such member may intelligently make his nomination for directors, to be received by the secretary up to at least one week previous to the date of the annual meeting; and that a ballot paper be prepared containing the names of such nominees, alphabetically arranged, to be voted in the election for the board of directors.

Almost concurrently with this action on the part of the special committee of the City Council occurred the annual meeting of the Industrial Exhibition Association, at which was adopted the usual directors' report, in which was announced the proposed changes and increases in representation of the constituent bodies included in the Association, a feature of which was the addition of seven new representatives to the Canadian Manufacturers' Association. Upon the adoption of the report the new members took their seats and participated in the proceedings.

The diversity of views between the special committee of the City Council and those who run the Industrial Association was evident in what took place. The election of directors being the business in hand, Alderman Cox, of the City Council, moved that all members of the Association should be considered eligible as directors; to which the president, Dr. Smith, replied that this motion was out of order, inasmuch as a by-law required that the ballot papers must contain only the names of the old directors, with spaces for new names where the number of old ones was deficient of the whole number to be elected. Mr. Thorn drew attention to the fact that the by-law was a new one passed by the directors, and had not, until that hour, been approved by the Association then in annual meeting assembled. "It is a scheme of the old board," he said, "to re-elect themselves," whereupon he was requested by the president to withdraw the word "scheme," which he did, but scheme it evidently was, and the scheme carried. The old board was then re-elected, four vacancies being filled by that number of new men who evidently had a pull.

In our opinion the ratepayers will vote down any by-law that may be presented looking to the appropriation of a large sum of money for exhibition purposes, as long as it is under its present management.

CANADA'S PAPER AND PULP TRADE.

Shipments of \$37,743 worth of paper to Sydney and of \$11,870 worth to Melbourne during the week closed February 23, helped very materially to bring the total value of the export trade from New York to a respectable figure. The total was \$69,451. Shipments of a value greater than \$1,000 other than those mentioned, were: To Bristol, \$1,075; to Bombay, \$1,087; to Buenos Ayres, \$1,109; to London, \$4,731; to Mexican ports, \$1,373; to Montevideo, \$1,141,

and to Rotterdam, \$7,000. Even with the large value for the week, the total of our exports for the month of February promises to be unusually small.—The Paper Mill.

Reference to the Trade and Navigation Returns of the Dominion for the year ending June 30, 1900, shows that, excepting wall paper, no other paper was exported from Canada in that year. Considering that such materials as American paper is made of was exported from Canada to the United States in 1900 to the value, for wood pulp, \$1,193,753, and pulp wood, \$864,077, total \$2,057,830, it is quite surprising that shipments of a value greater than \$1,000 each aggregating more than \$87,000 should be made in one week from one American port, and not one dollar's worth from Canada in a year. This indicates that we are neglecting good opportunities for building up foreign trade in paper.

Re our export trade in wall paper: According to the authority alluded to, our exports of that article in 1900 amounted to 273,516 rolls, distributed, according to value, as follows:—

Great Britain	\$1,359	4.5 per cent.
United States.....	23,561	79.2 "
Australia.....	2,087	
British Africa.....	176	
British West Indies.....	131	16.3 "
Newfoundland.....	2,334	
France.....	93	
Total.....	\$29,741	100. "

Canada's exports of pulp wood during 1900 were valued as follows:—

Great Britain.....	38,370	4.7 per cent.
United States.....	864,077	95.0 "
Newfoundland.....	325	.3 "
Total.....	\$902,772	100. "

Canada's exports of wood pulp in 1900, were as follows:—

Great Britain.....	\$562,178	31.0 per cent.
United States.....	1,193,753	65.0 "
Belgium.....	19,603	
Cuba.....	677	
France.....	25,066	4.0 "
Germany.....	5,313	
Japan.....	3,421	
Mexico.....	6,005	
Total.....	\$1,816,016	100. "

The total aggregate values of exports of these three articles, wall paper, pulp wood and wood pulp, in 1900 were:—

Great Britain.....	\$601,907	22.0 per cent.
United States.....	2,081,391	76.0 "
All other countries.....	65,231	2.0 "
Total.....	\$2,748,529	100. "

Imports of paper and manufactures of into Canada in 1900:—

Articles.	Great Britain.	United States.
Aluminized	\$3,648	\$104,435
Bags and sacks.....	25	12,628
Cardboard.....	1,700	26,758
Envelopes.....	7,669	20,860
Straw board tarred.....	72	14,737
Wall paper.....	8,655	79,021
Borders.....	56	2,642
Leather board	51	6,272
Mill board.....	653	17,218
Papeteries.....	76,027	297,065
Printing.....	57,326	134,130
Straw board in rolls.....	175	16,546
Wrapping.....	2,385	13,225
All n. e. s.....	105,215	252,188
Total.....	\$263,657	\$997,725

Total value of imports from these two countries as follows:

Great Britain.....	263,657	21.0 per cent.
United States.....	997,725	79.0 "
Total.....	\$1,261,382	100. "

THE PREFERENTIAL TARIFF.

In the February issue of Industrial Canada is published a letter written by Mr. W. K. McNaught to the president of the Canadian Manufacturers' Association bearing upon the import trade of Canada. The occasion arises through the recently expressed intention of the Canadian Pacific Railway Co. and the Grand Trunk Railway Co. to make the American ports of Portland and Boston their terminal points on this side of the Atlantic in shipments of Canadian exports to Great Britain and Europe, and their receiving ports of imports into Canada instead of Halifax, St. John, Quebec and Montreal, all Canadian ports. These two great Canadian railways, Mr. McNaught points out, have been largely subsidized with Canadian public money; are mainly supported by Canadian traffic, and should assist as far as possible to build up instead of destroy our national seaports, and our ocean-carrying trade with the Mother Country. He points out that a possible way to circumvent this proposed action on the part of the railroads is to refuse to allow the benefit of the preferential tariff on British goods unless imported direct through Canadian ports. The letter concludes with a notice of motion to be considered at a meeting of the Executive Committee of the Association, and is as follows:—

That, in the opinion of this Association, the best interests of the Canadian people demand that the tariff preference of 33½ per cent. now given to goods of British manufacture should be allowed only upon such articles as are imported direct from Great Britain or any British colony, having preferential arrangement with this country, to some port within the Dominion.

The letter was read and discussed by the Executive Committee and referred to the Railway and Transportation Committee for report thereon, and this report was to form the basis for further discussion at the next Executive meeting. In this way, we are told, the opportunity will be given for the fullest discussion of the subject by all who may be interested, either as importers or exporters "who make use of the facilities afforded by the railway and steamship lines, both to Canadian and United States ports." Any members of the Association who entertain views on the subject are invited to send them to the Committee before the matter is passed upon by the general Association.

Mr. McNaught's suggestion has received considerable attention, both inside and outside the Association, meeting with support from some and opposition from others. It was intended to appeal to a feeling of patriotism which, if attempted to be carried out, would prove to be an impossible thing—force a majority of the import trade of Canada into a channel not entirely suitable for it, and to put a restraint upon it which, for obvious reasons, would, we think, work disastrously to the best interests of the country. The trouble is that the railways discriminate in their freight charges against Canada and in favor of the United States, and it is not in the power of Parliament to prevent it, as long as their management and control resides in corporations and not in Parliament. The roads should be nationalized. There can

be no disagreement as to the desire to build up our ocean ports; but if they are handicapped by circumstances over which we have no control, the general interests of the country should not be made to suffer therefrom as would be the case were Mr. McNaught's suggestion to be adopted. As Mr. Thorn points out to the Executive Committee, while we are all in accord with the idea of building up our Canadian ports, it should not be at the expense of Canadian and British manufacturers. Mr. McNaught, he says, does not realize to what extent many of our manufacturers have to import their raw materials through American ports, having due regard to convenience, rapidity and cost of transportation, without which their industries would be very unfavorably affected; that he does not realize to what extent articles of American production have already displaced similar articles of British production in the Canadian market; that surely he does not wish to assist American competition against British manufacturers in this market, and to more than ever place Canadian importers in the clutches of the railway and steamship companies.

Canada would undoubtedly stand to lose a great deal more than Mr. McNaught has any conception of by the adoption of his ill-considered suggestion. It is like a two-edged sword. It is like the dog which, crossing the bridge, abandoned the food it already possessed for the shadow in the water. At present we are allowed to bring merchandise in bond through United States ports, which privilege might be withdrawn, although the withdrawal might unfavorably affect certain American trade. Remember Grover Cleveland. Mr. McNaught should withdraw his notice of motion. He might find a few supporters of it in manufacturers in the Maritime Provinces, but not elsewhere. He might persuade his executive committee to view the matter through his spectacles, but it is doubtful if the Canadian Manufacturers' Association, as a body, would commit itself to recommending it to the Dominion Government, backing it up in such force as to create the impression that they really desired such legislation. We are no admirer of the jug-handled preferential tariff we now have, but as long as we have it, do not destroy it in an illegitimate manner and at the expense of the prosperous trade of the whole country.

A TWO EDGED SWORD.

La Presse, of Montreal, alluding to the proposition to disallow the tariff preference on British goods when imported through any foreign port, speaking of it as a weapon that cuts both ways, says:—

Some merchants believe that they have solved the great difficulty in the presence of which we are placed by the determination of the Grand Trunk to send a portion of its traffic to Portland. They want the preferential tariff accorded to Great Britain to apply only to Canadian ports, and not to be in force at Portland, Boston, or New York. The game is dangerous. Up to the present day Canada has very much appreciated the bonding privileges which the American Government has conferred upon us. We have imported without difficulty merchandise urgently required, coming to us by rapid steamships via New York especially. The first thing the United States would naturally think of would be to abolish these privileges, as Cleveland once did when we attempted to establish a preferential tariff on our canals.

The C.P.R. could no longer carry freight via St. John. Nothing could come to us in winter from New York, Boston, or Portland. We would be limited to the long journey upon the Intercolonial from Halifax. Frankly it would be exercising a vengeance disastrous for us. And nevertheless at the last meeting of the Manufacturers' Association the vein was struck by giving importance to this illusory project. A letter from Mr. W. K. McNaught was read, in which he said:—

"It is evident that if our two great national railways put into execution the plans announced, the results, if they are not disastrous for the Canadian ports and commerce, will be, at least, for them, because there is, fortunately, a remedy which can easily be applied, and which is at our command. It is the refusal to give the rebate of 33 1-3 per cent. upon English goods unless they are imported from England direct to Canadian ports."

In other words, we should not allow English goods to participate in the preferential tariff privileges which are imported from any other country. Such a policy would compel the railways to use the Canadian ports rather than foreign ports, would force the importers to encourage Canadian ports, would mean the future of the ports of Montreal, Quebec, Halifax and St. John and would necessitate the laying down of a double track on the Intercolonial, which, instead of being a charge upon the country, would be a great source of revenue. In accordance with the intention advocated in this letter, Mr. McNaught gave notice of the following proposition:—

"That, in the opinion of this association, the best interests of the Canadian people demand that the preferential tariff of 33 1-3 per cent. accorded to merchandise manufactured in England be tolerated only on articles imported directly from Great Britain or from any British colony having preferential arrangements with this country to any port in the Dominion of Canada."

THEN AND NOW.

Some of the recent events occurring where delegations have interviewed the Ottawa Government in behalf of local and general interests, and in the interests of our manufacturers, but in which delegations we do not observe the names of any representatives of the Canadian Manufacturers' Association, are as follows:—

A delegation from the city of Toronto, requesting aid for the improvements of Toronto harbor. Every Toronto manufacturer is interested in this matter.

A deputation from the city of Hamilton showing the need of increased depth of water in that harbor and the approaches thereto. Hamilton is one of the most important manufacturing centres in Canada.

A deputation from the town of Oshawa, asking for the deepening of that harbor and other improvements to navigation. Oshawa is an important manufacturing town, in which many of the "Old Guard" do business.

A deputation from Montreal asking for a bettering of the facilities of access by the St. Lawrence route. Montreal is perhaps the most important manufacturing centre in Canada, and the continued prosperity of all Eastern Canada depends upon the facilities of ocean navigation to that port.

A deputation of paper box and paper bag manufacturers of the Dominion asking increased tariff protection. Many of the manufacturers of these and kindred lines are members of the Manufacturers' Association.

Collingwood, Ont., Midland, Ont., and Sydney, N.S., each of which have recently become important iron manufacturing centres, are petitioning the Government for harbor improve-

ments, without which these industries will be badly handicapped. The active influence of the Manufacturers' Association should be brought to bear in this matter. Every manufacturing and other industry in Canada is interested.

The producers and refiners of petroleum, particularly those of Western Ontario, are apprehensive of changes being made in the tariff, several deputations of whom have waited upon the Government in the matter. Some of these producers are of the Old Guard. What is the Association doing for them?

Per contra, a deputation of importers of American oil have interviewed the Government asking that coal oil be placed on the free list. Does the Association combat this move?

According to the Victoria, B.C., Colonist, an agent of the Manufacturers' Association was recently in that province offering inducements to the lumbermen there to become members, a representation made to them being that as the Association was numerically strong it was able to bring strong pressure to bear upon the Dominion Government and thereby secure concessions to them that they could not otherwise obtain; and that the securing of the re-imposition of the duty on lumber would be one of the Association's strongest efforts during the present session of Parliament. According to the Mail and Empire a deputation of British Columbia and other lumbermen is about visiting Ottawa (they have done so) to urge the Dominion Government to impose a retaliatory duty on American lumber, and desire the co-operation of any who can help them, and the question with them is: Will the Association bring its strong pressure to bear in this direction?

Mr. George E. Clare, M.P., for many long years one of the Old Guard of the Association, one of the largest manufacturers in Ontario and a large employer of labor, is endeavoring to obtain an amendment to the existing Alien Labor Law in the interests of the mechanics and laboring men of Canada, but we do not observe that any deputation from the Association are at Ottawa backing him in his endeavors. Such action may be in contemplation, but it is not yet in evidence.

Only a few days ago, in the Dominion House of Commons, a motion was introduced looking to the establishment and encouragement of beet root sugar factories, which question is yet standing for discussion. The mover showed what the importance of such an industry would be to Canada; and as repeatedly shown in THE CANADIAN MANUFACTURER, the establishment of the industry in this country would mean big business to our builders of machinery, and to all branches of trade, including the farmer interest, and yet we have not learned of any delegations from the Association presenting themselves before the Government, "alive with concentrated energy," urging that the necessary encouragement be given.

Recently the Ontario Government sent a commission of qualified farmers to investigate the beet sugar industry as it exists in the State of Michigan, and their report was presented a few days ago to the Legislature now in session, in which it is stated that there are large areas of farm lands in Ontario in which sugar beets can be grown to the very best advantage, and equal to the very best sections of Michigan where the farmers last year made an average profit of \$3.25 per ton on their production of beets. And yet, while the Ontario Government are inclined to assist the

industry, and require all the encouragement available in facing the opposition of their political enemies, we hear of no deputations from the Manufacturers' Association, "alive with concentrated energy," encouraging Premier Ross to do a thing that would result in so much advantage to the members of the Association.

It is recorded in the books of the Association that under a previous regime strong resolutions were passed looking to the establishment of numerous industries in Canada, including sugar factories, iron works, etc., representations regarding which were made wherever the Old Guard believed their influence might be of value. This influence was never exerted by fits and starts. It was persistent and usually brought to bear with a view to obtaining the desired end rather than by asseverations of what would be done—at some future time. The enlargement and extension of the bounties upon the production of iron and steel followed quickly upon the demand for them by the Association under the management of the Old Guard, of whom the Monetary Times speaks so sneeringly. It was this organization of clever business people who, working in unison and with commendable energy, sent a large delegation of members engaged in a variety of different pursuits, to interview Sir Oliver Mowat, who was then Premier, in the interest of the iron industry which was at that time seeking recognition from the Ontario Government; which effort was quickly followed by the offer of a substantial bounty which has resulted in Ontario becoming the centre of an iron and steel industry which has done and is doing so much for the material advancement of Canada.

THE SHOE TRADE OF CANADA.

A recent issue of the *Berichte uber Handel und Industrie*, Berlin, Germany, is devoted entirely to the discussion of German shoes in competition with those of other countries in various markets, and is made up of reports from German Consuls in all parts of the world. Regarding the conditions in Canada the translated report is as follows:

By far the largest proportion of Canada's supply of shoes is furnished by local manufacturers. The value of the imports of leather boots and shoes in a country having 6,000,000 inhabitants was in the fiscal year 1898 only \$378,000, and in the fiscal year 1899 only \$453,000. The importations consisted chiefly of men's and women's shoes, while the commoner goods were manufactured at home. Over 90 per cent. of the imported boots and shoes come from the United States. There were imported:

From	1898.	1899.
United States.....	\$358,000	\$428,000
Great Britain.....	16,000	20,000
Germany.....	1,138	1,462
China.....	2,633	1,333

The boot and shoe industry of Canada is in the position of highest development, and as regards the quality of the product may be classed with the same industry in the United States; indeed, it is closely identified with that of the United States in imitation of styles and in the introduction of the improved machinery and other appurtenances. The manufacturing is done largely in factories using machinery. Making to measure is practically unknown and hardly one-tenth of the production is that of hand work. In Montreal there are three shoe manufactories, each with a capital of

from \$300,000 to \$500,000, as well as a number of smaller ones. The largest factory produced 2,000 pairs of shoes daily. In Quebec there are two factories with a capital of \$124,000 to \$200,000 and two with a capital of from \$75,000 to \$125,000, as well as several smaller ones. In Toronto, in addition to a number of small concerns, there are three with a capital of from \$75,000 to \$125,000 each. The export of boots and shoes is small, amounting for the fiscal year 1898-99 to \$90,000 and \$82,000, respectively. The largest portion went to Newfoundland and the neighboring French island of St. Pierre and the British West Indies, as follows :

	1898.	1899.
Newfoundland.....	\$40,393	\$37,864
St. Pierre.....	7,264	10,769
British West Indies.....	14,931	11,216
United States.....	12,163	6,839
Australia.....	2,643	1,770
Great Britain.....	1,885	9,331
Germany.....		308

An increase in the sale of German shoes in Canada, in view of the numerous difficulties presented, is hardly to be expected, and then it would only be possible to send the very finest goods, since the demand for commoner sorts is met by local production. The retail price of fine shoes in Montreal is from \$3 to \$6 a pair, about the same as the retail price in the largest cities of Germany. German goods, as well as those from the United States, are subjected to an ad. valorem duty of twenty-five per cent. Those coming from the United States have the advantage on account of the styles, which meet those of Montreal, while the German article is not up-to-date. The styles in shoes change very frequently, and they do not always represent those in vogue in Germany at the same time. On the other hand, where in Germany a small shoe is preferred, perhaps in Montreal the style calls for a very broad one, or vice versa. Very fine goods which do not correspond with the prevailing style are hard to dispose of. In order to increase the consumption of German shoes in Canada it is, above all, of the greatest importance that the German manufacturers should be alert and continually study the styles. Notwithstanding this, however, since the demand for foreign shoes in Montreal is small, and as the field is entirely covered by the United States, successful competition is hardly to be expected.

From which it will be observed that our Canadian shoe manufacturers virtually control and supply the home market, which is, without doubt, the best market in which to sell.

EDITORIAL NOTES.

The Canadian Manufacturers' Association have sent out a circular to its members announcing the inauguration of a new branch of its work which should interest those engaged in importing and exporting trade. We are informed that the Association is now in a position to furnish members with reliable confidential reports of the commercial standing of foreign concerns. The service will be provided at a minimum cost, and it is promised that in every case the report furnished will be based upon information obtained from two entirely separate and independent sources. Members are requested to bear in mind that the Association is in a position to obtain information at once.

Our esteemed, the Monetary Times, a few days ago, perpetrated the following :—

From a condition of latency to one of alertness ; from a society of hum-drum inactivity to one of practical usefulness ; from an organization of clever business people not working in unison to a body alive with concentrated energy—such is the change which has taken place in the Canadian Manufacturers' Association.

It is an occasional occurrence among some American journals to surrender their columns temporarily to cranks to ventilate their fads, as the Peoria, Ill., Journal did a few days ago to Mrs. Nation and her little hatchet. The Journal was endeavoring to infuse some new life into its sleepy columns and Mrs. Nation to increase her notoriety ; and one might imagine that a realizing sense of its condition of latency, inactivity, hum-drum inactivity, and impracticability, usually a prominent feature in our esteemed contemporary, was its impetus in the above endeavor to make itself alive with "concentrated energy" after a similar manner.

The Ontario Beet Sugar Association have enlisted the co-operation of the Toronto Board of Trade in their endeavor to induce the Ontario Government to grant a bonus upon all sugar manufactured from beets grown in the province.

Referring to the conference in Sydney of the Chambers of Manufacturers, the Australian correspondent of the Iron Age says that the subject of a ten per cent. preference for British imports hardly found favor. He thinks that American manufacturers are scarcely likely to be handicapped with such restrictions, although the matter will certainly cause hot discussion in the Senate. Continuing, he says :—

The policy of a preferential tariff in favor of British-made goods would undoubtedly leap into popular favor at once if England would reciprocate by protecting Australian produce in the home market as against the Argentine Republic, whose exports of wool, frozen meat, cattle, and horses to the English market compete strongly and compare favorably with our exports in these lines. And the chief trouble is that the South American Republic, with its comparative nearness to Europe, its more suitable climate, and its cheap labor, finds more favor in the sight of capitalists, and consequently bids fair to develop more rapidly. Sentiment cannot be altogether ignored, even in business, and Great Britain may yet find it necessary to help her dependencies in the above way.

We love the man who knows it all, from east to west, from north to south ; who knows all things both great and small, and tells it with his tireless mouth ; who holds a listening world in awe, the while he works his iron jaw. Good Lord, from evils fierce and dire, save us each day ; from fear and woe, from wreck and flood, from storm and fire, from sudden death, from secret foe, from blighting rain and burning drouth, and from the man who plays his mouth.

