

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

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

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

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

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

Bound with other material/
Relié avec d'autres documents

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

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

Additional comments:/
Commentaires supplémentaires:

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

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

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

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

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

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

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

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

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

HAMILTON, ONT. Manufacturers of Ceylon Pigmbago supplies also Extra Fine Quality MILDWIND CHINA Pipe and Core Sand. WRITE FOR PRICES

REGISTERED TRADE MARK A. D. JARVIS & CO. ENGINEERS, ONT. MANUFACTURERS OF MACHINISTS' TAPS SEND FOR CATALOGUE.

CANADIAN MANUFACTURER
AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 41. TORONTO, OCTOBER 5, 1900. No 7.

MAGNOLIA METAL
ANTI-FRICTION
Used by all the Leading Governments
THE BEST ANTI-FRICTION METAL FOR ALL MACHINERY BEARINGS
For Sale by all Dealers Beware of Imitations.
MAGNOLIA METAL CO.
Owners and Solo Manufacturers.
266-267 West St., New York.
Montreal, Board of Trade Bldg
Chicago, 251 Dearborn St.
London, 49 Queen Victoria St.
Pittsburgh, 723 Liberty Ave.
Boston, 191 High St.
San Francisco, 33 First St.
Philadelphia, Hale Bldg.
Magnolia Metal is still selling at the same price it has always sold at—No advance.

ANILINE LIZARINES
DOMINION DYEWOOD & CHEMICAL CO.
TORONTO
PRODUCTS OF
The Farbenfabriken vorm F Bayer & Co.
DOMINION DYEWOOD & CHEMICAL CO.
SOLE AGENTS FOR CANADA TORONTO.

SANDERSON'S STEEL
The Oldest and Most Reliable Brand on the market.
FULL STOCK
Carried at Montreal of
SELF-HARDENING AND TEMPERING STEELS
A. G. LESLIE & CO.,
Canadian Agents, MONTREAL.

“Every Factory in Canada should use the best Belting.” Our “EXTRA” brand.

THE J. C. McLAREN BELTING CO.

Factory : MONTREAL. TORONTO. VANCOUVER.

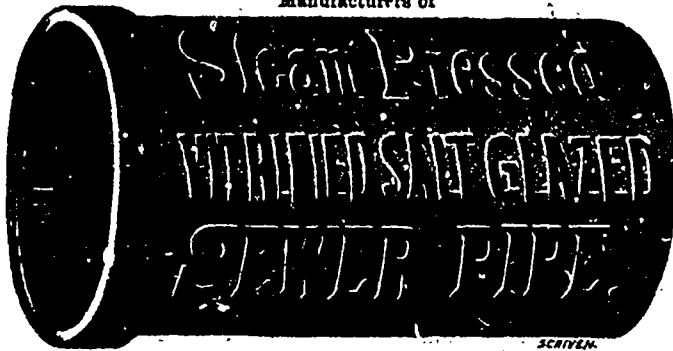
Fensom's
ELECTRIC HYDRAULIC STEAM HAND-POWER
All made of the best material and finest workmanship.
Elevators
The Fensom Elevator Works...
52, 51, 56 Duke Street, Toronto, Ont.

RUBBER GOODS OF ALL KINDS.
THE CUTA PERCHA & RUBBER MFG CO.
TRADE MARK
TORONTO
61 and 63 FRONT ST. WEST, TORONTO.

THE...
Walkerville Malleable Iron Co., (Limited)
Manufacturers of.
REFINED AIR FURNACE Malleable Castings
ALSO LIGHT GREY IRON CASTINGS.
WALKERVILLE, ONTARIO.

THE CANADIAN SEWER PIPE CO.

Manufacturers of



ST. JOHNS
P.Q.

HAMILTON
ONT.

TORONTO
ONT.

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, Secy-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: 43 Colborne Street, TORONTO.
13 Lemoyne 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, Raunor 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.

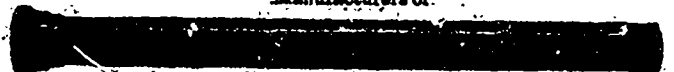
Offices: Canada Life Insurance Bldg., Montreal.