It is stated that prominent capitalists of New York, have about completed plans for the establishment of an international bank, which will be of value to exporters. The promoters have secured a charter, which, it is believed, will cover all the business they propose to do. The bank will probably be ready to begin operations within six weeks. Its capital stock will be \$3,000,000, and its surplus will be \$3,000,000. Branches will be established in all parts of South and Central America. An effort is now being made to enlist the support of leading exporters in all the manufacturing cities in the country, in order that the bank may be a national as well as an international institution.

The Canadian Manufacturers' Association has asked the Mayor and Council to summon a convention of three delegates from such organizations as the Manufacturers' Association, the Board of Trade, the Architects' Guild, the Guild of Civic Art, Trades and Labor Council, the School Boards, etc., to consider the best idea for planning out the beautification of the city "as a Victoria memorial."—Toronto Evening Telegram.

As the Monetary Times observes, this is the work of an alert organization of clever business people working in unison with concentrated energy, in behalf of the manufacturers of the whole Dominion, from Halifax to Vancouver. Of course they are all intensely interested in the beautifying of Toronto, and the making of it a "Victoria memorial." This is indeed an act of "practical usefulness."

It might be better to lose the \$550 grant to the Electoral District Myth than let a lot of ready-made directors take possession of the Industrial Fair.—Toronto Evening Star.

Sir Wilfrid Laurier has given notice in the House of Commons that he will introduce a bill to amend the alien labor law, which is designed to meet in a measure the wishes of the labor bodies to render the act more workable. At present proceedings for the deportation of aliens under the statute can only be taken upon the sanction of the Attorney-General at Ottawa, but as this does not seem to meet with general approval, the present bill will authorize the law to be put in force upon the authority of the Attorney-General of the Dominion, the Attorney-General of the Provinces, or any Judge.

At a recent meeting of the Council of the Sydney, N.S., Board of Trade the following resolution was passed:—"Resolved: That this council endorse the suggestion of the Canadian Board of Commerce, which provides that a Customs rebate of 33½ per cent. on goods manufactured in Great Britain be allowed only when said goods are landed at Canadian ports, and pledges itself to use every means in its power to urge the adoption of this measure by the Government." Where is the Halifax branch of the Canadian Manufacturers' Association, instituted recently by Mr. J. P. Murray, that it does not declare itself in this matter?

Hon. Mr. Blair, Minister of Railways, announced in the House of Commons last week that while he endorsed the general ideas of a Railway Commission, no bill for creating one would be introduced this session.

A large deputation representing the Ontario Millers' Association waited on the Dominion Government last week requesting increased protection on oat meal. A deputation of lumbermen also waited upon the Government, urging that a duty of \$2 per thousand feet upon rough lumber be imposed, corresponding with the duty levied upon Canadian lumber entering the United States.

The regular annual meeting of the Ontario Harnessmakers' Association was held in Toronto last week, about 150 members out of a total of 252 being present. Only business of a routine character was transacted. The following officers were elected: President, Chas. Kelley, Uxbridge; first vice-president, John Broderick, Mitchell; second vice-presi-

dent, Walter Kinsey, Bracebridge; treasurer, E. B. Snow, Bradford; secretary, Alex. Downey, Toronto.

The Minister of Customs last week brought down a statement showing that from 1896 to 1900 inclusive, the Government had returned \$245,149 in rebate of duties to manufacturers of agricultural implements for export as follows: 1896, \$45,792; 1897, \$37,074; 1898, \$16,371; 1899, \$65,842; 1900, \$80,070. Of this the Massey-Harris Co. received \$221,389.

Mr. C. A. Birge, of the Canada Screw Co., Hamilton, has taken great interest in wiping out the debt of the church of which he is an active member. At a recent church meeting Mr. Birge delivered an appropriate address and proceeded to burn the redeemed mortgage for the debt, which had been a source of anxiety, and caused a smile by remarking that the mortgage must go the way of all flesh, at the same time applying a match. The proximity of the occasion to the seventeenth of Ireland may have had some influence in the allusion.

Two very important arrangements have been made at the Post Office Department which will be put into operation at a very early day. Provision is made for the insurance of valuable correspondence up to \$25, so that in sending a registered letter through the mails, for a very small fee an insurance can be effected. Arrangements have also been perfected whereby the letter-carriers will in residential portions of the cities receive and register letters while on their several trips. It will thus be a comparatively easy matter for those residing at a remote distance from the post office to hail a carrier when passing, whose duty it will be to receive and register any letters tendered him and give a receipt therefor. These two important improvements in our postal service will be greatly appreciated by the business community and residents of cities having free delivery by letter-carrier.

A deputation, consisting of representatives of the principal Boards of Trade throughout the Dominion and the Dominion Trades and Labor Congress, waited upon the Ottawa Government last week, and laid before it a memorial asking for the establishment of a national system of technical education. Sir Wilfrid Laurier remarked that it was not necessary to say that the Government fully realized the importance of the question. A good deal of the representations were on the principle of Canada having a school of technical education. There were not two minds on this point; the legal difficulties, however, arising out of the letter of our constitution were great. Two things were asked, a Royal Commission and a Minister of Industrial Education. Could they, in the face of the constitution, establish a national school of education? The provinces had under control schools, colleges, academies, and universities, none national. He would have liked to have some hint as to what they wanted, and how to do it. The minute the Government endeavored to pass an Act on education they exceeded their powers. He would like the delegation to inform him what such a law should include. Was it their intention that the Government of Canada should open technical schools in all the towns or establish a chair in some existing establishments. He would like the committee to give him fuller information which the Government would consider.

CAPTAINS OF INDUSTRY.

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

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

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belt-ing, 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.

Jeffrey Bros. agricultural implement works at Petite Cote, near Montreal, were destroyed by fire March 3. Loss about \$30,000.

The American Shipbuilding Co., Cleveland, Ohio, intend establishing a shipyard at or near Montreal. This company is a large builder of ships for lake service, and has two ocean steamers in course of construction at Cleveland. They will be completed in October, and will be cut in two and taken through the Canadian canals in two sections. It is the intention of the company to join the sections in the St. Lawrence, and a large amount of capital will have to be invested to provide machinery for the purpose. The company has decided to go further and invest enough capital to fit the St. Lawrence yard for shipbuilding.

Fire in the pork-packing establishment of the Lawry & Son Co., Hamilton, Ont., March 3, did damage to the extent of about \$10,000.

As a result of the inspection of the factories and workshops in Toronto with regard to fire escapes, it is probable that the City Council will insist on efficient means being provided. They found less than twenty per cent. of the buildings visited had proper equipment. Information is given in the report of the business location, kind of building, number of floors, number of stairs, number of exits on ground floor, number of fire escapes, number of fire extinguishers, and number of employees. Offices were not inspected. The inspectors found that the so-called "sweat shops" of the city, many of which are in the fourth and fifth stories of buildings, are much more defective in the matter of fire escapes than fac-

ories. Ropes and straight ladders were not called proper appliances, and it is believed that many of the stair-shaped iron escapes have, through lack of attention, been rendered unfit and unsafe for use. Instances were frequently met where from fifty to one hundred girls were working on the fourth or fifth stories, their only exit in case of fire being one stairway. In other cases ropes were fastened to the tops or bottoms of windows. Down these the occupants would be expected to slide, but the police are of the opinion that such escapes would be practically useless, as the girls would not be able to hold on to them for more than a few feet. It was also observed that the interior construction of many buildings is very unfavorable to the speedy escape of employes in the case of fire. This is attributed largely to the fact that in many cases storeys have been added to the building since it was first constructed.

The River du Loup Pulp Co., Fraserville, Que., has been incorporated with a capital stock of \$250,000, to manufacture timber, etc. The charter members include J. W. Hutt, Port Medway, N.S., W. C. Trotter, St. John, Que., and S. C. Rioux, Fraserville, Que.

W. Harris Co., Danforth Road, Toronto, have installed a complete equipment for their factory, with a complete system of automatic sprinklers and yard hydrant, installing a 12,000 gallon tank on roof of building as a primary supply, and a 750 gallon underwriters' pump as a secondary supply.

The Burt Mfg. Co., Akron, Ohio, recently entered their twelfth order for Cross Oil Filters for the International Paper Co.

In the Dominion House of Commons last week the Minister of Railways stated that the contract with the Canadian Locomotive Co. of Kingston was for single expansion consolidated freight engines, with four pairs of coupled wheels. Twenty engines were ordered to be delivered as follows: The first engine on May 1, 1901, and an additional engine every ten days thereafter, until the twenty have been delivered. The price paid for each is to be \$19,000 and eighty per cent. is allowed to contractors on each progress estimate. Tenders were not asked, but an Order-in-Council was passed to the effect that as the department had obtained prices for similar engines from United States manufacturers the Government would be justified in paying this price, with duty added, less \$500 each. The agreement originally made was with Messrs. William Harty and others on December 22, 1900, and transferred to the corporation formed by the original contractors under the name of the Canadian Locomotive Co.

Mr. Charles Burrill, the well-known Nova Scotia shipbuilder and capitalist was in Montreal a few days ago in connection with important enterprises which he is promoting. Mr. Burrill is interested in the new shipbuilding industry, and believes there is a great future in store for it. He stated that people had hardly commenced to realize the vast natural wealth of Nova Scotia. The development which would take place in that province in the near future would, he believed, astonish the world, with the natural resources that were ready at hand, Nova Scotia would regain the prestige which she had in the days of wooden ships. In those days her forests provided the material for the wooden ships that sailed every sea, and her mines will now contribute it for the steel ships. Mr. Burrill said that this important enterprise would be started both at Halifax and St. John, but as the legislation is both Dominion and provincial, it will extend to other places, and other great industries would follow. Mr. Burrill has a number of other leading capitalists interested with him in the enterprise.

Continued increase in business has induced Mr. Egerton R. Case, Solicitor of Patents, Temple Building, Toronto, to open an office at Central Chambers, Ottawa, in order to give special attention to his clients' interests before the Canadian Patent Office. This office is under the management of a gentleman, who also gives special attention to Patent Litigation. Mr. Case has also an established associate in Washington, D.C., to look after his clients' interest before the United States Patent Office.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET Air Compressors

STRAIGHT LINE
 DUPLEX and
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

JAMES COOPER MANUF'G CO., Limited, - 299 St. James St., Montreal.

Other Offices - - - ROSSLAND, B.O. RAT PORTAGE, ONT. HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Laval Electric & Power Co., Montreal, will apply for incorporation with a capital stock of \$100,000 to produce electricity for lighting, heating and motive power. The applicants include H. W. Garth, L. J. Tarte and J. O. A. Laforest, all of Montreal.

The recent successful tenders for different harbor works, being done by the Dominion Government were: Montreal, J. C. Malone, \$631,033; Quebec, N. K. & M. Connolly, \$886,606; Hamilton, Ont., M. A. Pigott, \$827,000; Ottawa, Ont., W. H. Davis, \$936,570; Montreal, F. B. McNamee, \$1,009,000; Coteau Landing, R. McDonald, \$1,185,000.

The Smart-Eby Machine Co., Hamilton, Ont., have received orders for the following:—A special charging box for Hamilton Steel & Iron Co., Hamilton, Ont.; a number of extra bending machines for F. W. Hore & Son, Hamilton, Ont.; a duplex pump for C. A. Matheson, Perth, Ont.; a machine for slicing oranges for marmalade for Upton Canning Co., Hamilton, Ont.; a set of Roger's patent shaking and dumping grate bars for Malcolm & Souter, Hamilton, Ont.; a number of dryers and a set of callendar rolls for Stutt & Sons, West Flamboro, Ont.; an automatic feed pump and receiver for Kinleith Paper Co., St. Catharines, Ont.; a high speed vertical en-

gine for electrical works of London Engine & Supplies Co., London, Ont.; a five ton travelling crane for Waterloo Mfg. Co., Waterloo, Ont., several sets of stove valves for Hamilton Steel & Iron Co., Hamilton, Ont.; and shafting and pulleys for the peat plant of C. A. Matheson, Perth, Ont.

It is understood that the purchase of the Dickson property, in Peterborough, Ont., by the American Cereal Co., has been finally affected. This will be satisfactory news to the people of Peterborough, as removing all doubt in regard to the security of this industrial concern.

The machinery for the Imperial Starch Co's works, at Prescott, Ont., is arriving, and will be placed in position immediately. Starch, glucose and kindred products will be manufactured. Running the entire length of the basement will be the main shafting, which will control the power of the building. The ground floor will be used as a boxing and packing room, and immense hot water tanks, kilns and troughs will be placed there also. The next floor will have the centrifugal extractors, six starch tables (120 feet in length) and sieves. On the top floor will be agitators, mixers and degerminators, chemical tank, etc. The glucose factory will be at the west end of the building, fitted up with the most modern type of copper vacuum pans, triple effects, charcoal filters, etc.

Dr. Archold, the company's expert, was with the Kingsford Co., at Oswego, N.Y., for many years, which is said to be the largest factory of its kind in the world.

The Babcock & Wilcox Co., whose head office for Canada is at 202 St. James St., Montreal, under the management of Mr. L. R. Flint, have sent us a copy of their very useful and convenient memo-diary for 1901. It is of size suitable to be carried in the pocket, contains a variety of information with which everyone should be familiar, and it has a neat celluloid cover. Of course, anyone who contemplates purchasing a new boiler would consider the merits of the Babcock & Wilcox, and, of course, the chief object of this little booklet is to describe its advantages, especially with reference to economy, safety and durability.

It is not at all improbable that the Bell Organ & Piano Co., Guelph, Ont., will remove their factory to Toronto or Hamilton. For some time past, owing to the large increase of business of the company, they have found the facilities at Guelph somewhat restricted, and it will be absolutely necessary for them to increase their working accommodation. Whether they will rebuild their factories in Toronto, Hamilton or Guelph will depend upon the inducements that may be offered them by these municipalities. Mr. Hawkins, the

Transfer Ornaments, AMERICAN MADE.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

For HARDWARE, BICYCLES, VEHICLES, POTTERY, FURNITURE, etc.

Sketches and samples submitted free of charge. Being American manufacturers enables us to make prompt delivery. Write us

THE MEYERCORD CO., Inc., CHAMBER OF COMMERCE, - CHICAGO,

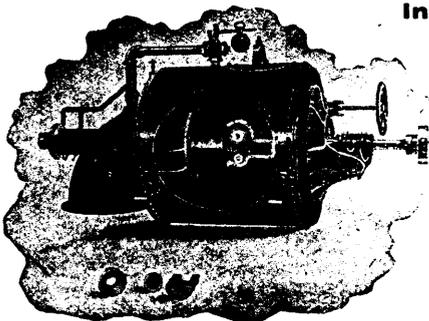
—MAIN OFFICE—

Canadian Travelling Representative,
CHAS. H. JAGGER, Hamilton, Ont.

Largest Makers in the World of Guaranteed Decalcomania Transfers.

THE **Crocker Patent Turbine**

In Horizontal Setting, with Quarter Turn Elbow.



Where the nature of the location will permit its use this type has many advantages. It is very suitable for direct connection to dynamos, and many are in operation in this class of service.

Notice how complete and compact this arrangement is, and how easily it may be installed. Can you use anything of this kind? Your inquiries will receive prompt attention.

WATER POWERS examined and Reports made. Estimates submitted for Complete Equipments.

The JENCKES MACHINE CO.,
42 Lansdowne St., Sherbrooke, Que.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

general manager of the company, says that a removal to either city would mean that 400 men with their families would be brought to it. As it is there is an offshoot of the company already in Toronto, in the Palmer Piano Co., of which Mr. G. P. Sharkey is secretary. The Palmer Piano Co. already have a demand equal to the producing capacity of their establishment. If a removal to Toronto is decided upon, new factories would have to be built here that would supply not only the demands for the Bell piano and organs proper, but also for the Palmer piano.

The National Portland Cement Co., Durham, Ont., will erect a building and plant to cost about \$500,000.

The W. H. Kelly Lumber Co., Buckingham, Ont., has been awarded contract to supply 300,000 lineal feet of timber deals and planks for the Montreal harbor works, to cost about \$45,000.

Messrs. Morrison Bros. grist mill, at Chatham, Ont., was destroyed by fire March 6. Loss about \$2,000.

Experience has clearly demonstrated that in this climate no system of ventilation can be successfully operated by itself and independently of the method of heating that may be adopted. It is, in fact, a vital element of success that the two systems be most intimately combined, for they are clearly interdependent, and when properly applied are so interwoven in their operation and results, that disunion is certain to bring about failure. For the purpose of ventilation, the fan was first applied upon a practical scale about the middle of this century, but only to a limited extent, and it was not until the fan and the steam heater in market-

able form were introduced by B. F. Sturtevant, of Boston, Mass., that the so-called "Blower System" became a reality. The system, of which these two elements are the most important factors, as originally by this house, has naturally been known as "The Sturtevant System." This system, is at once practical, successful and economical; for, air being the natural conveyor of heat, it may, when properly warmed and supplied, perform the double office of heating and ventilating. As applied, the Sturtevant System forced the air into the apartment by the pressure or plenum method.

The Crow's Nest Pass Coal Co. have ordered from the Robb Engineering Co., Amherst, N.S., a 250 horse power engine for their mine at Fernie, B.C. This is the second engine of this size supplied them within a few months.

Messrs. R. Chestnut & Son, Fredricton, N.B., have succeeded to the business of Messrs. J. C. Risteen & Co., that place, in the manufacture of doors, sashes, blinds, wood mouldings, etc.

The Standard Lumber & Stone Co., Longford Mills, Ont., has been incorporated with a capital stock of \$100,000, to manufacture lumber, etc. The provisional directors include J. B. Tudhope, Orillia, Ont., Andrew Craig, Longford Mills, Ont., and A. G. Peuchen, Toronto.

In considering the introduction of a special engine for driving the fan of a heating apparatus in connection with the Blower System of Ventilation and Heating, it should be clearly realized that a certain amount of steam being required for supply to the heater, the passage of that steam

through the engine on its way to the heater entails very little loss in its heating power, — so little, in fact, that the actual expense in driving the fan may be disregarded, and the steam-engine cylinder may be looked upon as merely an enlargement of the steam pipe. Evidently this feature of this system has its influence on the relative cost of driving the fan by engine, or by electric motor, for, in the employment of the latter, there is no incidental return whereby the cost of power is reduced.

The Metabetchouan Pulp Co. is applying for incorporation with a capital stock of \$500,000 to manufacture pulp paper, etc., to amalgamate with the Consolidated Pulp & Paper Co., Toronto.

The Siemon & Bros. Mfg. Co., furniture manufacturers, Wiarton, Ont., (who are included in the Canada Furniture Manufacturers, Limited) will add necessary machinery to their plant and manufacture excelsior for furniture and upholstering purposes.

A third edition of Walter B. Snow's lecture on "The Influence of Mechanical Draft upon the Ultimate Efficiency of Steam Boilers" has just been issued by the B. F. Sturtevant Co., Boston, Mass. It treats of the different methods of application of fans for producing boiler draft, of the relative cost as compared with a chimney, of the possible economy in first cost of boilers, running expense for fuel, etc. Copies may be obtained upon application.

The Goldie & McCulloch Co., Galt, Ont., will erect an addition to their factory. They will add a flat to their large machine shop at a cost of about \$4,000.

W. A. FLEMING & CO.,

771 CRAIG STREET, - - MONTREAL.

THE STRONGEST AND MOST DURABLE



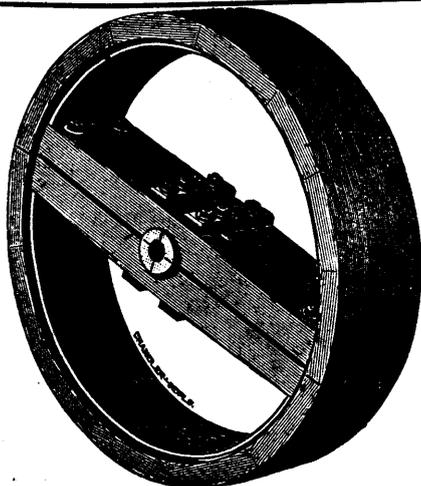
NOT AFFECTED BY DAMPNESS, HEAT OR STEAM
MOST DURABLE THE BEST FOR MAIN DRIVES

"REDDAWAY"

BALATA BELTING

STRONG, DURABLE AND NOT AFFECTED BY DAMPNESS.

WRITE FOR SAMPLES AND PRICES



"The Reeves" A HIGH GRADE
Wood-Split **PULLEY**
BUILT HONESTLY
BUILT RIGHT

It Does the Work. No Trouble. No Worry.

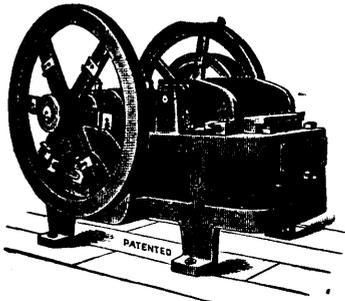
SEND FOR CATALOGUE

REEVES PULLEY MANUFACTURING CO., Limited

14 Pearl Street, - Toronto, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ROLL JAW CRUSHER.



Crushes

Large Rock

to

4 inch.

Send for Circular.

STURTEVANT MILL CO.,

104 Clayton St.
Boston, - Mass.

The Vancouver, B.C., Board of Trade has passed a resolution urging the Dominion and Provincial Governments to encourage shipbuilding on the Pacific coast by granting a small subsidy. Owing to the discrimination of American shipowners against British Columbia ports, local lumber exporters claim that trade with foreign countries is being driven away from Canadian mills. Americans have a controlling interest over the majority of vessels on the Pacific, and charge Canadian shippers from 2s. 6d. to 3s. per thousand feet higher rate than is charged on the American side of the line. As a result Puget Sound mills shipped one hundred and forty million feet of lumber last year, while British Columbia only shipped sixty million feet to Australia alone.

The Shawinigan Falls Brick Mfg. Co., Montreal, has been incorporated with a capital stock of \$25,000, to manufacture bricks, cement, artificial stone, etc. The charter members include L. B. Copeland, Three Rivers, Que., J. T. Peddie and H. H. Bullock, both of Montreal.

Messrs. Reid & Brown, Toronto, will build a new foundry to cost about \$1,400.

The Knit-to-Fit Co., Montreal, has applied for incorporation with a capital stock of \$25,000, to manufacture knitted goods. The applicants include H. M. Meyer, James Goldstein, and Berthold Marcuse, all of Montreal.

The Perth Flax Co., Perth, Ont., have recently installed some \$35,000 worth of new machinery, and another large machine is on its way from Scotland.

The Dominion Government will invite tenders for the construction of two steel steamers to replace the Newfield, wrecked last year, and the Druid, which has been condemned as obsolete. The hope is entertained that the new ships will be built in

Canadian shipyards. Orders will be given to dismantle the Druid, which is now in dock at Quebec, and dispose of her to the highest bidder.

The Grey & Bruce Oil & Gas Co., Hepworth, Ont., has been incorporated with a capital stock of \$100,000, to produce petroleum oil, etc. The provisional directors include John Caldwell and John McEwen, both of Hepworth, Ont., and W. D. Ferris, Shallow Lake, Ont.

A despatch from Montreal, a few days ago is as follows: "There are prospects of great activity in the pulp and paper manufacturing in Canada during the coming season. The smaller companies in the Province of Quebec and Eastern Ontario are to be amalgamated into one large company. The Consolidated Pulp & Paper Co., of Toronto, Limited, is about to seek incorporation under the Companies Act of the Dominion Government, with a capital of \$2,500,000, and power to increase it to \$5,000,000, if necessary. The properties to be consolidated immediately are those at Newburg and Strathcona, Ont., the Metabetchouan property at Lake St. John and the Indian Lorette mills, near this city.

The Waterloo Mfg Co., Waterloo, Ont., manufacturers of agricultural implements, etc., until recently made a specialty of manufacturing excelsior for upholsterers use at the Elmira, Ont. branch of their works, but these works having been sold to the Elmira Agricultural Works Co., this latter concern will continue the manufacture of excelsior which has been abandoned by the Waterloo Mfg. Co.

Messrs. J. & J. T. Matthews, Toronto, have recently placed their order with the Smart-Eby Machine Co., Hamilton, Ont., to rebuild the engines on their steamer "Advance" at Owen Sound, Ont.

The Imperial Oil Co., Petrolea, Ont., will build a kerosine tank building at Hartland, N.B.

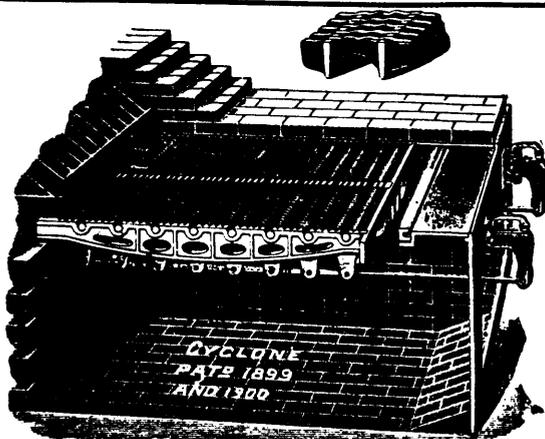
North Sydney, N.S., will expend \$100,000 on their sewers.

The John Terrault Tool & Malleable Iron Works Co., will establish a factory for the manufacture of axes and other tools at St. Henri, Que.

Messrs. Beaudoin & Co., D'Israeli, Que., has applied for incorporation with a capital stock of \$6,000, to manufacture boots, harness, saddlery, etc. The applicants include Zacharie Beaudoin, Charles Beaudoin, and J. E. Rheault, all of D'Israeli.

The Granby Printing & Publishing Co., Granby, Que., has applied for incorporation with a capital stock of \$10,000. The applicants include J. B. Payne, N. A. Meyer and George Legge, all of Granby.

Seventy-five thousand acres of valuable timber lands changed hands, and one of the most extensive deals in the history of the lumbering industry in Nova Scotia was consummated at Halifax last week. The large timber areas of the Young Bros. Co. at St. Margaret's Bay and Ingraham River, thirty miles from Halifax, were sold to an American and Canadian syndicate, composed of Messrs. Henry Patton of Albany, N.Y., H. R. Wells of Canton, N.Y., and W. D. Beardmore of Toronto. The property sold, which includes timber limits on the Indian, Ingraham, East and Hubbard's Rivers, and the large mills at Ingraham River, is one of the most valuable in the Province. The cut this year was between nine and ten million feet. The price paid for the property was \$250,000. The new owners will enter into possession at once. Mr. Wells will be resident manager. The syndicate will carry on the business at Ingraham River as at present, but exten-



USE CYCLONE GRATE BARS AND PRODUCE

CHEAPER STEAM

No individual consumer can regulate the price of coal, but you can regulate the amount of coal burned for a given power by installing Grate Bars that will produce perfect combustion. Write us for particulars.

E. J. PHILIP, Manager,

404 TEMPLE BUILDING, - - TORONTO, ONT.

PHONE 8682

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

sive developments will take place in the near future, and the present large output will be considerably increased. With ample capital at their disposal it is expected that kindred industries will also be established. The property just transferred was purchased by the Young Bros. Co. five years ago from Todd Bros., St. Stephen, N.B., for \$90,000. A large portion of the lumber on the property is hemlock, the bark of which has never been utilized, but which will now be, as it is stated that Mr. Beardmore will establish a large tannery there.

Thomas Higgins, Valley, N.S., will erect a saw and grist mill at Brookfield, N.S.

The Papineauville Lumber Co., Papineauville, Que., has been incorporated with a capital stock of \$50,000. The charter members include Henry Bourassa, Philemon de Varennes and Emery Belisle, all of Papineauville.

THE QUEEN CITY OIL COMPANY.

In the evolution of business in Toronto during the past quarter of a century nothing perhaps is more to be noted than the change that has occurred in the oil trade, whereby this city has been made the distributing centre for the entire province. And in the story of the establishment and development of the Queen City Oil Co., an explanation of the change is in great measure to be found. Twenty-five years ago when Mr. Samuel Rogers founded the business, a little one-storey brick building on Princess street was sufficient for the requirements of the trade. To-day the company have branches in all the principal cities and towns in Ontario, and around the little building of

twenty-five years ago has grown up an extensive plant, covering several acres of ground. Time was when London and Petrolea were the distributing centres, Toronto's share of the business reaching not farther than Barrie on one side and Cobourg on the other, but with the growth of the Queen City Oil Co. the situation has decidedly altered.

Modern methods and modern machinery, with the consequent economy in handling, are the secrets of the success of the company, and their works at Princess street are an object lesson in these methods. The two railway lines run right into the yards, and connect with oil pipe lines, a pipe line also extending to the wharf, where the oil is received from the vessel in bulk. The oil is piped into immense tanks, so built, with their tops some three feet underground, as to eliminate any possible risk from fire. The method of handling the empty barrels is most convenient. In the cooperage time and labor-saving machinery is utilized in the repairing of the barrels, and they are then run directly into the filling-room, where automatic fillers, operating from tanks, take but very few seconds in filling them, when they are ready to be loaded on the cars alongside. The latter operation is done by means of a runway, so constructed as to expedite the operation of loading. Included in the plant, too, are large storage warehouses, up-to-date stables for the accommodation of some thirty horses, and a steam cleaning plant for the cleaning of the oil barrels.

The tank wagons of the company are familiar enough sights on the streets of Toronto, and are rapidly becoming so all over the province. By means of them the company deliver direct into the store tanks of

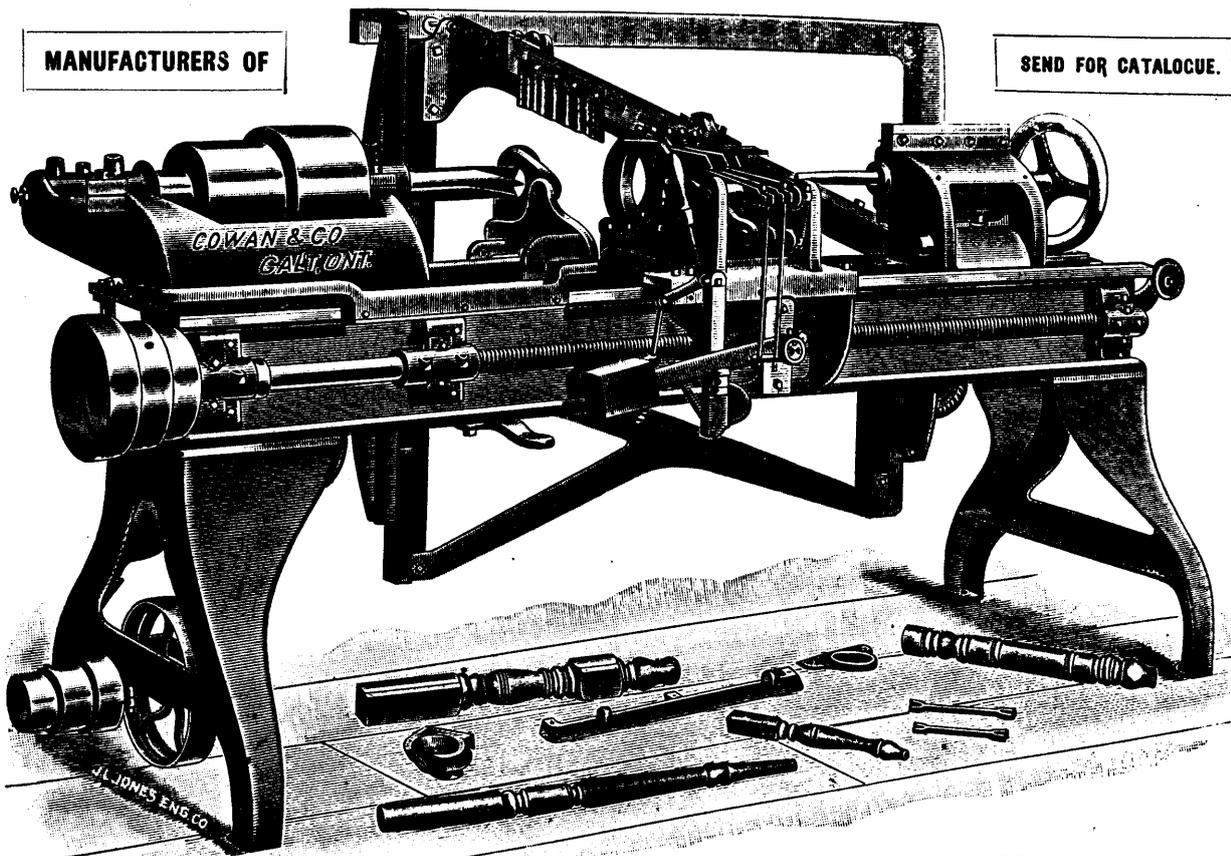
the retail trade in quantities from ten gallons upwards. The saving by this method of delivery is obvious, as all loss by shrinkage and waste, which under the old system was no small item, is absolutely done away with. The experience of the company is that they are enabled by its means to sell cheaper to the retail trade, and the customer should obtain the benefit of this. For instance, the wholesale price of Canadian oil, per Imperial gallon, at these four principal points is:—Toronto, 12½ cents, Ottawa, 13½ cents, and London and Hamilton 12 cents. This, it may be said, is from 2 to 2½ cents lower than a year ago.

Besides these four points, tank wagon stations are established at St. Thomas, Brantford, Stratford, Belleville, Kingston, Sarnia, Woodstock, Ingersoll, Chatham, Berlin, Trenton, Peterborough, Whitby, Brockville, Smith's Falls and Hawkesbury. Eleven new stations were added last year, and a similar number will be added this year. The Queen City Oil Co. is a limited liability, with Mr. Samuel Rogers as President. Two sons of Mr. Rogers are shareholders in the company, one, Mr. A. S. Rogers, being treasurer and a director, and Mr. J. P. Rogers being manager of the lubricating department. The company occupy very handsome general offices in the Lawlor building, at the north-west corner of King and Yonge streets.

The Royal Paper Box Co., City of Quebec, has been incorporated with a capital stock of \$25,000, to manufacture paper and carton boxes. The charter members include J. A. Cote, E. E. Ross, both of la Banlieue Notre Dame de Quebec, and F. A. Borden, Shediac, N.B.

COWAN & CO., GALT, ONT.

WOOD-WORKING MACHINERY, Patent-Feed Water Heaters & Purifiers



MANUFACTURERS OF

SEND FOR CATALOGUE.

ENGINES AND BOILERS, SAW MILL MACHINERY ETC., ETC.

GAUGE LATH

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE CUMMER DRYERS.

FOR Mechanically Drying Everything

THE F. D. CUMMER & SON CO.,

HUNDREDS IN OPERATION.

CLEVELAND, OHIO.

GAS AND ELECTRIC LIGHT IN CANADA.

According to a recent report of the Dominion Statistician, the development in the use of electric lamps in Canada during the past ten years has been marvelous.

In 1891, the census gave 80 establishments selling electric light; in 1897 there were 187 and in 1900, 297. The electric lamps numbered 443,897 in 1897 and 807,772 in 1900. The largest establishment in Canada is the Royal Electric Light Co., Montreal, supplying 78,762 incandescent and 1,805 arc lamps. The next largest is the Toronto Electric Light Co., supplying 75,000 incandescent lamps and 1,650 arc. The Ottawa Electric Light Co., with 77,255 incandescent lamps and 621 arc, also stands well to the front.

The Province of Ontario has made rapid strides in the employment of electricity for lighting, using 418,573 lamps in 1900, against 201,955 in 1897.

The Province of Quebec increased its employment of electric lights from 185,892 lamps in 1897 to 235,322 lamps in 1900. The other provinces have all developed the use of electricity for lighting purposes in a very satisfactory manner.

In the Province of British Columbia there were two establishments selling light in 1897 with a small number of lamps. The great Province of the West, in 1900, had 13 electric companies, with an equipment of 52,653 lamps, the number of arc lights having increased from 9,516 in 1897 to 11,917 in 1900.

In gas lighting, the census of 1891 gave 49 gas works in Canada; in 1900 there were 43, a decrease of six. The best average gas supplied in 1900 was in Woodstock, Ont., where an average of 25½ candlepower was obtained. Deseronto came next, with 22½ candlepower gas, and Owen Sound third, with nearly 22 candlepower, Ottawa standing fourth. Fourteen gas establishments supplied gas of over 20 candlepower and 29 of under 20.

MINERAL DEVELOPMENT OF NOVA SCOTIA.

At a recent meeting of the stockholders of the Dominion Iron & Steel Co., a letter from the general manager was read, from which the following extracts are quoted as bearing upon the mineral development of Nova Scotia:

The success of the manufacture of steel at this point (Sydney) depends upon the three elements of iron ore, limestone and coal. We have the ore in the yard at a known cost; we have made the coke and we have the limestone. There remains, therefore, only the item of labor not demonstrated. Dealing with the three elements separately:

(1) Iron ore.—The developments at Bell Island have bettered the promise. The drill hole put down in the most doubtful portion of the property has shown that the ore at this point exists in a solid bed of great depth, low in silica and high in iron. It is of better quality than we had counted on as a standard. The cost of the ore delivered at our dock on steamer (not unloaded) was only \$1.62 a ton. Our estimate of what it will cost when everything is working smoothly is \$1.25.

(2) Limestone.—We have two supplies—Georges River and Marble Mountain. For this winter we are getting the stone from Georges River at a cost of sixty cents a ton. The Marble Mountain quarry is nearly equipped, and next spring our supply will come from there.

(3) Coal.—We have not yet finished the coal-washing plant, nevertheless we are making an excellent quality of coke in our ovens, using the coal just as it comes from the mines. The indications are for a coke out of washed coal that will be fully equal to the celebrated Connellville standard; the sulphur will be no higher, the ash lower, the carbon higher, and the physical structure promises to be fully its equal.

The cost of labor will of necessity be heavy

at first, as it will take time to bring it up to the ordinary standard of steel working; but, while this is true, it leaves no need of doubt as to the future. The plant we are building is constructed with all modern labor-saving devices and at as low a cost as that of any modern plant in the States.

CANADIAN RAILWAYS.

Canada has made a number of important railway arrangements. With the Northern Pacific the government contracts to lease for a term of 999 years, their entire system in the province of Manitoba, including their terminals in Winnipeg, all their rolling stock, appurtenances, also their telegraphs. The terms of lease are as follows:—For the first ten years, \$210,000; \$225,000 for the next ten years, \$275,000 for the next ten years, and \$300,000 for the balance of 999 years, with an option that can be exercised at any time of purchase for the sum of seven million dollars. The whole cost of the system up to November 30 last, may be stated as \$8,445,613, including the Souris, Portage-Northwestern and Waskada, and N. C. branches. This contract completed, which was done on January 15 last, the next item on the program for obtaining cheap rates for Manitoba was to gain control of the trunk line to which the branches of the Northern Pacific acted as feeders, or, in other words of the Canadian Northern Railway. Negotiations were therefore begun with this company, which eventually turned out satisfactorily to Premier Roblin's government and the result was that on the 11 inst. an agreement was arrived at to the effect that up till June 30, 1936, the Lieutenant-Governor-in-Council shall have power to fix the local rates between all points in Manitoba on the company's lines, and of all through rates between Port Arthur and Manitoba points. To obtain this concession the government guarantees the company's

THE BEST IS NONE TOO GOOD.

The largest machinery builders in Canada and United States use our Babbitt Metal.

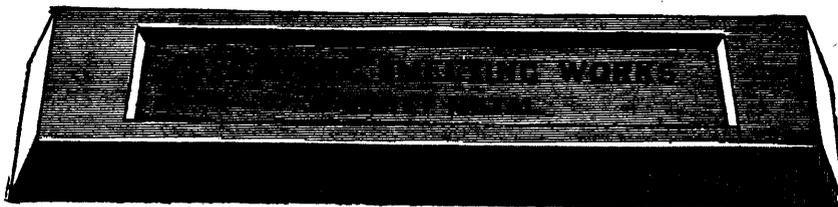
Is this not sufficient proof of its superiority over other anti-friction metals?

If the largest users are satisfied with our Babbitt Metals, why should it not suit you?

We can furnish you with numbers of testimonials.

Importers and Dealers in

PIG TIN, ANTIMONY
INGOT COPPER
ALUMINUM
NICKEL, BISMUTH
IRON AND STEEL
SCRAP



Manufacturers of

BABBITT METALS, SOLDER
TYPE METALS
COLUMBIA PHOSPHOR TIN
AND
ALL OTHER WHITE METAL MIXTURES

SYRACUSE SMELTING WORKS

WILLIAM AND ST. THOMAS STREETS, - - MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

SYRACUSE

BABBITT

BEATS
THEM ALL

bonds. Its liability amounts to \$4,544,000 for the section between Gladstone and Saskatchewan, a distance of 389 miles; and to \$5,800,000 for the Ontario and Rainy River division, a distance of 290 miles. The general liability per mile over the whole Canadian Northern system amounts to \$12,056 per mile, which compared with the funded indebtedness of all other roads on this continent, is claimed by Mr. Roblin to be extremely low. The company also partially foregoes its privilege of exemption from taxation for thirty years; and, beginning with 1905, it will be taxed at the rate of two per cent. per annum on its gross earnings. The government agrees to transfer the lease and right to purchase obtained from the Northern Pacific to the Canadian Northern, and the latter agrees to have the road completed by October 1 next.

AMERICAN CAPITAL IN CANADA.

There is a feeling in pulp and paper circles in this country, and, in fact, among all who take an interest in the material welfare of Canada, that there will be an epidemic of pulp mill building before we are much older, says a Canadian correspondent of The Paper Mill. Not only is the world beginning to show signs of needing Canada's spruce, not only has Canada a vast superfluity of it to spare at prices equal to the lowest ruling anywhere, but also capital seems to be more plentiful and less averse to going into the pulp industry than it was some time ago. To be sure, Canada itself has no large surplus capital for this purpose, and British investors continue to insist on all properties being proved before they purchase, but on

these conditions being fulfilled the money is not unlikely to be forthcoming.

Strange to say, the hearts of the promoters appear to be turned quite as much to the United States for the necessary money as to Britain. It was in the United States that most of the Dominion Iron & Steel Co's issue of \$15,000,000 was underwritten last year. It is in New York and Philadelphia that a million dollars is being obtained for the new steel works at Collingwood, Ont. To the United States Mr. Clergue has hitherto looked for the vast sums required for his undertaking, though he is now in England, presumably to sell the bonds of his road. If we are ever to get the power developed at Niagara Falls, it must be by the aid of American enterprise, if not actual American capital. Our railways into the northern pulp-wood belt will have to be built with money brought from the outside. British lenders will probably be as ready as ever to purchase the bonds, though it is not unlikely, for future issues, applications will be made in New York as well as London.

There seems to be a general belief, not only that the pulp industry will begin all along the line with quite a rush when it does start, but also that it will be quickly followed by a similar expansion of the paper industry. It is the opinion of men who may be supposed to have the sharpest insight into the tendencies, that though Canada may soon become a great pulp producing nation, it will not long continue a great pulp-exporting nation, but that it will be speedily supplied with paper mills to work up its pulp. The start may not be made to-morrow, and may be deferred for a year or two, but there is a feeling in the air that it will come soon.

FISHERIES OF CANADA.

The fisheries industry is one of great importance in the Dominion of Canada. The amount of capital invested in the industry last year exceeded that of the previous year by \$289,743, and 719 more men were engaged in the work. No less than 79,863 men were occupied in 1900 in exploiting the waters of Canada, using 5,506,760 fathoms of nets and other fishing gear, representing a capital of \$10,000,000.

The salmon-preserving industry of British Columbia, comprising sixty-nine canneries and representing a capital of \$1,380,000, gives employment to 18,977 hands.

The total catch of fish in Canada for the year 1899, as reported by the fisheries department, amounted to \$21,891,706, being an increase of \$2,250,000 over the yield of the previous year. The catch for the Province of Quebec was worth \$1,953,134, an increase over the preceding year of \$191,694.