MONTREAL PIPE FOUNDRY CO.,

SUCCESSORS TO

DRUMMOND-McCALL PIPE FOUNDRY CO.

Manufacturers of



"Specials," Hydrants, Valves, Etc.

Offices:

Canada Life Building,

MONTREAL

THE sale of **55 New Wheelock and Ideal Steam Engines** in 8½ months this year is abundant evidence that the power users of Canada have great confidence in the efficiency of these engines. Add to this the sale of **64 Model Gas and Gasoline Engines** in the same period and you have a most convincing argument in favor of the popularity of these types of power. Send 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, SHAFTING, 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, wood 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. MONTGOMERY, N. B. STRATFORD, ONT. KINGSTON, ONT. WINDSOR, ONT.

Branch Offices and Agencies:

Vancouver, B.C.,
Wm. Hamilton Mfg. Co.

Winnipeg,
Robt. Douglas, 94 Alexander Avenue.

Montreal,
321 St. James Street.

John Bertram & Sons

DUNDAS, ONTARIO.

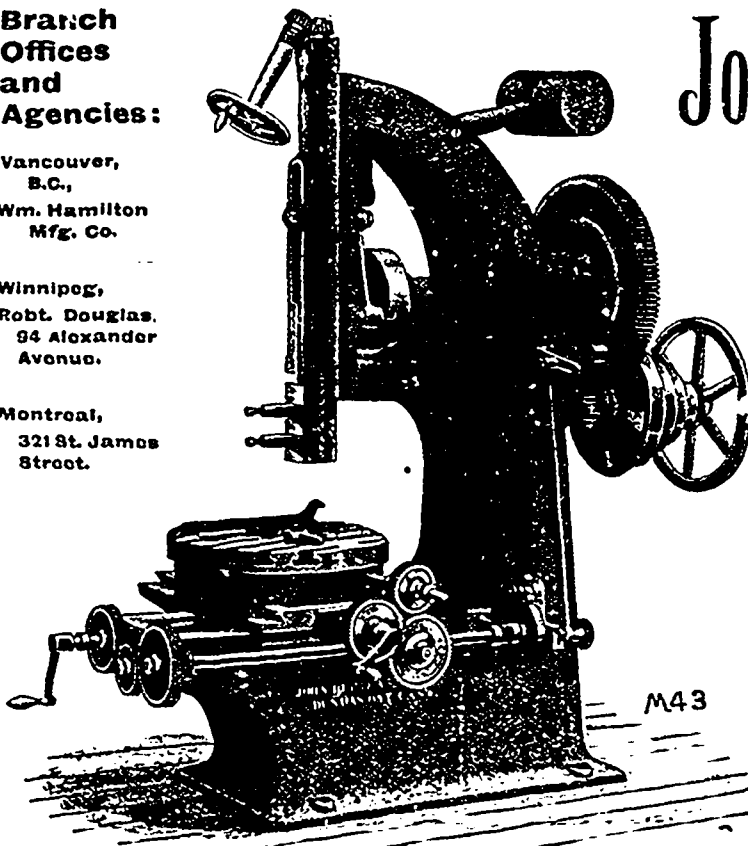
Canada Tool Works

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 $\frac{1}{2}$ TO 5 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN $\frac{1}{16}$ OF AN INCH.

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

RAILWAY AND ELECTRIC RAILWAY CAR AXLES

FISH PLATES, SPIKES AND TRACK BOLTS

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

HEAVY FORGINGS a SPECIALTY.

"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,

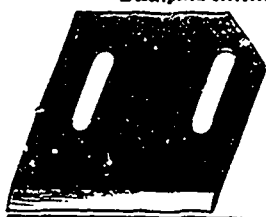


GALT, ONT.

Manufacturers of Every Description of.....

KNIVES, For Wood-Working, Paper

Cutting and Leather-Splitting Machines



BARK KNIVES
PULP KNIVES
RAQ 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, GIRDEES, 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 52% (Light and Heavy)

BLEACH^g PWD.

35% to 37% (Hardwood Casks)

CAUSTIC 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



If your Dealer Does not Keep Them Send to Us.