The lobster plant alone is estimated to be worth \$1,334,180. It comprises 858 canneries, dispersed on the seaboard of the Maritime Provinces.

The sealing fleet last year numbered thirty-seven vessels, an increase of eleven over the previous year and representing an aggregate of 2,641 tons register. The total number of fur-seal skins taken by Canadian sealers during the year 1900, was 35,523. This result is larger by 177 skins than that of 1899, which, in its turn, largely exceeded the catches of 1898 and 1897. Although the catch of 1900 is slightly in excess of that of 1899, the average catch per vessel would show a falling off if comparison were confined to these two specific years.

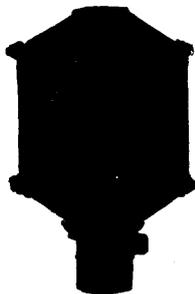
Always Satisfactory

Cleveland, Ohio, January 10, 1901.
The Burt Mfg. Co., Akron, Ohio.
Gentlemen--Replying to your letter of Dec. 6th, in regard to 16 inch. Exhaust Head, beg to advise that this is now in place and working satisfactorily. Yours truly,

American Steel & Wire Co.
M. McMURRAY, Gen. Supt.

No dripping, rotten roofs, no escaping wet steam and oil when you equip your pipes with a

Burt Exhaust Head



It will last a lifetime. It saves steam and increases the efficiency of your plant. Shall we send. Catalogue?

The BURT MFG. CO.

AKRON, OHIO, U.S.A.

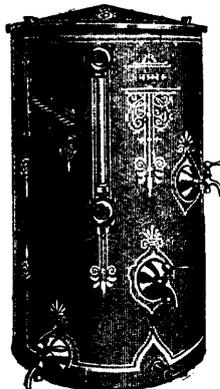
Largest Mfrs. of Oil Filters in the World.

A HARD TEST

CINCINNATI, Ohio, U.S.A.
BURT MFG. Co., Akron, Ohio.
GENTLEMEN--We have tested the Filter, running through some of the very rank Oil that comes from our spindle borings and automatic screw machines, and find it all right and you will please forward (6) six more at once, as per our understanding. Very respectfully,
THE DODGE & SHIPLEY MACHINE TOOL CO.
WM. DODGE.

There's no test too hard for the

Cross Oil Filter..



It's built to meet every requirement of practical up-to-date Oil filtration.

We guarantee to save you 50% on your Oil bills. Why not try it for 30 days? If not all we say send it back at our expense.

THE BURT MFG. CO.

AKRON, OHIO, U.S.A.

Largest Mfrs. of Oil Filters in the World. We also make the Burt Exhaust Head

An Important Labor Dispute Adjusted.

THE NATIONAL IRON FOUNDERS' ASSOCIATION

AND THE

IRON MOULDERS' UNION OF NORTH AMERICA.

CONCILIATION AND ARBITRATION.

The National Iron Founders' Association is an organization which includes about every important iron founder in the United States and many in Canada.

The Iron Moulders' Union of North America is an organization of iron moulders who find employment in the foundries, and includes about all such workmen in the United States and Canada.

There are many millions of capital invested in the works operated by the concerns composing the National Iron Founders' Association; and there are thousands of the best and most competent workmen employed in them.

Early last year the moulders employed in some of the foundries in Cleveland, Ohio, demanded an increase of wages which the foundrymen refused to grant, and a strike occurred which affected nearly every foundry and workman in the United States and Canada before the difficulty was settled. But it has been settled to the satisfaction of both sides by an agreement which will prevent a similar occurrence for several years at least.

In many respects this trouble was the greatest battle that ever occurred on this continent between organized capital and organized labor. At the beginning of the strife a conference was held at Cleveland between the leaders of the two associations, a result of which was the granting of a small increase of wages to the workmen, with the promise that if business improved in the meantime a further advance would be made at a second conference to be held in Detroit in the following June. At this Detroit meeting the contending interests were unable to agree upon a wage scale, and an adjournment was had, leaving the matter open to adjustment locally in different centres. The Cleveland employers then reduced wages to the previous rate, and

the workmen went on strike. Later the employers refused all overtures for a settlement unless "open shops" were recognized where union and non-union men might work side by side. This was the pivotal point in the dispute now so happily settled, although several other important features were developed and adjusted.

It should be stated that although the fighting ground over which these strong and lusty giants contended for so many months, was at Cleveland, the full strength of both sides was involved, and both organizations will abide by the settlement.

Following are copies of the official documents in the case which explain it fully:—

CLEVELAND, OHIO, Feb. 14, 1901.

This Joint Conference Committee, composed of representatives of the National Founders' Association and the Iron Moulders' Union of North America, agree upon the following as a basis of settlement of the strike in the Cleveland and Loraine foundries:

First.—That the Iron Moulders' Union of North America shall declare the strike off, and cease immediately to picket the foundries of the city, the men's boarding houses and homes, and co-operate with the foundrymen of Cleveland and Loraine in the operation of their foundries.

Second.—The contracts now in force between the foundrymen of Cleveland and Loraine and their employees shall be completed in good faith, but no more contracts shall be made for the foundrymen of Cleveland and Loraine, unless in case of strikes. The National Founders' Association shall discontinue at once advertising for or engaging moulders for Cleveland and Loraine foundries, and give notice as provided in the contracts for the discontinuance of the bonus, and the National Founders' Association agree not to support any member if they refuse to comply with the terms of this agreement.

The National Founders' Association will not require over forty (40) days for the disposition of their men now employed. As fast as the present employees leave, and any shop is vacated, the Iron Moulders' Union of North America agree to have that shop immediately filled with its members, and the Cleveland and Loraine foundrymen agree to accept the same to the number required by the foundrymen in the operation of their foundries, and work started, the selection of the men to be left to the foundrymen. These men may not of necessity be former employees.

Third.—The Iron Moulders' Union of North America to notify their men to apply for work at once and make engagements for the time they are to return to work, based on one day's notice, said notice to be sent to the men required by the foundrymen as soon as the foundryman has his work, patterns and shop in readiness. If there is a failure on the part of the Iron Moulders' Union to have the moulders return to work, then the Cleveland foundrymen are to engage such moulders as are satisfactory to themselves, and the Iron Moulders' Union agree not to support its members if they refuse to obey the orders of the President and return to work under the terms of this agreement.

Fourth.—That the minimum rate of wages shall be twenty-seven and one-half (27½) cents per hour for floor and bench moulders, and any man returning to his former employer shall be paid at the same rate of wages as he received prior to July 1, 1900, less ten (10) cents per day.

Any overtime shall be paid for at the rate of time and one-half time, except in case of accident or cause beyond control consuming not over thirty minutes, and double time for Sundays and legal holidays, to wit: Fourth of July, Thanksgiving, Christmas and Labor Day.

Fifth.—That the further adjustment of wages shall be by means of an agreement to be negotiated on June 3, 1901, for one year thereafter, and shall conform to any joint resolutions and agreements adopted by this conference on that subject.

Sixth.—That each foundryman shall take back all of his own apprentices, and each apprentice shall return to his former employer.

Seventh.—That the arbitrary limitation of output on the part of the moulders, or arbitrary demands for an increase in the output of the moulder on the part of the foundryman, not being in accord with the spirit of equity which should govern the relationship of employer and employee, all attempts in that direction are to be viewed with disfavor.

Eighth.—That the right of the foundryman to introduce or operate moulding machines in his foundry shall not be questioned. In determining who shall operate them, regard should be given to the question of how their best possibilities can be brought out, and how the work can be most economically produced.

Ninth.—That the work shall commence promptly at the hour from which the wages are calculated.

Tenth.—That other questions which have been the cause of friction and bad feeling between the employers and employees of the Cleveland and Loraine foundries, are to be the subject of further investigation and correction when such abuse is found to exist, the object of this being to bring into closer relationship the employer and employee, so that their mutual interest may be protected. And further, that the investigation and removal of the abuses that the foundrymen complain of are to be the subject of a rigid investigation by the president and vice-president of the Iron Moulders' Union, with the understanding that they will see that said abuses cease.

Eleventh.—The details above mentioned, together with any disputes relating to their adjustment, are to be settled by the presidents of the respective associations, or such person or persons as they may designate.

Twelfth.—The foregoing agreement applies only to the following foundries now on strike, but in those cases in which only a small percent of the moulders employed by any of the foundries was involved in the present strike, it is to be understood that the terms of this agreement shall only apply to that percent.

- American Ship Building Company.
- City Foundry Company.
- Cleveland Steel Castings Company.
- Fulton Foundry Company.
- Kilby Manufacturing Company.
- Loraine Foundry Company.
- Maher Wheel & Foundry Company.
- McBeth & Company.
- Otis Steel Company.
- Palmers & DeMooy Foundry Company.
- Paterson Foundry Company.
- Riverside Foundry Company.
- Taylor & Boggis Foundry Company.
- U. S. Cast Iron Pipe & Foundry Co.
- Variety Iron Works Company.

WHEREAS, The National Founders' Association and the Iron Moulders' Union of North America, through their duly accredited representatives, at a joint conference held in Detroit, Mich., June 14, 1900, each formulated and declared a declaration of principles to which they still adhere, and which they have been unable to harmonize after careful consideration; and

WHEREAS, The consensus of enlightened opinion points to conciliatory methods and the principles of arbitration as the most desirable and equitable policy to be pursued when disputes arise between an employer and his employees; and, as this is a policy to which both the National Founders' Association and the Iron Moulders' Union of North America most heartily subscribe, they entered into an agreement, the one with the other, since known as the New York agreement, by virtue of which their representatives have been enabled to meet and harmoniously discuss important matters affecting their mutual interests, and to endeavor to settle them in accord with the more enlightened and equitable policy referred to; and

WHEREAS, These efforts have discovered the fact that wide differences of opinion, upon certain vital and essential principles, exist between the members of the National Founders' Association and the Iron Moulders' Union of North America which their representatives have hitherto failed to harmonize by the method provided in the New York Agreement, thus seriously endangering the high purpose to which they stand committed, and in one instance leading to serious conflict between the members of the two associations in an important section of the joint jurisdiction:—

Be it therefore

RESOLVED, That it is the earnest opinion of this joint conference committee, composed of representatives of the National Founders' Association and the Iron Moulders' Union of North America, that agreement upon the essential points of difference can only be secured by the slow evolutionary processes begotten of friendly intercourse and the more intelligent understanding of mutual interests, which time and the influences of education alone can bring; and be it

RESOLVED, That we hereby affirm our adherence to the New York Agreement whose beneficent provisions we will continue to invoke until by joint agreement we are enabled to reach a more defined code of conciliation and arbitration.

RESOLVED, That inasmuch as it appears from the spirit of the resolutions upon the minimum wage-rate as applied to a moulder, presented respectively by the representatives of the National Founders' Association and the Iron Moulders' Union of North America, in this joint conference, and from the discussion which has taken place upon them, that there is a disposition on each side to favor the establishment by joint agreement of equitable wage-rates for different kinds of moulding, applied so as to take cognizance of any moulder's physical incapacity

and for a reasonable period, of the inexperience or the inferiority of the apprentice who has just completed his apprenticeship, and elects to remain in the employ of the foundryman with whom he has completed said apprenticeship, for a reasonable period that may be agreed upon; and in the establishment of wage-rates in the different localities, to take into full consideration the conditions therein prevailing, it is the sense of this joint conference committee that hereafter in the adjustment of wage-rates in disputes which may arise between the members of the associations, both parties shall be guided by the spirit of this resolution, provided, however, that nothing in the foregoing shall be construed as compelling a moulder to work for any foundryman at a rate of wages which he considers unsatisfactory; and further provided that nothing in the foregoing shall be construed as compelling a foundryman to employ a moulder at a rate of wages which he considers unsatisfactory.

And further provided, that nothing in the foregoing shall be construed as prohibiting piece work, which should at least be based upon the time work standard for the same work, so that the moulder may not earn less than by the day.

And further provided, that nothing in this resolution shall apply to operators of moulding machines who have not learned the general trade of moulding.

RESOLVED, That the resolutions just adopted are acceded to with the understanding that the several declarations of principles introduced at the Conference held at Detroit, Mich., June 14 and 15, 1900, (taken in connection with the continuous existence of the New York Agreement, which provides that in the event of a dispute, the matter shall, if necessary, be submitted to arbitration), are not to be construed as an absolute or positive code for the government of the conference of either party who might be called together to decide a point of difference which involved many of the principles enunciated in the declarations referred to, but are simply definitions of the views entertained by either party on certain important principles.

EXPLANATORY TO FOREGOING.

The word "incapacity," appearing after the word "physical," has in our opinion the same significance as the word "infirmity" if used in the same place.

"Different kinds of moulding," appearing after the words "favor the establishment by joint agreement of equitable wage-rates for," is used with the understanding that in establishing a wage-rate in any locality, said rate need not of necessity be made general in its application to the sub-divisions of the industry, as for example a malleable iron foundry, and a machinery foundry, but that such sub-divisions might properly be placed on a different basis as to wage rate.

Mr. J. M. Taylor, of Dominion Radiator Company, Toronto, was one of the joint conferees.

CENTRAL ONTARIO POWER CO.

At a recent meeting of the Town Council of Cobourg, Ont., a by-law was passed granting a franchise for pole rights to the Central Ontario Power Co., Peterborough, Ont., for the purpose of transmitting electric current from Burleigh Falls for lighting and power purposes. The managing director, Mr. J. Alex. Culverwell, Peterborough, was present. The Crossen Car Mfg. Co. works and the Dick-Ridout woolen mills will be supplied with 500 electric h.p.

Port Hope Town Council has also passed a by-law for the same purposes, as also all the intervening townships between.

The company has added many prominent men as stockholders in these towns lately. Some of the prominent stockholders are:—Hon. R. Harcourt, Messrs. Eugene Coste, M.E., Jas. Kendrey, M.P.; John Dick, Toronto; W. R. Riddell, K.C.; H. A. Ward, M.P., and J. Alex. Culverwell.

Port Hope has arranged with two new manufacturing concerns to establish works in the town and to employ at least 300 men each at the start.

THE ORFORD COPPER COMPANY'S WORKS.

The Orford Copper Co. has begun operations in its new reduction works at Sudbury, Ont., erected at a cost of about \$100,000, to carry on to a further stage the concentration of the ores smelted by the Canadian Copper Co. and one or two other concerns in that district. Heretofore, the latter company, reduced its ore to a matte containing about forty per cent. of metal contents, nickel and copper, which was then shipped

by rail to the Orford Co's refinery in New Jersey, and there reduced to pure metal.

By the works which the Orford people have now established adjacent to the Canadian Copper Co's plant, the refining will be carried on till the matte reaches eighty per cent. of metal contents. After that the matte will be sent to the New Jersey refinery for completion.

The new works will employ about seventy-five men, while about fifty will be required to complete the refinement of the matte after it is sent to New Jersey. The Canadian Copper Co. is extending its works at Sudbury, and have established two new smelters, making four in all. They now employ 1,200 men, an increase of about 250 in the last year.

The establishment of a refinery at Sudbury has taken place since the passing of the mining amendments by the Legislature a year ago. Those amendments gave power to the Lieutenant-Governor-in-Council to impose a tax on nickel and copper ores, which would be remitted when the refinement took place in Canada. Although the power has not been exercised, it is thought the fact that it existed has had its influence in securing the further refinement of the Sudbury matte in Canada.

BUFFALO LAUNDRY BLOWER.

The Buffalo Forge Co., Buffalo, N.Y., have sent us an illustrated circular of their Buffalo laundry blower, with affixed countershaft, which type, they say, is especially adapted for laundry work, and may be furnished with separate countershaft if desired.

To a purchaser, the ultimate value of a machine for any given purpose depends upon three things: design, material, workmanship.

The design of the Buffalo laundry blower is the result of long experience and familiarity with the operation of fans and blowers. The inlet and discharge openings, together with the fan wheel, are proportioned for maximum blast with the least expenditure of power. The bearings are of extra length and are arranged for ample lubrication.

The material used throughout the construction is the very best obtainable. The blower shell, discharge orifice and countershaft standard are cast in one piece. The fan wheel is of steel plate, while only the best quality of babbitt is employed in the bearings.

The high grade of workmanship employed in the construction of this apparatus, seconded by the superior facilities of the concern for such work, guarantees a laundry blower of the first excellence. These machines are often driven at a test speed of 8,000 revolutions per minute without appreciable vibration.

With respect to this small but important part of the equipment of a laundry, the company feel no hesitation in guaranteeing that which is always rendered by Buffalo goods, to wit, thoroughly efficient service.

CANADIAN BOUNTIES.

From the annual blue book of the Auditor-General for the fiscal year ended June 30 last the Mining Review has collated the following figures of the bounties on iron and steel and silver paid by the Dominion Government during that period as follows:

Royal Paper Mills Company, Limited

Mills —AND—
Head
Office:

East Angus,
QUE.



F. P. BUCK, - - - PRESIDENT AND GENERAL MANAGER.

WAREHOUSES:

763 Craig Street,
MONTREAL, QUE.

52 and 54 Front St. W.
TORONTO, ONT.

Manufacturers
OF



Paper

Fine News, Book, Lithograph, Tub and Engine Sized Writing, and Colored Cover Papers.

Pulp and

ROYAL CANADIAN BRAND Soda and Mechanical Pulp

Lumber

SPRUCE, PINE and HARDWOOD (Dressed and in Rough.) CLAPBOARDS and SHINGLES.

CABLE ADDRESS—"OBBAPER," EAST ANGUS—A.B.C. and Lieber's Code.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

COAL JAS. H. MILNES & CO. COKE

WHOLESALE DEALERS IN
Best Grades of STEAM COALS.
Best Grades of BLACKSMITHS COALS.
Best Grades of FOUNDRY COKES.
 Shipments made direct from Mines to any point in
 Canada. Write for quotations.

Head Office: 78 QUEEN ST. EAST, TORONTO. Docks: Esplanade, Foot of Yonge

BOUNTY ON PIG IRON.
 Canada Iron Furnace Co. (\$18,234.92)—
 Radnor Forges, Three Rivers—Production
 during twelve months ended June 30, 1900 :
 6,052.78 tons from Canada
 ore at \$3.....\$18,158 34
 38.29 tons from foreign ore
 at \$2..... 76 58
 Deseronto Iron Co. (\$27,026)—Production
 during twelve months ended April 30, 1900 :
 462 tons from Canada ore
 at \$3..... 1,386 00
 12,820 tons from foreign ore
 at \$2..... 25,640 00
 Hamilton Blast Co. (\$107,009.69)—Pro-
 duction during twelve months ended May
 31, 1900 :
 11,929.19 tons from Canada
 ore at \$3..... 35,787 57
 35,611.06 tons from foreign
 ore at \$2..... 71,222 12
 John McDougall & Co. (\$5,485.07)—Gran-
 tham Iron Works—Production during ten
 months ended April 30, 1900 :
 1,828.37 tons from Canada
 ore at \$3..... 5,485 07
 Nova Scotia Steel Co. (\$73,162.22)—Pro-
 duction during twelve months ended May
 31, 1900 :
 11,886.225 tons from Canada
 ore at \$3..... 35,658 67
 18,751.77 tons from foreign
 ore at \$2..... 37,503 55
 Mineral Products Co., Pictou(\$7,378.24)—
 Production during five months ended Nov.
 30, 1900 :
 2,459.415 tons from Canada
 ore at \$3..... 7,378 24
 \$238,296 14

BOUNTY ON PUDDLED IRON BARS.
 Ontario Rolling Mills Co.—
 Production during June, 1899,
 from pig iron made in Canada,
 400.165 tons at \$3..... \$1,200 50
 Hamilton Steel & Iron Co.—
 Production during eleven
 months ended May 31, 1900,
 from pig iron made in Canada,
 2,973.54 tons at \$3..... 8,920 60
 \$10,121 10

BOUNTY ON STEEL INGOTS.
 Nova Scotia Steel Co.—Pro-
 duction during twelve months
 ended May 31, 1900, from pig
 iron not less than fifty per cent.
 of which was made in Canada,
 21,453.43 tons at \$3.....\$64,360 29

BOUNTY ON SILVER.
 Hall Mines Co. (\$17,482.-
 07)—Mined in 1898-9, 31,190
 tons (proportion of \$30,000,
 less \$71.91, cost of inspection).\$10,442 09
 Portion of unexcelled bounty
 of 1895-96, distributed under
 O.C..... 6,699 95
 Short paid on output of years
 1895 to 1898, inclusive, as
 shown by inspection..... 340 03
 British Columbia Smelting
 & Refining Co.—Portion of
 unexpended bounty of 1895-6,
 distributed under O.C. \$6,488.-
 81, less overpaid on output of
 years 1895 to 1898, \$193.40,
 and cost of inspection, \$49.19. : 6,246 22
 Canadian Smelting Works—
 Mined in 1898-9, 57,805 tons
 (proportion of \$30,000, less
 cost of inspection, \$29.35).... 19,456 65

W. G. Parmelee, deputy
 minister, travelling expenses in
 connection with inspection of
 miners' books 150 45
 \$43,335 39

IF YOU ARE DISSATISFIED WITH YOUR Brass, Copper, Phosphor-Bronze, or Composition Castings

Send us a Trial Order. We can please you.

J.N. Callman & Sons
Brass Founders,
 HAMILTON, CANADA.

Bronzite ANTI-FRICTION METAL

This is an entirely new Composition. Intended for all classes of bearings.

It is the invention of one of the most noted metallurgists in the world; is made from the very best materials, and guaranteed to be always the same.

It will give better service for the price than any metal yet put on the market.

A trial order is solicited.

Raneys Specialty Mfg. Co.
 SOLE AGENTS FOR CANADA,
 33 Princess St., - KINGSTON, Ont.