CHEAPEST AND BEST
Bicycle Screw Plate

14 PAIRS DIES—22 TAPS

...A Complete Repair Shop in Itself...

BUTTERFIELD & CO.
Rock Island, P.Q.

ALBERT MANUFACTURING CO.

MANUFACTURERS OF THE WELL-KNOWN

"HAMMER BRAND"

Calcined Plaster

AND

Patent Rock Wall Plaster

HILLSBOROUGH, N. B., CANADA.

KEMP MFG. CO.

TORONTO.

Galvanizing

DONE FOR THE TRADE.

GET OUR PRICES.



For IRON FENCING, BANK and OFFICE RAILINGS and all kinds of IRONWORK

Address:

Toronto Fence & Ornamental Iron Works 29 Queen St. East, Toronto.

BROWN & CO.

Manufacturers of

Square and Hexagon

HOT PRESSED NUTS.

PARIS, - ONT.



Send for Catalogue and Price List to



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



ORDERS for the Webster Feed Water Heater

are increasing every day.

The following well-known firms have recently ordered the "WEBSTER" Heater

Grand Trunk Ry. Co. (Car Shops), Montreal (1) ..	800 h.p. Heater.
Pillow Jersey Mfg. Co., Montreal	(1) .. 1000 "
Dominion Cotton Mills Co., Montreal	(5) .. 200 "
Montmorency Cotton Mills, Montmorency, Que.	(1) .. 200 "
Toronto Carpet Co., Toronto, Ont.	(1) .. 400 "
Merchant's Bank of Canada, Montreal	(1) .. 150 "

Our new Catalogue explains the saving to be effected by the installation of the "Webster" Heater, and will be mailed free on application.

DARLING BROTHERS,
Reliance Works, MONTREAL.

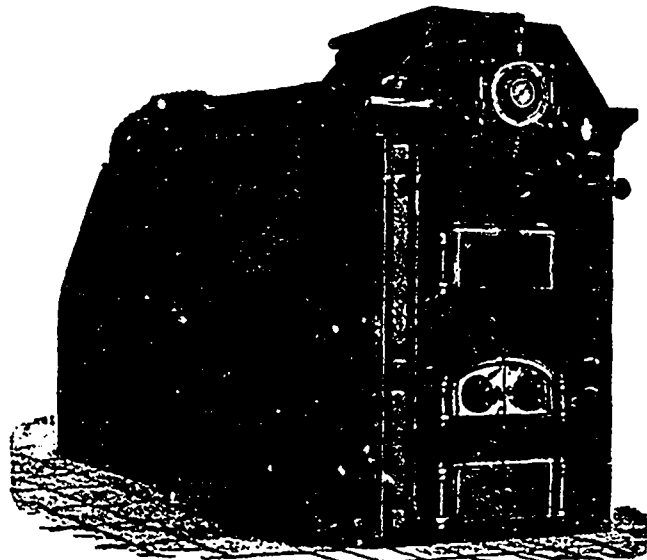
A. KLIPSTEIN & CO. 122 Pearl St. New York

Anilines, Dyestuffs & Chemicals

DELIVERY MADE AT NEW YORK, MONTREAL OR HAMILTON.

WRIGHT & DALLYN, HAMILTON, ONT. AGENTS,

A FUEL SAVER



This boiler is built with sheet steel case or for brick casing as desired. It is internally fired, has perfect water circulation, is a quick steamer and gives the highest economy.

Two settling chambers are provided for catching deposits of scale, and every part is accessible for cleaning.

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

CANADIAN RUBBER CO.,

OF MONTREAL,

Manufacturers of High-Grade Rubber Goods
of all Descriptions.



BELTING,	HOSE,	PACKING,
VALVES,	BOOTS,	Etc., Etc.

Factories and Head Office, - - MONTREAL.
 Ontario Branch, - - - - TORONTO.
 Western Branch, - - - - WINNIPEG.

Orders Filled with Despatch from Head Office or Branch Warehouses.



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 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, Eng.

Inquiries should be addressed to

JOHN FORMAN, 650 CRAIG ST., MONTREAL.