HYDRAULIC PRESSURE PUMP
 SMALL BOILER FEEDER
 MARSH
 LARGE BOILER FEEDER
MARSH STEAM PUMPS
 STANDARD FOR ALL OUTLIES
 MANUFACTURED BY AMERICAN STEAM PUMP CO.
 BATTLE CREEK MICH.
 PATENT SELF-GOVERNING STEAM VALVE
 PATENT EASY HEATING WATER VALVES
 NO LATE DR. VALVE GEAR
 FOR DEEP WELLS
 35,000 SOLD IN ELEVEN YEARS
 MAXIMUM OF STRENGTH AND SERVICE
 LARGE TANK
 WRITE FOR No 10 CATALOGUE

Canadian Agents **The A. R. WILLIAMS MACHINERY CO. LIMITED**
 Head Office: TORONTO
 Branch Office—MONTREAL
 When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE BOURNE-FULLER CO.

IRON, STEEL

AND

PIG IRON

CLEVELAND, OHIO, U.S.A.

Shipping Tags. Invoice Tags.

DUPLICATING BOOKS

HEAD OFFICE:

AUTOMATIC CHECK BOOK COMPANY

46 & 48 Richmond St. W., Toronto.

We are the largest manufacturers of Shipping Tags in Canada. We make all the standard sizes and a great variety of special sizes.

Branch Office: 260 ST. JAMES ST., MONTREAL



COLD PRESSED NUTS.

(Finished, Semi-Finished, etc.)

Machine Screws and Special Milled Work.

The Diamond Machine and Screw Co., Limited, - Toronto.



HAHN'S LATEST IMPROVED WATCHMAN'S TIME DETECTOR

This Clock is adapted for six or twelve stations, and the keys are all different, ranging from 1 to 6, and 1 to 12, instead of as in the old style Time Detectors, which mark either by holes or an impression on the dial, being the same for all stations.

For circulars, prices and further information address

A. NANZ & CO., Room No. 45, Graham Building, 127 Duane St. **NEW YORK**

This Clock received the First Prize at World's Fair

Zanzibar Anti-Rust Paint

**FOR ROOFS OF ALL KINDS
STRUCTURAL IRON WORK
BRIDGES, ELEVATORS, Etc.**

A Paint that will not Blister, Crack, or Peel off

A Paint that is Rust, Water, and Spark Proof.

A Paint that is GUARANTEED.

A PAINT THAT YOU WANT

Agencies in all parts of Canada; if none in your vicinity write us direct for prices and samples.

WE ARE SOLE MANUFACTURERS

GARFIELD OIL COMPANY

BRANCH:

WINDSOR, ONT.

GENERAL OFFICES:

CLEVELAND, O., U.S.A.

THE SMART-EBY MACHINE CO.

191 Barton Street East, Hamilton, Ont.

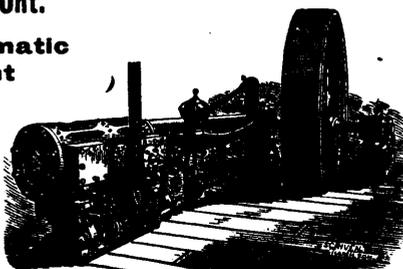
LIMITED,

High Speed Engines, Brown Automatic Engines, Boilers, Rogers' Patent

Shaking and Dumping Grate Bars, Pumping Machinery,

Electric and Hand Power Travelling Cranes, Shafting, Pulleys, General Machinery, Etc.

Western Office—419 Hasting St., Vancouver, B.C.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

YIELD OF ONTARIO MINES.

Mr. T. W. Gibson, director of the Bureau of Mines, has completed his report on the mineral production of Ontario during last year.

The tabulated statement is as follows:

Product.	Value.	Employes.	Wages.
Building stone, rubble, etc.	\$650,342	1,688	\$325,000
Cement, natural rock.....	99,994	90	32,760
Cement, Portland.....	598,021	485	166,143
Lime.....	544,000	710	171,300
Drain tile.....	209,738		
Common brick.....	1,379,590	3,312	647,856
Pressed brick, terra cotta..	114,419		
Paving brick, terra cotta..	26,950	209	58,855
Sewer pipe....	130,635	87	32,197
Pottery.....	157,449	162	42,480
Illuminating oil.....	1,076,242		
Lubricating oil.....	232,805		
Benzine and naphtha.....	174,346	347	163,077
Gas and fuel oils and tar.....	200,934		
Paraffin wax and candles.....	184,718		
Natural gas....	292,823	156	42,436
Carbide of calcium.....	60,200	32	15,898
Salt.....	324,477	343	72,584
Gypsum and products....	18,050	28	10,200
Talc.....	5,000	5	1,210
Graphite.....	27,030	25	13,296
Mica.....	81,550	118	32,972
Corundum....	6,000	35	10,000
Felspar.....	5,000	25	3,900
Iron ore.....	111,805	839	107,583
Pig iron.....	936,066	419	97,915
Steel.....	46,380		
Nickel.....	756,626		
Copper.....	319,681	1,444	728,946
Zinc ore.....	500	5	2,179
Arsenic.....	22,725		
Gold.....	297,861	750	351,514
Silver.....	96,367	50	24,000
Total.....	\$9,288,424	10,864	\$3,364,401

A comparison with the returns for 1899 shows a total increase from \$4,416,083 to \$9,288,424. The gold production, however, has dropped from \$423,978 to \$297,861, but there are important increases in staple products: iron ore, \$30,951 to \$111,805; pig iron, \$808,157 to \$936,066; nickel, \$526,104 to \$756,626; and copper, \$176,237 to \$319,681.

Commenting on the figures Mr. Gibson says: The production of building materials in 1900, namely, stone, lime, and brick, was slightly in advance of that for 1899. Clay products for other uses remain at about the same figure; while Portland cement is rapidly increasing in amount and value of output. The quantity of crude petroleum raised was about the same as in 1899, but the value of the various articles of commerce produced from it was considerably greater. The value of natural gas drawn from the Essex and Welland fields was smaller than in 1899, but greater than in the previous year. Salt, gypsum, graphite, talc, and mica show increases, the last-named mineral having been in good demand during the year.

Corundum appears in the list for the first

time, the large deposits in Eastern Ontario being now in course of development. There was a marked increase in the production of iron ore, most of it coming from the newly-opened deposits in Michipicoten. Pig iron is much greater in value, but somewhat less in quantity than in 1899, while steel (open hearth) first began to be made in the province last year. The figures for nickel and copper are noticeably in advance of those for 1899, both in yield and value, showing that in these important resources of New Ontario there was much activity last year. The output of arsenic, which is obtained as a bye-product from some gold-mines in Hastings county, was larger than in 1899.

Gold has fallen in quantity and value as compared with the previous year, the decrease being due to the stoppage of several producing mines in the western part of the province. This falling off is partly made up by the increased output of silver. On the whole, the statistical record of the year is an encouraging one, and the extensive operations now under way in the iron, copper and nickel industries will doubtless result in a much larger output during 1901.

VICTORIA MINES, ONT.

From a rocky wilderness to a considerable sized town in a few months. This is the remarkable transformation worked at Victoria Mines Station, about twenty-five miles north of Sudbury, on the Soo line of the Canadian Pacific Railway, and all this is the work of one man. Already \$80,000 has been expended. Half a million of dollars will be the total sum spent within the next twelve months on experimental work, and the permanent investment will reach something over a million dollars.

This enormous expenditure at Victoria Mines is being made by Dr. Ludwig Mond, of London, England, one of the firm of Brunner, Mond & Co., one of the largest chemical manufacturing houses in the world. Dr. Mond is many times a millionaire, and

..TOWN..
OF
ORANGEVILLE

OFFERS LIBERAL INDUCEMENTS TO

MANUFACTURING

..INDUSTRIES..

Population thirty-five hundred; fifty miles from Toronto; midst of fine agricultural district; no competing towns near; possesses railway connections in all directions; first-class fire protection and water works; immense deposits of Portland cement marl near.

WM. STILL, Mayor,
ORANGEVILLE, ONT.

one of the greatest living authorities on Italian art. He became interested in the enormous nickel-copper deposits of the Sudbury district about two years ago. The firm of which Dr. Mond is one of the principals, owns the patents of the Solvay process of separating copper from nickel. A series of experiments made with the copper and nickel of the Sudbury district by this new process convinced Dr. Mond that he could reduce the cost of working the ore to such an extent that its commercial value would be almost doubled.

BEEET SUGAR BOUNTY.

The principal provisions in the new bill granting a bounty of \$75,000 annually for three years, for the encouragement of beet-sugar growing, introduced in the Ontario Legislature, are as follows:—

In case any person or company shall establish and erect suitable buildings and install the necessary plant for the refining of sugar from beet roots in any part of this province, such person or company shall be entitled to be paid out of the said sum mentioned in the preceding section, for sugar so refined of first-class marketable quality, at the rate of one-half cent per pound for the product of the first year's operations of such factory, and at the rate of one-quarter cent per pound for the product of each of the two following years, and no longer. In the event of more factories than one being established, and if the amount payable under this Act should exceed the sum of \$75,000, in any year, then the said sum shall be divided among the factories so established.

The Deep Leeds Transmission Co., of Australia, recently installed a Cross oil filter made by the Burt Mfg. Co., Akron, Ohio, in their electrical power station.

An Imperial ordinance has recently been issued by the Japanese Financial Department, providing for the exemption from duty of certain articles imported into Japan for the purpose of undergoing additional manufacture. The principal articles comprised in this decree are: Articles imported for the purpose of being carved, engraved, or inlaid with gold or silver; porcelain or earthenware imported for the purpose of being painted or baked; tissues of woven fabrics imported for the purpose of being dyed, printed, or colored, embroidered or hemmed; furs imported for the purpose of being tanned.

Bellhouse, Dillon & Co.

30 ST. FRANCOIS XAVIER ST.,

MONTREAL.

♦♦♦

Hematine

Crystals,

Logwood

Extracts

For Cotton, Wool and Silk.

SOLE AGENTS IN CANADA FOR

THE WEST INDIES CHEMICAL WORKS. Ltd.

Spanish Town, Jamaica

Toronto Office—

JAMES HAYWOOD, Agt., 30 Wellington St. E.

GEORGE WARD

LASKAY, ONT.

MANUFACTURER

OF

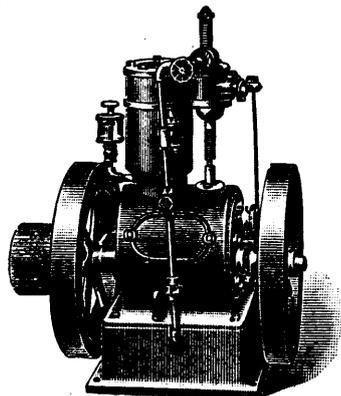
Acetylene

GAS

Generators

WRITE FOR PARTICULARS

THE SYLVESTER
GAS and GASOLINE ENGINES



Are beyond doubt the most complete and economical engine in the market. They are compact and perfectly under control, easily managed, get up speed immediately, thoroughly reliable, and where intermittent power is required they are just the thing.

They are built in sizes from 1 to 20 h.p., upright and horizontal, for pleasure yachts, boats, shops, farm work and any purpose where light power is required. Tell us to what use you want to put the engine, and what power you require, and we will name you prices.

SEND FOR CATALOGUE.

SYLVESTER BROS. MFG. CO., Lindsay, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

EXHIBITORS AT GLASGOW EXHIBITION.

The following are among the Canadian firms who will exhibit at the Glasgow Exhibition: Montreal Cotton Co., D. K. McLaren, Joseph Paquette, H. R. Ives & Co., Canadian Composing Co., H. Lamontagne & Co., Grand Trunk Railway, Watson, Foster Co., Thos. Davidson Mfg. Co., Lyman, Sons & Co., Canadian Fur Co., Montreal Rolling Mills Co., Harbor Commissioners, in Montreal; W. Doherty & Co., Clinton, Ont.; Bell Organ & Piano Co., J. B. Armstrong Mfg. Co., Guelph, Ont.; Dominion Organ & Piano Co., Bowmanville, Ont.; Rosamond Woolen Co., Almonte, Ont.; John Pellet, Sherbrooke, Que.; McLaughlin Carriage Co., Oshawa, Ont.; W. Boulton & Sons, Picton, Ont.; James Smart Mfg. Co., Canadian Carriage Co., Brockville, Ont.; Canadian Canoe Co., Wm. English Canoe Co., Peterborough Canoe Co., Peterborough, Ont.; Thos. J. Egan, John Starr, Son & Co., Halifax, N.S.; N. J. Fleury's Sons Co., Aurora, Ont.; Corticelli Silk Co., St. John's, Que.; Massey-Harris Co., Bickell & Wickett, Boston Wood Rim Co., C. Wilson & Son, Adams Bros., Taylor, Scott & Co., J. D. King Co., Metallic Roofing Co., Chas. Rogers & Sons Co., Wm. Davies Co., Ontario Wind Engine & Pump Co., A. F. McLaren, Merchants' Dyeing & Finishing Co., Toronto; J. S. Findlay, North American Bent Chair Co., John Harrison & Sons Co., Owen Sound, Ont.; Andrew Malcolm, Kincardine, Ont.; Hamilton Oak Fanning Co., Hamilton, Ont.; Cockshutt Plow Co., Goad, Shapley & Muir Co., Brantford,

Ont., Sault Ste. Marie Pulp & Paper Co., Sault Ste. Marie, Ont.; Lake Magnetic Pulp Co., Lake Magnetic, Que.; Paquet & Godbout, St. Hyacinthe, Que.; Noxon Mfg. Co., St. Charles Condensing Co., Ingersoll, Ont.; W. B. Sherk, Waterloo, Ont.; W. C. Edwards Co., Ottawa; Canadian Office & School Furniture Co., Preston, Ont.; Star Mfg. Co., Dartmouth, N.S.; David Maxwell & Sons, St. Marys, Ont.; George E. Atkinson, Portage la Prairie, Man.; R. Scott & Son, Galt, Ont.; Alex. Calder, Winnipeg, Man.; John B. Snider, Waterloo, Ont.; Strickland Co., Lakefield, Ont.; Frost & Wood Co., Smith's Falls, Ont.; James Bros. Foundry Co., Perth, Ont.; W. A. Marsh Co., Quebec & Lake St. John Railway, Quebec City; Mac Machine Co., Belleville, Ont.; Brackman, Ker Milling Co., Victoria, B.C.; Jacob Steinmiller, Vogan & Son Co., Walkerton, Ont.; Breithaupt Leather Co., Berlin Rubber Mfg. Co., Berlin, Ont.; Jas. Innes, Hartney, Man.; J. F. Jackson, Barrie, Ont.; McClary Mfg. Co., Columbia Handle & Lumber Co., London, Ont.; Goderich Organ Co., Goderich, Ont.; Martin Bros., Mount Forest, Ont.; Lake of the Woods Milling Co., Keewatin, Ont.; Globe Furniture Co., Walkerville, Ont.; Simcoe Canning Co., Simcoe, Ont.; Miller & Co., Trenton, Ont.; Truro Condensed Milk & Canning Co., Truro, N.S.; Lachute Shuttle Co., Lachute, Que.; D. W. Karn Co., Thomas Organ Co., Woodstock, Ont.

CANADA'S GROWTH.

While the population of Canada is considerably smaller than that of New York State, we Canadians are congratulating our-

selves that we have grown in number proportionately faster than our neighbors to the south. Since 1800 our population has increased from 350,000 to 5,310,000 in 1900, or 14½ times; while the United States has increased 13½ times, or from 5,308,000 in 1800 to 76,000,000 in 1900.

George Johnson, the Dominion Statistician, has prepared figures showing the growth of Canada industrially and numerically, and he judges by comparisons that Canada has reason to be gratified at the place she holds among nations, and that in some things she stands ahead of the United States, when population is taken into consideration.

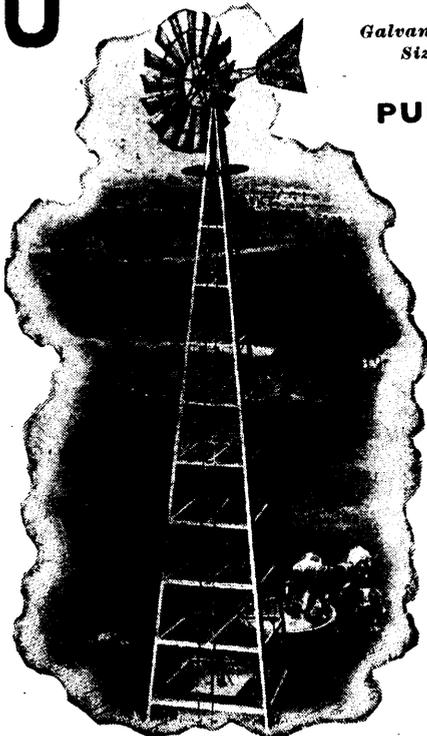
It is well known that the manufacture of pianos, organs and other musical instruments has kept pace here with the progress made in other lines of industry, and in some respects it has outdistanced them. New factories and stores are springing up from time to time, and evidences are not wanting of the prosperity of this branch of industry.

How we stand to-day may be shown in two ways: First, by comparison with our neighbors, and second, by the collected statistics.

In 1800 the population of the community to the south of us was 5,308,000, or just about the population of the Dominion of Canada in 1899. The thirteen original States had had twelve or thirteen years' experience of union. Now how stands the record as between the 5,308,000 of 1800 in the United States and the 5,308,000 of 1899 in Canada.

The five million Unionists had in 1800 an external trade of \$161,750,000. The five million Canadians had in 1899 an external trade of \$321,660,000—within whispering

STAR WIND MILLS
FOR PUMPING OR POWER PURPOSES



Galvanized Steel or Wood, all Sizes, 4 to 26 feet in Diameter.

PUMPING MILLS

FURNISHED WITH OR WITHOUT TANK ELEVATED IN TOWER.

CALVANIZED Steel Towers

Any height, either Three or four post, with substantial ladder.

TANKS
Any Capacity, Any Purpose
Made in Pine, Cypress, Fir or Galvanized Steel.

Our windmills are self-regulating and self-governing, and with our Hoosier Automatic Anti-Freezing Force Pump the windmill outfit takes care of itself, night or day, in calm or storm.

"Hoosier" **IRON PUMPS**
—AND—
"Fast Mail"
Designs and Prices Furnished.
Write for Catalogue.

Address **FLINT & WALLING MFG. CO.**
"STATION A" **KENDALLVILLE, IND.**



Buffalo Engines

FOR LIGHTING and POWER SERVICE.



Buffalo Upright Direct Connected Engine Running in Oil

BUFFALO FORGE CO.,
BUFFALO, N.Y.

E. A. WALLBERG, Canadian Representative,
410 Temple Bldg., TORONTO



distance of double that of our neighbors when they had the same population.

In 1800 the exports of American produce by the five million Unistonians amounted to \$32,000,000. They succeeded in supplying their own wants and had an exportable surplus of \$32,000,000.

The five million Canadians in 1899 supplied themselves with "full measure running over," and still had an exportable surplus of domestic products valued at \$138,500,000.

The public revenue raised by the five million Unistonians in 1800 was \$12,500,000. That raised by the five million Canadians in 1899 was \$46,742,000. In some things the five million Canadians outstrip the 76,000,000 Unistonians. Mr. Mulhall has studied out the earnings of the mercantile shipping of the world, and his statement is that in 1899 Canada's shipping earned \$17,200,000 and the United States shipping earned \$16,000,000.—Canadian Music and Trades Journal.

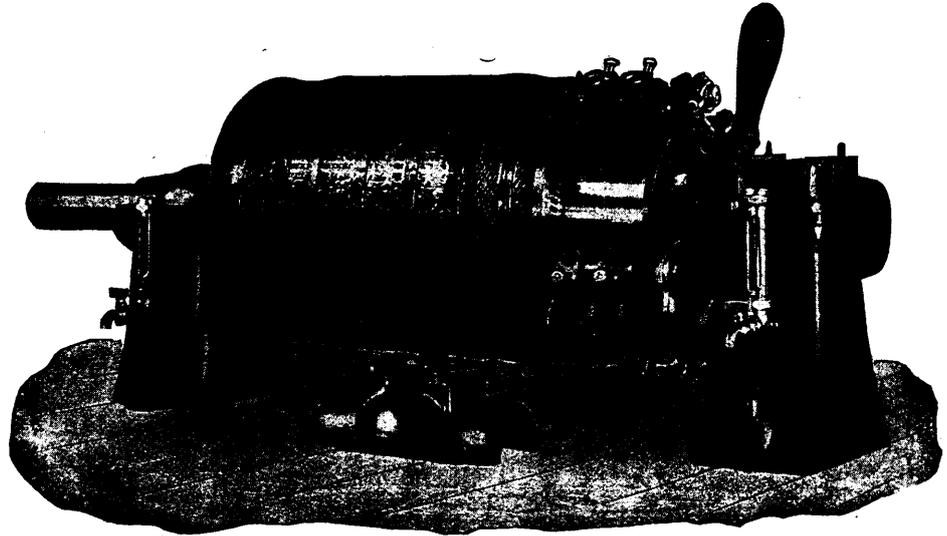
THE STURTEVANT 4-POLE MOTORS AND GENERATORS.

In the accompanying illustration is shown the interior parts of one of the Sturtevant standard 4-pole motors in its latest form.

The bearings are of the ball and socket type or ring oiling, self-aligning construction, and the pedestals which form the support for these and also contain the oil wells, are bolted to a bed of cast iron which also supports the magnet frame. The armature is of the barrel wound toothed drum type, the slotted discs of carefully annealed sheet steel, after being coated with an improved insulated varnish, are mounted upon a cast iron drum. This drum is provided with

longitudinal air ducts which connect with radial ducts between the laminae of the core and by means of small blades or vanes inserted in the radial ducts create a constant current of air through the core, thereby greatly facilitating ventilation and insuring low temperature. The winding is all of low voltage and is of copper bars, no section

winding, and at the same time avoids danger of damage by contact. After being wound and connected to commutator all armatures are heated to exclude any moisture and then completely submerged in a tank of insulating varnish where they are allowed to remain until thoroughly saturated. Subsequently they are baked in a steam heated oven from



having over one turn and these bars are so constructed that there are no sharp bends. There is but one soldered joint per section and this at the connection with commutator. The coils are thoroughly protected at the back end by a cast iron flange which prevents any oil from getting upon the

ten to twenty-four hours at a temperature of from 150 to 200° Fahrenheit. After cooling they are given a coat of black oil and water-proof varnish, thus making them impervious to moisture.