Current
Completely
Registered

No
Current
Lost

Entire
Revenue
Secured

No Friction

ABSOLUTELY ACCURATE

From Less than 5 c.p. to Full Capacity. Guaranteed for Three Years.

METERS

Air Tight

Moisture
Proof

Dust Proof

Insect
Proof

Magnetic
Suspension

No Wear

MADE BY... **STANLEY INSTRUMENT CO.,** GREAT BARRINGTON, MASS., U.S.A.

FOR SALE IN CANADA EXCLUSIVELY BY

The Royal Electric Co'y

MONTREAL, QUE.

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.**

THE ATLANTIC REFINING CO.

TORONTO, ONTARIO

MANUFACTURERS
AND IMPORTERS
OF ILLUMINATING
AND LUBRICATING

OILS, GREASES

and SPECIALTIES

SEE THIS SPACE NEXT ISSUE.

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 1850.

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. Colinda and Jordan Sts., Toronto.

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

J. J. CASSIDEY, - - - Editor and Manager.

FRANK B. WHITE COMPANY.

The Fisher Building, CHICAGO. 150 Nassau St., NEW YORK.
Represent the Advertising Department of THE CANADIAN
MANUFACTURER in the United States.

CANADIAN—AMERICAN—BRITISH TRADE.

The Bureau of Statistics of the United States Treasury Department has issued a special bulletin directing attention to the fact that the Canadian preferential tariff in favor of Great Britain has not had the expected effect of reducing the proportion which the United States supplies of manufactures imported into Canada. The Bulletin says:—"A copy of THE CANADIAN MANUFACTURER just received by the Treasury Department Bureau of Statistics sharply calls attention to the fact that imports of dutiable articles into Canada from the United States in the fiscal year 1899 aggregated over \$44,000,000 and from Great Britain less than \$28,000,000, and that the United States is furnishing a much larger amount of manufactures of iron and steel than the United Kingdom;" and it quotes from our editorial of September 7 as follows:—

The preponderance of trade is overwhelmingly in favor of American manufactures, and, tariff preference in favor of British goods to the contrary notwithstanding, American manufacturers are taking the cream of the business. Is it possible that British manufacturers are entirely unable to compete in the Canadian market?

Commenting on our remarks the Bulletin says:—

The Canadian tariff, it will be remembered, was in 1897 so adjusted that the duty on articles entering Canada from the United Kingdom was made, beginning with April, 1897, 12½ per cent. less than the rate from other parts of the world, and on July 1, 1898, another reduction in favor of the United Kingdom was made, bringing the total reduction to 25 per cent., as against goods coming from other parts of the world. A recent announcement indicates that, beginning with July 1, 1900, a still further reduction would be made, so that the rates of duty on articles from the United Kingdom would be 33½ per cent. less than those from other parts of the world. While the effect of the third reduction of 12½ per cent., which went into operation July 1, 1900, cannot yet be determined, it is practicable to compare the imports of manufactures into Canada from the United Kingdom and the United States

respectively during the years ending June 30, 1898, 1899 and 1900, and thus determine whether the advantages which the manufacturers of the United Kingdom have had over those of the United States during that time, have had a perceptible effect upon the relative growth of the imports of Canada from the two countries, the United Kingdom and the United States.

The tables which follow show the imports into Canada of twenty principal manufactures from the United Kingdom in the years ending June 30, 1898, and 1900, and the imports of a like number of manufactured articles from the United States during the same years. It will be seen that in these articles, which may properly be termed representative manufactures, the increase in importations from the United Kingdom in the fiscal year 1900 compared with 1898, was 32 per cent., while the increase from the United States for the same period was 37 per cent.

Incidentally it may also be mentioned that the total exports to British North America from the United States in the fiscal year 1900 exceeded those of any previous year in our history, being \$97,041,722 against \$89,570,458 in 1899, and \$84,899,819 in 1898.

Imports of twenty principal manufactures into Canada from the United Kingdom :

Articles.	1898.	1900.
Worsted tissues	\$2,855,054	\$2,824,788
Woolen tissues	1,103,673	1,811,928
Tin plates and sheets	1,017,528	1,520,203
Cotton yarn	1,112,709	1,520,088
Apparel and slops	1,573,461	1,274,056
Steel, unwrought	293,561	1,167,642
Carpets	764,107	1,150,945
Cotton piece goods, printed	805,675	987,201
Spirits	768,978	922,956
Linen piece goods	634,552	890,777
Railroad iron	196,223	830,360
Haberdashery and millinery	677,382	765,565
Earthen and china ware	814,060	627,016
Hoop, sheet and boiler iron	349,769	501,983
Seed oil	179,920	464,807
Cotton piece goods, bleached	189,432	445,560
Cast and wrought iron	173,310	370,783
Galvanized sheet iron	304,769	314,238
Silk, manufactures of	113,082	296,060
Cutlery	32,220	270,208
	\$13,900,865	\$18,957,164

Imports of twenty principal manufactures into Canada from the United States:—

Articles.	1898.	1900.
Steel rails	\$1,555,405	\$2,882,667
Cotton, manufactures of	2,465,630	2,668,906
Agricultural implements	781,415	2,006,943
Books, maps and engravings	722,049	1,012,986
Illuminating oil	737,389	1,012,441
Leather	878,054	952,846
Builders' hardware	719,326	818,917
Carrriages	183,233	544,465
Clocks and watches	349,198	433,645
Boots and shoes	285,054	413,487
Furniture	523,424	394,328
Cycles	614,003	387,767
Turpentine	207,660	332,069
Telegraph, telephone and scientific instruments	305,016	276,777
Copper, manufactures of	155,215	226,356
Sewing machines	141,172	193,920
Fertilizers	93,470	155,230
Rosin, tar, etc.	111,482	141,637
Cotton seed oil	115,648	126,010
Tobacco, manufactures of	62,139	117,280
	\$11,005,932	\$15,098,677

An analysis of these tables as compiled by the Bureau of Statistics shows that in the two years 1898-1900, the increased value of certain imports into Canada from Great Britain were as follows :

Articles.	Increase.	Per cent.
Woolen tissues.....	\$708,255	64.1
Tin plates and sheets.....	503,675	49.5
Cotton yarn.....	407,379	35.7
Steel unwrought.....	874,481	297.8
Carpets.....	386,838	51.9
Cotton piece goods.....	181,526	22.5
Spirits.....	213,978	30.1
Linen piece goods.....	256,225	40.3
Railroad iron.....	634,137	320.3
Haberdashery and millinery.....	88,183	13.
Hoop, sheet and boiler iron.....	152,214	43.4
Seed oil.....	284,887	157.7
Cotton piece goods.....	256,118	140.4
Cast and wrought iron.....	197,473	113.9
Galvanized sheet iron.....	9,469	3.1
Silk, manufactures of.....	182,978	161.8
Cutlery.....	237,988	738.6

There are three articles enumerated in the table which show a decrease in value of imports in the two years as follows :

Articles.	Decrease.	Per cent.
Worsted tissue.....	\$30,266	1.
Apparel and slops.....	299,405	19.
Earthen and China ware.....	167,044	23.

The aggregate increase of value of the foregoing twenty articles from 1898 to 1900 imported into Canada from Great Britain was \$5,056,293, or 36.3 per cent.

An analysis of the other table compiled by the Bureau of Statistics relating to the imports of certain other articles into Canada from the United States shows the increase in value in the two years 1898-1900 as follows :

Articles.	Increase.	Per cent.
Steel rails.....	\$1,327,262	85.3
Cotton, manufactures of.....	203,276	8.2
Agricultural implements.....	1,225,528	156.8
Books, maps and engravings.....	290,937	40.2
Illuminating oil.....	275,052	37.3
Leather.....	74,792	8.5
Builder's hardware.....	99,591	13.8
Carriages.....	361,232	197.1
Clocks and watches.....	84,447	24.1
Boots and shoes.....	128,433	48.5
Turpentine.....	124,469	60.
Copper, manufactures of.....	71,141	45.8
Sewing machines.....	52,748	37.3
Fertilizer.....	61,760	66.
Rosin, tar, etc.....	30,155	27.
Cotton seed oil.....	10,362	8.9
Tobacco, manufactures of.....	55,141	88.7

There are three articles enumerated in the table which show a decrease in value of imports in the two years as follows :

Articles.	Decrease.	Per cent.
Furniture.....	\$129,096	22.7
Cycles.....	266,236	36.8
Telegraph, telephone and scientific instruments.....	28,239	9.2

The aggregate increase of value of the foregoing twenty articles from 1898 to 1900, imported into Canada from the United States was \$4,092,745 or 37.1 per cent.