The commutator consists of drop forged segments of pure copper mounted upon and

THE BEST PIPE THREADING and CUTTING-OFF MACHINES

Are Made by the **ARMSTRONG MFG. CO., BRIDGEPORT, CONN.**

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools.

Send for Catalogue 27.

Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

Electrical Construction Co. of London, Limited.



MULTIPOLAR MOTORS & DYNAMOS

And Direct Connected Plants for Isolated Lighting. Repair Work a Specialty.

HEAD OFFICE AND FACTORY:

99 YORK STREET, London, Canada. 760 Main St., Winnipeg.

24 York St., Toronto. 134 Granville St., Halifax.

RICE LEWIS & SON, LIMITED

HARDWARE and METAL

Bar Iron, Steel, Boiler Plate Tubes.

MACHINIST TOOLS, PIPE FITTINGS.

COMPLETE STOCK OF

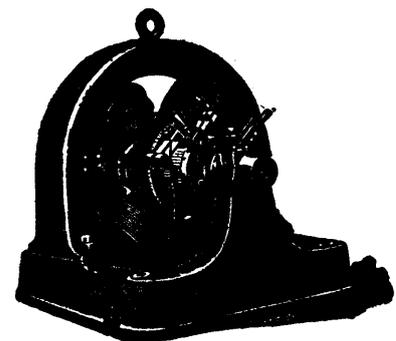
STOCKS and DIES. PIPE VICES.

STILLSON & TRIMO WRENCHES.

STEAM PIPE.

Cor. King and Victoria, TORONTO

TORONTO and HAMILTON ELECTRIC CO.

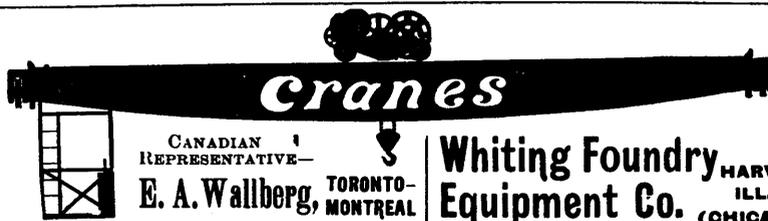


MOTORS and DYNAMOS COMMUTATORS REFILLED

99-103 McNAB ST. N., HAMILTON

'Phone 958

ELECTRIC CRANES...



AIR... CRANES

CANADIAN
REPRESENTATIVE—

E. A. Wallberg, TORONTO—
MONTREAL

Whiting Foundry HARVEY,
Equipment Co. ILL.,
(CHICAGO)

secured between cast iron flanges of spider construction which allows circulation of air inside as well as outside and conduces to low temperature. All trouble in commutator construction due to the use of poor mica is carefully guarded against by the employment of amber mica which is carefully selected. As a result short circuiting segments are unknown in these machines.

Carbon brushes are exclusively used and mounted in holders of the sliding socket type with every faculty for adjustment and renewal. The field coils are of double cotton covered wire thoroughly saturated with an oil and water proof compound. After being baked for from twelve to twenty hours at a temperature of 150 to 180° Fahrenheit to exclude all moisture, they are carefully covered with micanite paper and heavy tape. An external coating of oil and water proof paint is then given after which they are wound with a hard cord as a protection against mechanical injury and as an absolute guard against grounding on the frame. Field coils thus constructed are absolutely water and moisture proof.

These motors are supplied with slide rails and pulleys and are thoroughly tested by being given a full load run for a sufficient length of time to bring every part to its maximum temperature, which has never been found to exceed 40° C. No machine that does not have an insulation resistance of at least one megohm is sent out and all machines are guaranteed to carry their full rated load for ten hours without sparking at brushes or overheating.

These machines are built by the B. F. Sturtevant Co., Boston, Mass., in sizes ranging from 9 to 125 h.p. motors and 8 to 100 k. w. generators, the weights ranging from 750 lbs. to 8,000 lbs.

A TOOL COMBINE.

Canadian tool and machinery manufacturers are now being threatened by a combine among their competitors in the United States. All the details are not yet known, but it is understood that the consolidation is due to Robert C. McKinney, of the Niles Tool Co., and that besides the company with which he is connected, there will also enter the combine the Bennet & Miles Co., Philadelphia, manufacturers of heavy railway tools; Pond Machine Tool Co., Plainfield, N.J., manufacturers of heavy planers, lathes, radial drills and machine shop equipment; Philadelphia Engineering Co., Philadelphia, builders of electric travelling cranes, and the Platch-Whitney Co., Hartford, Conn., which makes a speciality of the finest line of machine shop tools.

About 12,000 men are employed in the various shops. The headquarters of the consolidation are to be in New York, and Buffalo will likely be the distributing point.

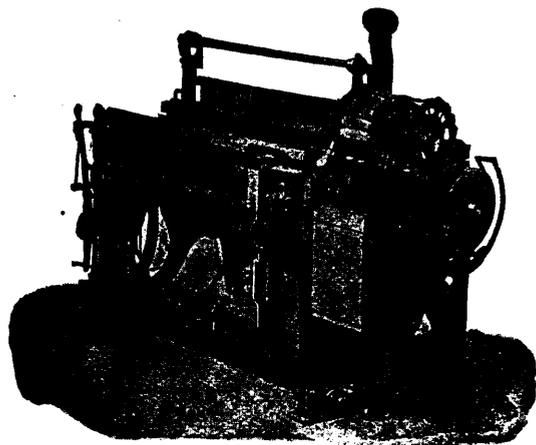
It is understood that the Canadian field will be divided into two districts, one from Montreal to the Soo, and the other from the Soo westward, and a big attempt will be made to capture the trade.

The James Cooper Mfg. Co., being spoken to regarding the effect the consolidation

would have upon Montreal trade, said that they thought the announcement was altogether premature, but that in any case the effect upon Montreal trade could not be very harmful. Most of the tool manufacturing of Canada was done in Ontario, and if the consolidation had the effect of cheapening the cost of tools it was just possible that, so far as Montreal itself was concerned, it might be beneficial rather than otherwise.

The officers of the new concern are: President, Robert C. McKinney, Niles Tool Co.; vice-presidents, James N. Cullen, Niles Tool Co., Frederick B. Niles, Niles Tool Co., A. C. Steffins, Pond Tool Co., Walter L. Clarke, Niles Tool Co.; treasurer, Charles L. Cornell, Platch-Whitney Co.; secretary, E. M. C. Davis, Niles Tool Co.—Montreal Star.

There are at present sixteen breweries in the Republic, none of them having been in existence more than a few years. One of these establishments, at Monterey, is quoted as occupying the first rank among the industries of the city. It has an actual capital of 2,000,000 pesos, and all the apparatus and machinery are of the most modern types used in Germany and the United States, and the capacity of production is about 800 hectolitres (11,600 gallons) a day. Other breweries are situated at Chilhuahua, Guadalajara, Oaxaca, Mazatlan, Cuernavaca, Mexico City, and at various other centres of population.



THE NORTHROP LOOM.

There is only one Profitable Plan—BUY NORTHROP LOOMS

With them the Future is Assured.
They are no Experiment.

Thousands have been running in the United States, and a large number are now in Canada. Sales steadily on the increase.

"The Mills that refuse their opportunities will find their future utility serving as picturesque ruins in the landscape."

We also Manufacture the Best Warper at present
Known—also Spoolers.

Write for particulars and quotations. Address

The NORTHROP LOOM CO. OF CANADA, Ltd.

VALLEYFIELD, P.Q.

The B. GREENING WIRE CO., Limited

GREENING

MANUFACTURERS
OF

GREENING

Lang's Patent Wire Ropes
For Colliery and Mining Use.

WIRE ROPE of every Description
and for all purposes.

HAMILTON, ONT.
and MONTREAL, QUE.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

OPPORTUNITIES FOR TRADE.

The following enquiries have been received at the offices of the High Commissioner of Canada in London, and of 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 numeral opposite the enquiries.

423. The names of a few firms in Canada who are manufacturers of Manila trawl twines are asked for.

424. A firm of sauce manufacturers who desire to improve their trade relations with Canada ask for suggestions to this end.

425. Enquiry is made by a firm in the Midlands for the addresses of a few asbestos mine owners in Canada.

426. A Leeds firm asks to be placed in

communication with Canadian manufacturers of office files, roll top desks and other stationery requisites. They also require the names of good wholesale stationers open to buy manufactured stationery.

427. A correspondent having a knowledge of the chemical process for the manufacture of asbestos and other millboards, desires to get into communication with Canadian asbestos mine owners and dealers who might be likely to require his services.

AUSTRALIA.—Mr. J. S. Larke, Canadian Trade Commissioner to Australia, writes to the Department of Trade and Commerce as follows:—A large number of agencies were arranged for Canadian manufacturers last year, and in several instances considerable trial orders have been sent forward. I regret the result has not been in all cases satisfactory. I am not able to know whether the fault has been in all cases due to the Canadian manufacturer. For example, I am advised that goods were ordered which were required to be here in time to complete a contract on January 1. A cable is to hand that they were only shipped from New York on that date. The contractors here have been obliged to go into the open market to purchase supplies for the work, entailing a considerable loss. This delay may not be the fault of the shipper, although the parties here assert that it is. There are cases, however, where letters are written which require an immediate reply and none is received for five months. Goods arrive without previous advice and drafts without either invoice or bill of lading. This is clearly the result of carelessness and frequently prevents future orders being given. In other cases there are defects which arise from inexperience in foreign trade, but which must be remedied promptly, and the damages caused by them promptly allowed for, or all chances of trade are at an end. I have just returned from examining a considerable shipment of goods from Canada, against which considerable complaints were made. The goods were well liked, but the damages have reduced first-class goods to third-class or even lower in value. In similar goods from Germany, which are also nested as these were, each article was packed in excelsior, and in the packages I saw not one was injured. There is a large demand for these goods in Australia, and the Canadian manufacturer can secure a fair share of it if the defects, having been fully explained to him, are remedied.

EGYPT.—The British Vice-Consul at Alexandria states that manufacturers will do well to devote close attention to the growing Egyptian market. The requirements of the fellah increase with their improved circumstances. Railway and tramway lines are being constructed or extended, important public works are in course of construction, or about to be carried out, and, in time, a new market will be gradually developed in the Soudan. The relative positions of the

principle imports do not vary to any considerable extent, but there has been a general increase in almost all imports. The manufactured articles in greatest demand are textiles, metal goods, and machinery, but there are many other articles in which manufacturers might easily increase their trade.

FRANCE.—The United States Consul at Tamatave, Madagascar, states that Mr. E. Cayeux, a sawmill owner of that city, invites communications in regard to liquid air motors. Correspondence may be conducted in the English language.

GERMANY.—Consul Diederich, of Bremen, writes in regard to the popularity of tourists' postal cards in Germany. There is no city nor hamlet, he says, no place of historical interest, but has cards embellished with some design appropriate to the locality, which offer convenient means of communication with friends at home. Last summer, according to post-office returns, 20,808,313 cards were mailed in one week. Forty-six per cent. were tourists' cards. The postage collected daily on these cards averaged about \$15,845.33. Berlin furnished the largest quota — 137,000 cards. Next followed Dresden, with 38,000; then Hamburg, Cologne, Leipzig, Breslau, Frankfurt, Hanover, Halle, Dusseldorf, Wiesbaden and Kiel. Bremen stood thirteenth in the list, with a daily average of 8,584 postals.

Nine large vessels have been ordered by a Bremen steamship company with a view to the establishment of a line of German steamers from New York to South Africa and East India, according to United States Consul Managhan at Chemnitz. The promoters of the enterprise believe that they will be able to compete successfully with the British lines running to all parts of India and Africa. In addition to these plans, the Consul says, the same company proposes to establish a line from New York to Mexico and the West Indies.

Germany is to take the lead in a great postal reform, if Herr Von Podbielski, the Secretary of State for the Post Office Department, has his way. He will introduce a bill in the Reichstag which will forbid the sending of letters through the mails enclosed in any other envelope than that prescribed by the government, which is to be uniform in size and shape. Herr Von Podbielski's bill has been provoked by the obstacles which the recent flood of an endless variety

Do You Fear

FIRE

In Your
FACTORY ?

MILL ?

STORE ?

IF SO have your buildings equipped with



Automatic Sprinklers

And save from 30 to 70 per cent. on your insurance rates. Insurance companies approve of our system and devices.

Write us for particulars.

W. J. McGUIRE & CO.,
TORONTO and MONTREAL.

Dominion Oil Cloth Co.

(LIMITED)

Manufacturers of...

OIL-CLOTHS of Every Description

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

Office and Works

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

Protection Against Fire

Apart from the protection it affords, it pays as an investment to use an

AUTOMATIC SPRINKLER SYSTEM

From 40 to 70 per cent. of cost of insurance saved by putting in an



**AUTOMATIC
SPRINKLER
EQUIPMENT**

No charge for estimating
Endorsed by Insurance Companies

The General Fire Equipment Co.
72 Queen Street East,
TORONTO.

BLACK IS BLACK

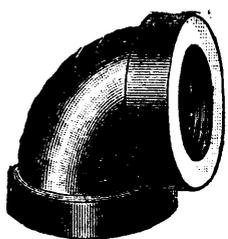
Extra C is our best grade. We cannot make anything better than the best. You cannot buy anything better, try where you will. When you buy, see that our Trade Mark and grade are stamped on it and quality will be there.

D. K. McLAREN

Mfr. "GENUINE OAK" BELTING

88 Bay St., TORONTO

Factory, MONTREAL

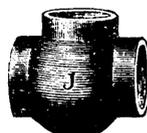


Railing Fittings

—FOR—

IRON PIPE RAILINGS

ALSO MADE IN BRASS
AND NICKEL PLATED



Standard Iron Pipe Fittings

Special Fittings and Branch Coll Headers
made to order.

The **Jas. Morrison Brass Mfg. Co., LIMITED**
TORONTO

The **London Machine Tool Co., LONDON, ONT.**

LATHES,
PLANERS,
DRILLS,
SHAPERS,

MANUFACTURERS OF

HAMMERS,
BULL DOZERS
PUNCHES,
PRESSES.

General Machinery



WM. R. PERRIN & CO.,

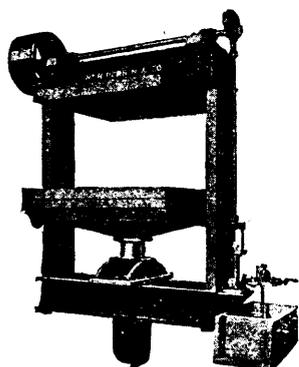
TORONTO, - CANADA

Hydraulic,
Power

—AND—

Filter

PRESSES



SEND FOR
CATALOGUE
No. 7

of envelopes has put in the way of rapid delivery. This multiplicity in shape, color and size of coverings for letters has been the bane of existence of the stampers and letter carries of Germany for a long time, and this nuisance prevailed more conspicuously during the Christmas season, the senders of the more grotesque and more dainty variety being for the most part women.

Nowhere in the world does commercial and technical education hold such a prominent place as in Germany, and of all the States in the Empire, Saxony takes the lead in this direction. This little kingdom alone has about fifty Handelsschulen, or commercial schools. These schools are in the first instance organized by the Kaufmannischen Vereine, or merchant unions, which exist in every little town in the country. The State exercises a supervising influence over each school, and an inspector appointed by the government visits the schools periodically. The merchant union supports the school; but if there is any deficit at the end of the year, this is made good by the State. The buildings, together with light and heat, are furnished by the town authorities. In many cities of Saxony, handsome buildings have been erected for the purpose of commercial schools alone.

At the Commercial University established in Leipzig in 1898, only those are eligible for admission who have completed the gymnasium course or have passed the examination which admits to the one-year conscription service in the army.

GREAT BRITAIN.—Engineering, London, calls attention to the fact that British exports of locomotives are not keeping pace with the increased demands in all parts of the world. In 1885, Great Britain exported locomotives to the value of £1,658,596, and in 1890 to the value of £1,848,462. From that figure there was a sharp and steady decline till 1894, when the exports were only £749,586. They then again rose steadily until the year just closed, when they were £1,500,909. This, however, is less than the figures for ten and fifteen years ago, when railway development throughout the world was much less. The fact is that the United States, Belgium and Germany are now supplying the greater part of the increase in the number of locomotives required in the non-manufacturing countries over the number required then. This has been due partly to their locomotives being cheaper than the British, but particularly to their superior adaptability to the requirements of the lines using them, and to prompt deliveries. Canada imports no locomotives from Great Britain.

Lord Rosebery, in his recent speech before the Wolverhampton Chamber of Commerce, among other things, said:—The war I fear is not a military war—and when I say I fear, I do not mean that I regard it with cowardice or disquietude—but the war I regard with apprehension is the war of trade, which is unmistakably upon us. You, sir, have referred to that war in words which are none too grave for the occasion. But when I look around me I cannot blind my eyes to the fact that so far as we can predict anything of the twentieth century, on which we have now entered, it is that it will be one of acutest international conflict in point of trade. We were the first nation in the world—of the modern world—to discover that trade was an absolute necessity. For that we were nicknamed a nation of shopkeepers; but now every nation wishes to be a nation of shopkeepers too, and I am

pick axes ; buckets, enameled iron plates, cast-iron plates, copper plates and crockery, etc. The articles imported for the use of the natives are the same as those imported all along the adjacent coast ; cotton cloths, white and colored ; silk handkerchiefs, velvet caps, rugs, coral cornelian and glass pearls, knives, iron trunks, etc.—Dun's Review.

Mexico.—United States Consul E. H. Thompson, at Progress, Mexico, writes :—I desire to call attention to a fraud that is being perpetrated by certain persons interested in the canning of oysters in the United States. Various complaints have lately been made to me that certain brands of canned oysters sent here for sale con-

tained almost no oysters. In investigating this matter, I purchased in open market two cans wrapped with the labels of a certain oyster canner of the United States. One of these tins was half filled with juice and held nine small oysters ; the other contained seven. These facts are regrettable, inasmuch as our canned goods trade is increasing fast in this district. I have spent much time and trouble in promoting its growth. A few examples of bad faith such as this will undo the work faster than I can hope to remedy the evil. In the purchase of canned goods, a certain amount of confidence has to be placed in the good faith of the canners, as the buyer has no opportunity before purchasing of judging for himself as the excellence of the article. The people of this district are not over-confident in outsiders at best, and until recently the trade in canned goods has increased slowly. It is now fast becoming a factor in the import trade, however, and should be protected as far as possible from such flagrant frauds as the above.

"Capitol" Cylinder

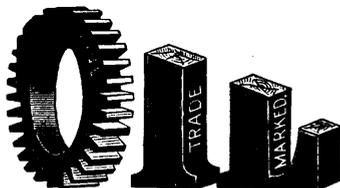
"RENOVN" ENGINE

"ATLANTIC" RED

RELIABLE WELL-KNOWN BRAND

ALL ORDERS PROMPTLY FILLED

THE QUEEN CITY OIL CO. LIMITED
SAMUEL ROGERS, Pres. TORONTO, Canada.



THE EUGENE F. PHILLIPS ELECTRICAL WORKS

MONTREAL, CANADA (LIMITED)

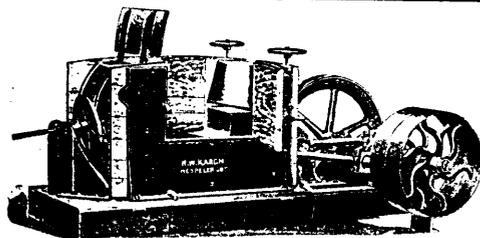
BARE and INSULATED ELECTRIC WIRE

ELECTRIC LIGHT LINE WIRE,
INCANDESCENT AND FLEXIBLE CORDS,

RAILWAY FEEDER and TROLLEY WIRE

RUBBER-COVERED, MAGNET, OFFICE AND
ANNUNCIATOR WIRES.

CABLES FOR AERIAL and UNDERGROUND USE.



H. W. KARCH

HESPELER, ONT.

IRON FOUNDER and MACHINIST

Manufacturer of

WOOLEN MACHINERY,

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

The Yeakley Vacuum Hammer.

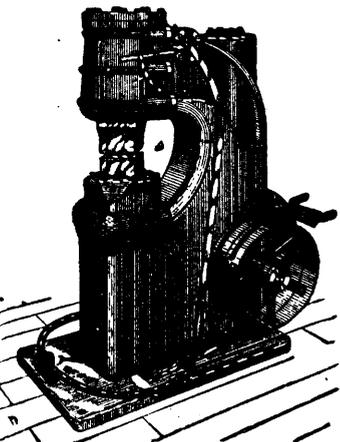
Canadian Patent November 9, 1897.

Is now Manufactured and for Sale by
the undersigned Sole Proprietors
of the Canadian Patent:

George Brush.

EAGLE FOUNDRY,

MONTREAL.



RUSSIA.—Under Section 5 of the Tariff Act of July 24, 1897, the Secretary of the Treasury of the United States on February 12, issued instructions that a countervailing duty must be levied on Russian sugar, thus revoking the suspension of such duty provided in Department Circular No. 50 issued April 20, 1900. In a circular issued February 14, the additional duties were declared to be as follows : On sugar testing not less than ninety-nine per cent., .50 rouble (38.6 cents) per pood (36.113 pounds) ; on sugar testing not less than eighty-eight per cent., .44 rouble (33.96 cents) per pood ; on sugar testing less than eighty-eight per cent., .38 rouble (29.34 cents) per pood.

In retaliation for this action on the part of the United States Treasury Department, M. de Witte, the Russian Minister of Finance, published in the Official Messenger of February 17 a decree to become effective March 1, imposing an additional tariff duty of thirty per cent. net upon articles included in paragraphs 150, 151, 152, 153, 161 and 167 of the Russian schedule of import duties, when such articles are of American manufacture. Following are abstracts of the paragraphs in question : Paragraph 150—Cast-iron wares of all kinds, including enameled, tinned and painted wares, etc., cast-iron piping, rough castings and articles of malleable cast-iron. Paragraph 151—Manufactures of iron and steel, forged, stamped or cast, not wrought. Paragraph 152—Iron and steel boiler and bridge work, tanks, as well as all articles of sheet iron or steel not specially mentioned elsewhere. Paragraph 153—Manufactures of iron and steel of all kinds not specially mentioned elsewhere, including hardware of various kinds, iron bedsteads, small wringing machines, skates, etc. On most of the items in the foregoing paragraphs the duties levied are 1.70 roubles (\$1.3124) per pood, with 1.40 roubles (\$1.0808) per pood additional of conventional duties.

The increased duty in these cases would amount to \$1.405 per pound. Paragraph 161—Tools for artists, traders, factories and workshops. The duties are \$1.0808 per pound with \$10.8492 conventional, increased duty \$1.1039. Paragraph 167—Machinery, apparatus, and models thereof. Section 2 of this paragraph is apparently the only one included in the retaliatory decree. This section comprises : Gas and water meters, motors worked by gas, hot air or petroleum, dynamos, sewing and knitting machines,

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Lighting, Heating and Motive Power BY GAS

GAS FROM WOOD—A rich permanent Gas almost equal to that of Coal Gas, can be made by using the

RICHÉ GAS GENERATOR

at a mere nominal cost per thousand cubic feet. The Generator is simple in construction, and does not require skilled labor to work it. **No Purifiers required.** Products being a Rich Permanent Gas and Charcoal.

These Generators are extensively used in Europe, and are on exhibit at the Paris Exposition. Particulars by applying to

JULES DE CLERCY, GAS EXPERT

Room 501, Carlaw Building
30 WELLINGTON ST. WEST, - TORONTO

TALISMANIC BELT DRESSINGS WILL INCREASE YOUR POWER



Prevents Belts Slipping.

Prolongs Life of Belts.

"What We're On We'll Cling To."

TALISMANIC BELT CLINCH—For Leather Belts
TALISMANIC RUBBER FACING—For Rubber Belts
TALISMANIC ROPE PRESERVER

JOHN W. BOWDEN & CO.

330 Clinton Street. Toronto, Ont

FOR SALE

Large Four
Storey Brick

FACTORY

In Toronto Junction,
on line of C.P.R. Steam Heating.

W. M. COCKBURN

18 TORONTO ST.

Telephone 8548.

The Patent Clothboard Co., of Parry Sound, Limited,

PARRY SOUND, - ONT., CANADA

Clothboards on Lapping and Rolling Boards
Veneers of Ash, Birch, Basswood and Elm.
Cheese Box Bands and Rims.
Box Shooks (Small and Fine).

portable engines, fire engines, machines of all kinds not specially mentioned of cast iron, iron or of steel, with or without parts of other materials. The duties of the same as in paragraphs 151-2-3.

It will be noted that these paragraphs do not include the most important items of American exports to Russia; and on careful study of the decree it appears that the blow to American manufacturers is very much less serious than it has been stated to be in many quarters. It is quite possible that, in view of the fact that the decision of the Secretary of the Treasury will shortly come before the courts, this decree will be officially suspended before March 1. It is reported from Washington that a strong effort will be made by this Government to secure such a suspension, in which event it is probable that the matter in dispute can be arranged to the satisfaction of all parties.

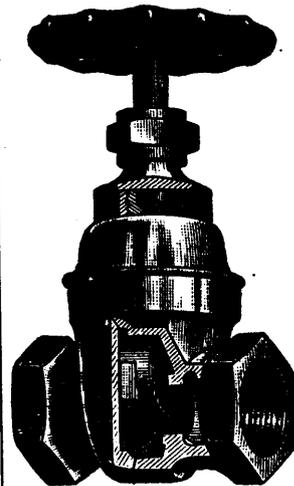
There is said to be a favorable opportunity at present for the securing of important contracts for manual fire engines, trucks, etc., in Russia. Only recently volunteer fire brigades have been organized throughout the Czar's domains. German firms are already in the field, and are reported to have sold several thousand of the appliances. That there is a demand for such apparatus may be gathered from the estimate that at least one-fifth of "wooden" Russia is burnt down annually. The payment for the fire appliances is usually guaranteed by the various municipal authorities, whose note, it is stated, is in every instance discounted by the local bank where the goods are consigned.

SWEDEN.—Sweden is one of the countries in which the application of acetylene as an illuminant has already acquired considerable importance. Its use on board ship is perhaps most open to objection, since any access of water may cause an explosion. Yet acetylene search lights are being employed on the fleet of small steamers which ply between the numerous small islands with which the Swedish coast of the Baltic is dotted. During trial runs it resulted that objects could easily be examined at a distance of 500 and 600 meters (1,640 to 1,802 feet) when the acetylene beam was thrown on them, and the manipulation of the lanterns caused no difficulties. The saloons and cabins of some of these steamers are also lighted with acetylene.

SOUTH AFRICA.—In view of the certainty that an immense trade in these lines will take place immediately upon the cessation of hostilities, the following detailed statement of the imports into South Africa of machinery, hardware and metal goods, from the British and South African Export Gazette, will be of interest:

Article.	1896.	1899.
Cart and carriage ironmongery, springs, axles, etc.....	£18,258	£18,757
Cycles.....	236,518	142,234
Hardware, cutlery and ironmongery.....	1,320,437	1,191,796
Iron and steel.....	674,192	695,207
Iron, leaden and earthen pipes, lead, etc.....	202,756	342,913
Machinery.....	1,543,464	1,527,005
Railway and tramway material...	575,693	441,939
Total.....	£4,571,318	£4,359,850

It Pays to Buy GOOD VALVES KERR'S GLOBE AND WEBBER STRAIGHTWAY VALVES



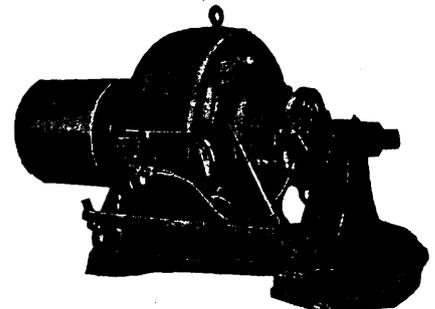
ARE THE
VALVES
TO
BUY...
ASK YOUR
DEALER
FOR THEM.

Catalogue Sent
on
Application.

THE KERR ENGINE CO., Limited,
WALKERVILLE, ONT.

The Jones & Moore ELECTRIC CO.

ELECTRICAL CONTRACTORS



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

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

20 and 22 ADELAIDE W.,
TORONTO.

CHARLES F. CLARK, President. JARED CHITTENDEN, Treasurer.
Established 1849.

BRADSTREET'S Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.

EXECUTIVE OFFICES,

346 & 348 Broadway, New York City, U.S.A.

Correspondence Invited.

OFFICES IN CANADA:

Halifax, N.S. Hamilton, Ont.
London, Ont. Montreal, Que.
Ottawa, Ont. Quebec, Que.
St. John, N.B. Toronto, Ont.
Vancouver, B.C. Victoria, B.C.
Winnipeg, Man.

THOMAS C. IRVING, Gen'l Manager Western Canada,
TORONTO.

JOHN A. FULTON, Gen'l Manager Eastern Canada,
MONTREAL.

ALEX. GARTSHORE, President. J. G. ALLAN, Sec.-Treas. JAS. THOMSON, Vice-Pres. and Gen. Mngt.

THE GARTSHORE-THOMSON PIPE & FOUNDRY CO.

Limited

CAST IRON PIPE

3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers

Special Castings and all kinds of

FLEXIBLE AND FLANGE PIPE.

WATER WORKS SUPPLIES

HAMILTON, ONT.

McLachlan Electric & Gasoline Motor Co., LIMITED.

94 ADELAIDE ST. WEST. TORONTO

MAKE Gas or Gasoline Engines from 1 h.p. to 6 h.p. Stationary or Marine and Electric Motors from 1/2 h.p. up. Motor Carriages for Pleasure or Business. One cent spent for a postal will bring you any information you wish.

PACKARD

ELECTRIC COMPANY LIMITED

MAKERS OF

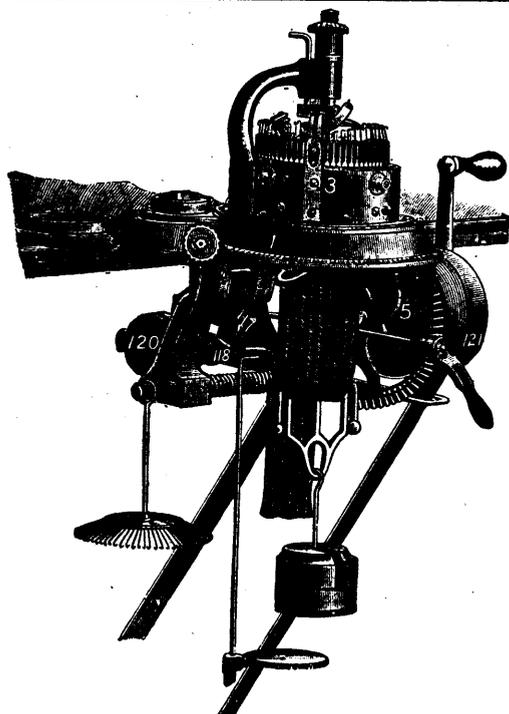
LAMPS AND TRANSFORMERS

SOLE AGENTS FOR CANADA

SCHEEFFER RECORDING WATT METERS

D. & W. ENCLOSED FUSES

ST. CATHARINES, - CANADA



Seamless Hosiery

KNITTING MACHINES

We have been hard at it for nearly 1/3 of a Century.

We have had Success.

Our Customers have had Success.

Why? MERIT and SUPERIORITY in our Machines tells the story.

CATALOGUE FREE.

GREELMAN BROS.,

Manufacturers,

GEORGETOWN, ONTARIO, Canada.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Following are the imports of machinery, hardware, and articles of iron and steel in still greater detail:

Machinery.	1898.	1899.
Agricultural.....	£71,440	£55,443
Mining.....	901,082	821,709
Electrical.....		
Textile and industrial.....	570,942	649,853
Unenumerated.....		
Total.....	£1,543,464	£1,527,005
Hardware.		
Agricultural imple-ments.....	£112,676	£162,648
Brass and copper wares.....	24,145	21,651
Cutlery, ironmongery and unenumerated.....	1,136,204	965,979
Tin, tinware and zinc.....	47,412	56,822
Total.....	£1,320,437	£1,191,796
Iron and Steel.		
Anchors.....		
Bars, hoops and pig. Sheet iron.....	£190,415	£217,208
Steel.....		
Unmanufactured unenumerated..		
Corrugated iron....	363,611	299,848
Iron wire.....	120,166	178,151
Total....	£674,192	£695,207

To a certain extent these figures tell their own story, since they indicate clearly enough the nature of the South African market in these lines, and its extent. It is important to note, however, the source of the principal of these imports. Of mining machinery only one-fourth came from Great Britain, while fully one-half came from the United States. The American importations, says Dun's Review, were due primarily to the fact that our manufacturers had made a special study of South African mining conditions, and also to the presence of an unusual proportion of American managers and engineers in the mines there. French and German importations were due for the most part to the large amount of capital from those countries invested there.

SOUTH AMERICA.—The opening for the sale of American pianos in various parts of South and Central America, as well as the West Indies, has frequently been stated. If an instrument is made to withstand the severe climate and at the same time able to compete with the French product, an extensive business can be worked up in a few months. The Austro-Hungarian Consul-General at Rio de Janeiro, in a report to his Government, calls the attention of his countrymen to the favorable chances that exist in Brazil for the sale of pianos. He says: French pianos are well introduced here, but these instruments have of late deteriorated in their quality. After two or three years' use their sound becomes unbearably metallic. Nor is sufficient regard paid to the hot and moist climate. Still for want of better instruments, and because the French article has been well advertised, they continued to meet with ready sale at high prices. Last year a few pianos of Bohemian (Austrian) manufacture were introduced in Curitiba, the capital of the State of Parana, and have given great satisfaction. One of the best selling pianos is

BOOK, MATTRESS and BROOM WIRE



High Grade, Double Turned—Size and Temper Guaranteed—Fine Charcoal Annealed Brush Wire—Tinned Wire of all kinds. Samples and quotations on application.

PEERLESS WIRE CO.
Hamilton, Ont.

Toronto Woolen Machinery Co.

We now offer as a going concern the property known as

The Vienna Woolen Mills

Consisting of the following machinery:—

- One set 48 in. Platt Cards, all clothed.
 - One 264 Spindle Bancroft Mule.
 - One 24 in. G. & Mc. Picker. One Cone Duster.
 - One Fraser's Card Picker. One Yarn Spooler.
 - One 60 Spindle Fly Twister.
 - One 108 in. Crompton Cone Loom, 4x4 box, 4 harness.
 - Two 92 in. Faisey " " 4x4 " 24 " "
 - One 48 in. Gilbert " " 3x1 " 4 " "
 - One 48 in. " " " 1x1 " 4 " "
 - One Broad Warper and Beamer.
 - One Bobbin Winder.
 - Two Broad Up and Down Gigs.
 - One Rotary Fulling Mill. One Cloth Washer.
 - One Yarn Washer.
- With Spools, Bobbins, Tools, etc., etc.

BUILDING No. 1.

Two and a-half Storey Frame, with stone foundation, 30x60 feet.

BUILDING No. 2.

Boiler and Picker House—One Storey Brick, 24x64.

A never-failing Water Power, all heat by steam and in first-class order. Good local trade has always been done.

The above can be bought cheap and on easy terms. Apply

TORONTO WOOLEN MACHINERY CO.
118 DUKE ST., TORONTO.

All interested in South and Central American Trade should read

THE SOUTH AMERICAN JOURNAL

Founded 1863

The recognized organ of South American interests and business in the Anglo-Saxon World.

SUBSCRIPTION . . . 25s. PER ANNUM.

Specimen copy post free; also the pamphlet, "South America as a Field for Enterprise," giving much information with regard to the countries, moneys, weights, measures, mails, etc.

OFFICES

DASHWOOD HOUSE,
New Broad Street,
LONDON, E.C., ENG.

the short square, called Mignon, 175 centimetres long, 7½ octave, which sold at the factory for 400 Austrian florins (about £32). Pianos which are more popular and most in use cost at the factory about 300 florins (about £24). These instruments must be ornamentally and highly finished, have cast-steel frames and light mechanism, which, however, must be impervious to moisture.

Trade should reciprocate easily between the countries of North and South America. Those countries lying to the south of us need our manufactured goods, and we need their tropical and semi-tropical productions. They produce in great abundance, coffee, mate, Cassava, spices, rubber, an endless variety of fruits, great quantities of fish and other aquatic skins that we are learning to work into so many kinds of leather. Their mahogany and other fancy woods should find ready sale and great demand in the United States. They should send us many fibres from their odd plants, many of which have been familiar to the Indians for many generations but are new to us.

Oleaginous seeds is another line that could be developed into a great industry. Vegetable oils are receiving more attention each year, and will continue to do so as populations increase. Nature has confined production in this respect to warm climates, and the United States will furnish a market for large quantities.

On the other hand, all South and Central American countries need agricultural implements, a line of manufacture in which we excel. Bridge and railroad material is needed more in South American countries than anywhere else in the world. We are in a position to supply this material better and cheaper than it can be supplied by any other nationality. We should also supply other lines, such as building hardware, furniture, typewriters, sewing machines, bicycles, mining machinery, boots and shoes, and a great many other articles of manufacture that all Latin-America needs.

Every citizen of the United States who visits South America realizes the future possibility of a very extensive interchange of commodities, as well as the present commercial poverty in that direction. At the present time, communication is quicker and cheaper by way of Great Britain, a condition of affairs that is not creditable to any American country.

The Pan-American Exposition will offer the best opportunity to study this very important question in all its bearings. Representative citizens will be in attendance from every part of these great continents. Influence will be brought to bear in the direction where it will accomplish the most good. Natural trade conditions will be studied with a view of overcoming present difficulties, and the outcome must be beneficial.—The Manufacturer, Philadelphia.

SPAIN.—According to the *Moniteur Officiel* du Commerce this importation in 1899 was represented by 29,514,958 kilos. as regards machinery, automobiles and locomotives. Germany, Belgium, England, France, Switzerland, and Italy export the steam-engines, and Germany supplies many agricultural machines. The material for sugar factories comes from Germany and Bohemia. Germany and France sent to Madrid type-founding machinery, printing and lithographic machines; freezing and pulverizing machinery especially is of German origin. Paris exports to Spain materials for soap and candle factories, France and Germany, England and Belgium, sent

railway material, wagons and rails. Electric industries play an important part in Spain. Several foreign companies have established branches at Madrid and technical offices. The electrical machinery comes from Germany and Switzerland, cables and copper wire from Germany, France, England and

THE CANADIAN COLORED COTTON MILLS COMPANY.

- Cottonades, Tickings, Denims,
- Awnings, Shirtings,
- Flannelettes, Gingham,
- Zephyrs, Skirtings,
- Dress Goods, Lawns,
- Cotton Blankets,
- Angolas, Yarns, etc.

Only Wholesale Trade Supplied.

D. MORRICE, SONS & CO.

AGENTS

MONTREAL and TORONTO.

PATENTS PROVISIONAL PATENTS, Caveats, Etc.
H. DIXON,
REGISTERED ATTORNEY,
MECHANICAL EXPERT, ETC.
124 VICTORIA STREET, TORONTO, ONT.

PATENTS

Home and Foreign Patents Procured at Lowest Rates

Patent Rights Sold on Commission. Prompt Attention guaranteed to all business entrusted. Write for full particulars.
THE TORONTO PATENT AGENCY, Limited,
Confederation Life Bldg., Toronto, Can.

The Wm. Hamilton Mfg. Co.

Peterboro, Ont., Can.

Acting as the Patentee's Licensee

Are prepared to manufacture and supply

SAVERY'S PATENT SHAKE FRAMES

—FOR—

Fourdrinier Paper Machines,

AS DESCRIBED IN

Canadian Patent No. 57,819.

PATENTS, TRADE MARKS, CAVEATS, ETC.

EGERTON R. CASE,

Registered Solicitor of Patents, Notary Public.

Member of the Canadian Manufacturers' Association.

TEMPLE BUILDING, TORONTO, ONT.

Offices also in Ottawa and Washington, D.C.

WATER POWER FOR SALE

The Falls of St. Anne, within 24 miles of the City of Quebec, and within a very short distance of the railway there and the famous shrine of Ste. Anne de Beaupre.

Height of fall 194 feet, and estimated to give a minimum of 3,000 horse power. For particulars apply to

H. M. PRICE & CO.
QUEBEC, CAN.

Factory Site in Toronto TO LET OR FOR SALE

With a Grand Trunk siding of about 300 feet in length. An opportunity to secure a valuable location.

For full particulars apply to

A. M. CAMPBELL

12 Richmond St. East
Telephone 2351

SILICIA BRICKS

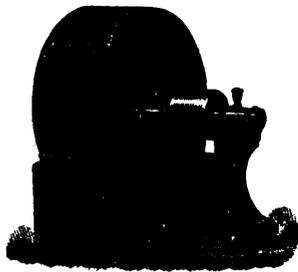
Highest Grade for all Purposes

MAGNESIA BRICKS

FOR LINING

*Smelting, Refining and Matte
Furnaces, also Converters
Rotary Cement Kilns*

F. HYDE & CO. 31 WELLINGTON ST.
MONTREAL



PLANING MILL STEEL PLATE EXHAUST FANS

For removal of refuse from Wood-Working Machinery.

CYCLONE DUST SEPARATORS

Made of Galvanized Steel. All Sizes for Fans from 30 inches and up.

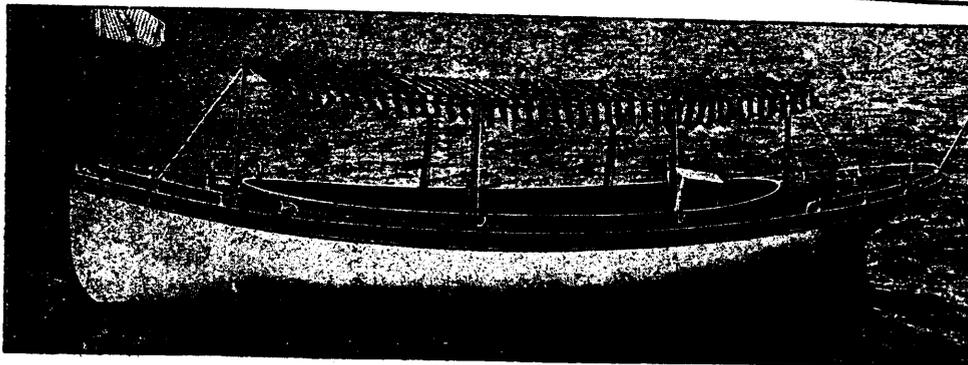
Estimates cheerfully given for Complete Installations of Fans, Piping, Gates, Hoods and Separators, with or without Shavings Feed Attachment to Boiler Fires.

McEACHREN HEATING AND VENTILATING CO.,
GALT, - ONT.

WE MAKE

Forge, Cupola and Disc Fans, Electric Fans, Heaters and Fans for Lumber and Wool Drying, etc., and for Heating of Factories.

STEAM TRAPS, OIL SEPARATORS, ETC.



Italy. The importation of automobiles into Spain seems to have an excellent future, several transport companies having projected regular services by automobile conveyances. A French company has undertaken the exploitation of the line Palamos-Gerona. Iron couches would meet with a good demand in Spain, as they are much used by the people. Cast iron kitchen utensils are imported from England, enameled ones from Austro-Hungary and Switzerland, those of tin from France. Knives, scissors and tools come from Germany; needles from England, France and Germany; metal lamps and accessories from Germany, France, England, and Austria-Hungary. According to the new Spanish Customs tariff, the import duty on the latter article has been raised to 2.40 and 2 pesetas per kilo.

UNITED STATES.—Such was the demand for American manufactures in the calendar year 1900 that probably three-fourths of all showed gains over the preceding year. This conclusion is based upon a statement compiled by Chief Austin of the Bureau of Statistics, showing the values of the exports of the leading manufactured articles for the past three calendar years. Of the thirty-seven leading articles of export, thirty, or more than three-fourths, showed gains over 1899, while as compared with 1898 there were only two products that showed decreases. Of the seven showing decreases in 1900 from the preceding year, the most important is that reported in exports of manufactures of cotton, which fell off over \$4,000,000, mainly because of the reduced takings by China, our best customer among the nations. To the loss of popularity of the bicycle is ascribed the decrease of exports in this line, while malt liquors, starch, marble, soap and fertilizers also show decreases. In the matter of gains shown iron and steel products and manufactures, of course, are most prominent. These show a gain of \$25,000,000 as compared with the preceding year, 1899, and over \$45,000,000 as compared with 1898.—Bradstreet's.

The New Orleans Manufacturers' Association is arranging to charter a steamer for the purpose of making a floating exhibit of New Orleans manufactures in Central American and West Indian ports. The following route will be taken: Tampico, Vera Cruz, Merida, Belize, Livingston, Puerto Cortez, Bluefields, Port Limon, Boca del Toro. The time occupied by the trip will be about thirty days, which will permit of an additional trip from either Tampico or Vera Cruz to the City of Mexico.

The work of the Bureau of Information of the National Association of Manufacturers of the United States, is outlined as

**GASOLINE
and STEAM**

Launches

THE LATEST STYLE
ASK FOR PRICES

Dean's Canoes ARE KNOWN
THE WORLD
OVER.

Send for Catalogue

WALTER DEAN, - Toronto

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

follows by a leading member: Our Information Bureau was organized something like a year ago to protect our members against the various begging frauds and advertising and export fakirs with whom all prosperous members of any community are necessarily so familiar; and to protect our members against the so-called protective associations and information bureaus themselves, which, realizing that there was a field for such work, have been springing up in great numbers. We have on hand considerable information about such people, and from considerable practice are able to "size up" their operations pretty well. But where we feel that our information is insufficient, we are only too glad in any case to make a special investigation for any member upon request, either by letter or telephone. One immediate good effect of this work is that where our members say to these various fakirs and frauds that they will look into their propositions, the beggar or fraud in question is very likely not to come back. Of course it is a pretty good rule to turn all such people away; but very rich men and prosperous concerns like to give to deserving objects, and there is very often some element of business, though perhaps a small one, in a good many of the advertising propositions that come along; so that wherever our members have felt that they hadn't the time or inclination to examine these propositions thoroughly, they have found our information of value, especially since, in reference to advertising schemes in particular, it is very easy to go wrong without sufficient information, and also very easy to go right with a knowledge of such matters, which it is very

easy to obtain through us. We sometimes make reports in writing, and also in certain cases—as with the extra confidential reports of a merchantile agency—we call and discuss the question in person. We are "on call" for all members all the time, and hence this last method is just as satisfactory as it is to write. We have no axes to grind in these matters any more than in any other, asking only to help our members with the least possible trouble and expense to themselves, to steer clear of the fakirs and also to have a chance to know about some of the commendable things that are being done, if they care to know about them.

UTILIZATION OF SAWDUST.

United States Consul-General Bittinger, at Montreal, writes to his government as follows:—

There has recently been invented and manufactured in Montreal a machine for the purpose of extracting the products of sawdust. The following information in connection with the invention is furnished by one of the gentlemen interested:—

The machine is built for the distillation of sawdust, and consists of two or more cylinders, arranged one over the other, the centre of each cylinder being made to revolve. The whole is then incased in an oven and subjected to a strong heat, the gases generated being carried off by three or more pipes to separate condensers, making a division of the products directly from the machine.

It being necessary to expose the sawdust to this heat for a certain length of time, the

discharge is so arranged that the speed can be changed if the fires are not in proper condition. The capacity of the machine is about 2,000 pounds of wet sawdust per hour; but by first drying the sawdust with the combustible gases (of which there is sufficient involved to do the heating), its capacity is more than doubled. Two to four horsepower is required to work the machine.

In addition to the gases generated, the following products have been obtained from 1,000 pounds of sawdust, viz: Char, 160 pounds; acids, 180 pounds; water, 248 pounds; tar, 162 pounds. No record was kept of the gases, but a test was made of them for heating and illuminating. They were found to be superior to coal gas, except that they were unpleasantly pungent. This, however, would not have been the case had the gases undergone a purifying process.

This machine was irregular in its action, and had to be emptied of the products; but the inventor has since made a second machine, which is an improvement on the old one. The latter, however, has not yet been patented, though arrangements to that end are now being perfected.

Little is being done with the machine at present, owing to lack of capital, it being estimated that at least \$100,000 will be required to put the enterprise on a paying basis.

According to the United States Consul Covert, at Lyons, France, there are some twenty establishments in Europe where oxalic acid is made out of sawdust—six in Germany, twelve in England, one in France, and one in Belgium. Yellow and white

Buyers' Guide of Canada

Book 8 x 10 inches. Cloth Binding. 488 pages.

PRICE, \$5.00, or 21 SHILLINGS STERLING.

Postage Paid to any Address in the World.

A COMPLETE INDEX.

Contains Addresses of

10,000 Canadian Manufacturers.

In use in all the Commercial Departments of the Dominion Government at Ottawa. Distributed by the Government to the offices of the High Commissioner of Canada at London; the Canadian Institute, London; Managers of Canadian Sections of Glasgow, and Pan-American Exposition, and to every Canadian Commercial Agent throughout the world.

Orders Filled Promptly on Receipt of Price.

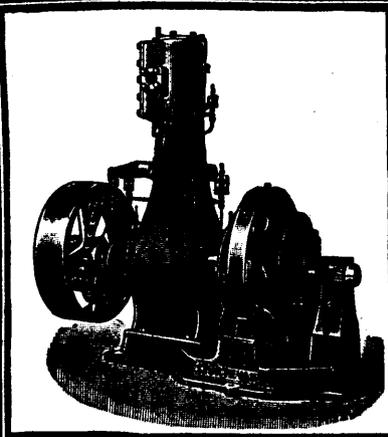
Remit only by Post Office or Express Money Order, or Registered Letter. Address the

Canadian Manufacturer Publishing Co.,
TORONTO, CANADA.

STURTEYANT

GENERATING SETS

In 100 types and sizes.
High speed and high grade.
We build both engine & generator.



— ALSO —

- Blowers
- Exhausters
- Steam Fans
- Electric Fans
- Engines
- Electric Motors
- Forges
- Exhaust Heads
- Steam Traps
- Heating
- Ventilating
- Drying Apparatus
- Mechanical Draft

B. F. STURTEYANT & BOSTON
NEW YORK - PHILADELPHIA - CHICAGO - LONDON

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

A. C. NEFF
CHARTERED ACCOUNTANT
 Room 500 McKinnon Bldg.,
 Tel. 1330. — TORONTO.
 Audits and Investigations a Specialty.

THE.....

Toronto Paper Manufacturing Co.,
Cornwall, Ont.

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

Chemistry of the Arts and
Manufacturers.

DR. GEO. ARCHBOLD,

A.M., Ph.D.,

CONSULTING CHEMIST,

(Formerly Chief Chemist, Ordnance Dept.,
 U.S. Navy Yard, Washington, D.C.)

Gives expert technical advice in all matters relating to chemical arts and manufactures. Thirty years practical experience in Great Britain, Europe and the United States.

P. O. BOX 283, - PRESCOTT, ONT.

JOHN J. GARTSHORE,

83 Front St. West, Toronto.

RAILWAY, TRAMWAY, and

...Contractors' Supplies

METALS and SCRAP IRON
 Bought and Sold.

PATENTS

TRADE MARKS, Etc.

HANBURY A. BUDDEN

NEW YORK LIFE BUILDING,
MONTREAL.

CANADIAN OFFICE & SCHOOL FURNITURE
CO. LIMITED
 PRESTON ONT.
 FINE BANK OFFICE, CHURCH & LODGE FURNITURE.
 COURT HOUSE & DRUG STORE FITTINGS. SEND FOR CATALOGUE.
 J. JONES - TOR.

TO RENT

The Premises lately occupied by

THE MAIL JOB PRINTING CO.

Will rent the whole—(2 flats)—with or without power, or will divide into smaller rooms. Alterations will be made to suit the tenant.

Apply, **W. J. DOUGLAS,**

Mail and Empire, TORONTO.

WOOD ENGRAVING
PHOTO ENGRAVING
HALF TONES

OR ANY CLASS OF ENGRAVING FOR ADVERTISING PURPOSES. CATALOGUES, MAGAZINES, &c.

J. L. JONES ENG. CO

6 · 8 · 10

TORONTO.
 Adelaide St. W.

pine, dried, contain ninety-four per cent. of oxalic acid: oak, eighty-three per cent.

Sawdust is used in Scotland to some extent in making floor cloth and linoleum, certain kinds of heavy stamped or embossed material to be used instead of wall paper, coarse wrapping paper, and millboard, and certain coal substitutes for domestic use. It is also employed (mixed with melted resin and pressed into squares) in making fire lighters.

FORESTRY IN CANADA.

Canada might learn a lesson regarding forest preservation from India. The government of India found that, as a result of the destruction of forests by axe and fire, vast tracts of land had been desolated, and there was danger that the whole country would become barren if the work of destruction were allowed to continue, for a country without forests is likely to be afflicted with alternate floods and droughts.

The work of protecting the forests was begun in India in 1844, and gradually extended, but it has been placed upon a thoroughly scientific basis only during the last twenty years. The service is divided into 210 departments, under the direction of expert foresters, most of whom have been trained in Germany and France. They are assisted by a number of subordinate officials, many of whom are natives of India. A training school for subordinate forestry officials has been established near Dehra, and it is intended to have similar training schools at all the local centres, as it is desired to have none but expert foresters in the service. Promotions are made according to merit, and it is expected that in a few years about twenty per cent. of the superior posts will be in charge of natives selected from the subordinate positions. The foresters have to guard against fires, see that there is no waste in cutting and that the smaller trees are not destroyed, provide for the maintenance of seed-bearing trees and the reforestation of sections denuded of trees. In each province there are state forestry reserves, and altogether these reserves cover an area of more than 80,000 square miles, which will eventually be largely extended. Forest revenue is raised by the sale of timber or other produce and by the issue at specified fees of permits to graze cattle or to cut timber, make charcoal and gather firewood, bamboos, canes and other minor forest produce. In the Central Provinces, where the reserved forest area is computed at 19,115 square miles, 1,950,000 cattle were grazing last year, and of these only 5,500 were allowed in the reserves without payment of fees. A large revenue is already derived from the forests by the government of India, and it is expected that it will steadily increase.

United States Commercial Agent Bentel-spacher, at Moncton, N.B., in a report to his government regarding forestry in Canada, points out that the time has come for the various provincial governments to establish systems of scientific forestry. The officials of the Dominion experimental farms began

GALVANIZING

We are prepared to attend to all orders **Promptly** and **Economically.**

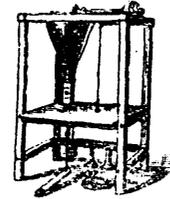
WINDMILLS, PUMPS, TANKS, Etc.

ONTARIO WIND ENGINE and PUMP CO.
 LIMITED,

95 ATLANTIC AVE., TORONTO.

SPECIAL MACHINE

For Packing Soda, Baking Powder, Coffee, Chicory and all Powdered or Granulated Materials,



In Packages of from half ounce to six lbs.

For Flour and Other Cereals,

Six to fourteen lbs.

Ask us about this Machine.

T. H. & A. H. DRYDEN

TORONTO

I BUY all Minerals at Mines by contract or otherwise. Mineral Lands and Timber Properties bought and sold.

H. FAWCETT HARTLAND,

Room 309-310 Merchants Bank Chambers,
205 St. James Street, - Montreal.
 Correspondence Solicited.

The Rehder Plating & Mfg. Co.,
THOROLD, - ONT.

Manufacturers of

Stove and Piano Trimmings and Novelties

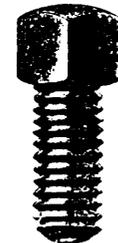
Fine Grey Iron Castings a Specialty.

Nickel, Copper and Brass Electro Plating.

WRITE FOR PRICES.

TORONTO MACHINE SCREW CO.

Manufacturers of



Hexagon AND Square Head Cap Screws.

Steel and Iron Set Screws, Hanger and Planer Bolts, Studs, etc.

Send for Price List and Discounts.

108 1/2 Adelaide St. W. - TORONTO.

G. H. Adams & Co.

MANUFACTURERS' AGENTS AND COMMISSION MERCHANTS.

Flinders Lane, MELBOURNE,

Clarence Street, SYDNEY,

and at FREMANTLE, ADELAIDE,

BRISBANE and N.Z.

Will be pleased to correspond with Canadian Manufacturers and Exporters desirous of opening up direct relations with Australasia.

WILSON & BURNIE,

FLOUR, OATMEAL, and COMMISSION AGENTS,

Also at **GLASGOW, SCOTLAND. LEITH.**

Advances on Consignments.

Look for **PETRIE'S CATALOGUE** of **MACHINERY** NEW AND SECOND HAND. TORONTO, CANADA

PAGE

MISSING

PAGE

MISSING

Smith Wool-Stock Co.

219 FRONT ST. E., TORONTO.
Makers of

WOOL STOCK, SHODDIES, Etc.

W. H. PARKER

J. H. PARKER

NEW TORONTO WOOL STOCK CO.

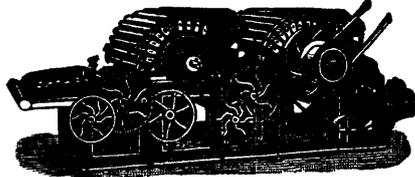
MANUFACTURERS OF

WOOL STOCK and SHODDIES

Write for Samples and Prices.

NEW TORONTO, - ONTARIO, CANADA.

A. S. PARKER, NEW TORONTO



Dealer in Woolen Waste. Carpeting a Specialty

PENMAN MANUFACTURING CO.

PARIS, ONT. LIMITED.

Manufacturers of

Hosiery, Shirts, Drawers,
Glove Linings and Yarns.

Selling Agents - D. Morrice, Sons & Co.,
Montreal and Toronto.

ROSAMOND

WOOLEN CO.

ALMONTE, ONT.

Fine Tweeds, Cassimeres,
and Fancy Worsted
Suitings and Trouserings.

LEITCH & TURNBULL, Canada Elevator Works,
Queen and Peter Sts.,
HAMILTON, ONT. Patent Safety Hydraulic,
Hand and Power ELEVATORS.
..... Telephone Connection.

W. H. Storey & Son, ACTON, ONT.,

Manufacturers of..... FINE GLOVES AND MITTS
In every variety and style. Moccasins.

WM. BARBER & BROS.

Georgetown, Ont.

Manufacturers of.....

Book and Fine Papers.

Reproductions Made for Eight
Cents per Square Inch.



Half Tones Made Direct from
Photos.



CROSBY STEAM GAGE AND VALVE CO.

Sole Proprietors and Manufacturers of
Crosby Pop Safety Valves, for all kinds of Boilers, Water Relief Valves including
the Underwriter, which is fully approved by the Associated Factory Mutual
Insurance Companies; Crosby Steam Engine Indicators, with Sar-
gent's Electrical Attachment; Crosby Improved Steam
Gages, Recording Gages and Patent Gage Testers.
Original Single Bell Chime Whistles.

BRANDEN PATENT PUMP VALVES

CLARK'S LINEN FIRE HOSE AND ADJUSTABLE COUPLINGS

All Kinds of Pressure and Vacuum Gages used in the Various Arts

Gold Medal Paris Exposition, 1889

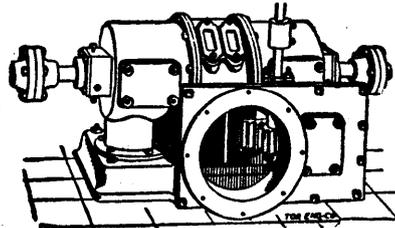
Ten Highest Awards Columbian Exposition, 1893

Main Office and Works.....

BOSTON, MASS., U.S.A.

Underwriter

Branch Offices at New York, Chicago, and London, Eng.



Horizontal Type.

"LITTLE GIANT" TURBINE

.... FOR ALL PURPOSES....

HORIZONTAL AND VERTICAL
BUILT IN 44 SIZES.

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

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

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

BELL PIANOS and ORGANS

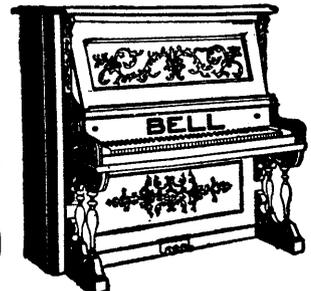
BUILT TO LAST A LIFETIME
AND USED THE WORLD OVER

Send for Catalogue No. 47 to

THE BELL ORGAN AND PIANO CO., LIMITED

GUELPH, - - ONTARIO.

LARGEST MAKERS IN CANADA.



THE WELLINGTON MILLS, London, Eng. GENUINE EMERY

Oakey's Flexible Twilled Emery Cloth.

Oakey's Flint Paper and Glass Paper.

Oakey's Emery Paper, Black Lead, Etc.

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

Manufacturers, JOHN OAKEY & SONS, Limited, Wellington Mills, Westminster Bridge
Road, London, England.

ENQUIRIES SHOULD
BE ADDRESSED TO JOHN FORMAN, 650 CRAIG ST.,
MONTREAL

JOHN HOUGHTON

Practical Machinist

106 CHURCH ST., TORONTO.

MODEL MAKING A SPECIALTY.

WELLAND VALE MANUFACTURING CO.

Limited, ST. CATHARINES, ONT.

... Manufacturers of....

Axes, Edge Tools, Saws,
Farming Implements
and Bicycles

The Firstbrook Box Co. Limited

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

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

CARBONIZER A neutral sub-
stance, harmless
to animal fibre
or tissue, while it destroys burrs, etc., as
efficiently as acid. It leaves the wool in
fine condition. Manufactured by the
Merrimac Chemical Co., 13 PEARL ST.
BOSTON.

PATENTS
 TRADE MARKS, DESIGNS,
 Caveats, Copyrights, etc.
 By **SMITH & CAMERON**, 51 CANADA LIFE BUILDING
 Solicitors of Patents, Experts, Engineers, etc. 46 King St. West, Toronto.
 Promptly Secured in all countries

PATENTS PROMPTLY SECURED

Marion & Marion, MONTREAL and WASHINGTON
 Write for "Inventor's Help"—FREE. ENGINEERS AND EXPERTS.

**McARTHUR,
 CORNEILLE & CO.,**
 OFFICES:
 310 to 316 St. Paul Street.
 WAREHOUSES:
 147 to 151 Commissioners Street.
 ...MONTREAL...
 AGENTS FOR . . .
 Berlin Aniline Co.,
 Aniline Colors and other Coal Tar
 Products.
 Stamford Manufacturing Co.,
 Dyewoods and Extracts.
 Coez, Langlois & Co.,
 French Extracts.
 Miller Extract Co., Hemlock Extracts
 British Alizarine Co., Alizarine.
 J. H. Heald & Co., Extracts Oak, etc.



**The Ontario . . .
 Malleable Iron Co.**
 (Limited)
Manufacturers of
MALLEABLE IRON Castings to Order for all kinds of
AGRICULTURAL IMPLEMENTS .
AND
Miscellaneous Purposes
 OSHAWA, - - ONT.

THE UNITED ELECTRIC CO.

SUCCESSORS TO **W. A. JOHNSON ELECTRIC CO.**
THE TORONTO ELECTRIC MOTOR CO., Limited.
THOMPSON ELECTRIC CO.

We Manufacture a complete line of **Electric Light and Power Apparatus.**
ARE PREPARED TO CONTRACT FOR COMPLETE INSTALLATIONS.
 Head Office, - **134 KING ST. W., TORONTO, ONT.**

THE CANADA SWITCH & SPRING CO., LIMITED.
 Manufacturers of
SPECIALTIES FOR
Steam and Electric Railways,
**SPRINGS, STEEL CASTINGS,
 FROGS, FORGINGS,
 TRUCKS FOR ELECTRIC RAILWAYS, ETC.**
**INTERLOCKING SWITCH
 and SIGNAL PLANTS,**
 (Under patents of Messrs. Saxby & Farmer,
 Limited, of London, Eng.)
**CANAL BANK, POINT ST. CHARLES,
 MONTREAL**

**BRISTOL'S PATENT
 STEEL BELT LACING**
 — ONE HUNDRED SIZES —

 READY TO APPLY FINISHED JOINT
Greatest Strength with Least Material
 EASILY APPLIED and LOW IN PRICE
Saves Time, Saves Belts, Saves Money
 SAMPLES SENT FREE
 THE **BRISTOL CO.**
 WATERBURY, CONN.

**SMITH'S FALLS
 Malleable Iron
 Works**
 OOOOO
CAPACITY 3,000 TONS.
 OOOOO
WILLIAM H. FROST
 PROPRIETOR,
SMITH'S FALLS.
 ONTARIO, CANADA.

BLACKSMITH'S APRONS
 The Hamilton Tanning Mill Co., Limited, Manufacturers of
 HAMILTON, ONT.
LEATHER
 ELEPHANT BRAND
 DOMINION LEATHER COMPANY, TORONTO, FOR PRICES.
FOUNDRY SUPPLIES
 Ceylon Plumbago
PIPE AND CORE SAND
 also Extra Fine Quality
 WRITE FOR PRICES