THE TARIFF DRAWBACK.

At a meeting of the Executive Committee of the Canadian Manufacturers' Association held on August 11, the following resolution was carried :

Resolved, that it be a recommendation from this Committee to the Tariff Committee for their consideration, in relation to drawbacks of duty on materials imported when worked into articles exported: That when such article is manufactured in Canada the Government be memorialized not to grant a drawback on the imported article.

According to Industrial Canada some discussion was had

by the Executive Committee regarding the operation of the rescinded drawback clause of the tariff, and the conclusion was reached that before the Tariff Committee should take the action suggested, they should give it thorough investigation and consideration, a slight matter which the Executive seem to have overlooked. They thought it advisable that an expression of opinion by the members of the Association should be invited, and the members are therefore requested to state their views in the matter.

Section 30 of the United States tariff law now in force, as shown in page 129 of the tariff edition of THE CANADIAN MANUFACTURER of July 6, says in part :

Where imported materials on which duties have been paid are in use in the manufacture of articles manufactured or produced in the United States, there shall be allowed on the exportation of such articles a drawback equal in amount to the duties paid on the materials used, less one percentum of such duties.

We believe that the Canadian law relating to the matter is, in spirit, identical with the United States law, and in view of the fact that it was largely through the representations of the Canadian Manufacturers' Association made to the Dominion finance minister several years ago that the drawback was increased from ninety per cent. to ninety-nine per cent., we fail to see why the Association should stultify itself by proposing an entire discontinuance of the drawback. We are aware that some manufacturers think they are injured by the allowance of the drawback, and perhaps they are, but it should be borne in mind that it is allowed only when the materials are exported, and therefore does not affect domestic trade. Canada is now putting forth strenuous efforts to build up an export trade, including about as many lines of manufactures as there are members of the Association, and the Executive Committee, who made the suggestion that no drawback be allowed, might be challenged to name an industry which would not be very seriously crippled and handicapped were the event to occur:

CANADIAN IMPORTS OF MANUFACTURES OF GUTTA PERCHA AND INDIA RUBBER.

Following are some facts regarding the respective trade of Great Britain and the United States with Canada during the year 1899, reference being had to values of certain dutiable manufactures of gutta percha and India rubber, collated from Canadian Trade and Navigation returns :

Articles.	Great Britain.	United States.
Boots and shoes.....	\$262	\$57,591
Belting.....	565	23,226
Clothing, waterproof.....	91,643	59,894
Hose, fire.....	1,463	29,839
Packing, mats and matting....	1,285	27,718
Sheeting.....	49	170
All other n. o. p.....	24,256	160,599
	\$119,523	\$259,037

Total imports from the two countries \$378,560
 From Great Britain 31.5 per cent.
 From United States..... 68.5 per cent.

During the year alluded to the imports into Canada of all dutiable articles from the two countries, aggregated in value as follows :

From Great Britain \$27,521,508
 From United States..... 44,471,824

and this notwithstanding the abatement of duty in favor of Great Britain.

THE MERRY EXHIBITION WAR.

A feature of the discussion which has been going on regarding the mismanagement of the Toronto Industrial Exhibition is a clash of arms between two gentlemen much interested in that institution. One of the combatants has published a letter in which he defends the course pursued by the Industrial Association, explains why exhibitors make displays of their goods there, how the manager and members of the board representing the Canadian Manufacturers' Association have always endeavored to induce manufacturers to exhibit, explains the causes of the meagre results of their efforts, lays much of the blame upon the trade and other papers because they obtain advertising patronage from the manufacturers, speaks of the large prize money, amounting to \$35,000 per annum, paid to exhibitors of horses, cattle, sheep, swine, poultry, farm products, horticulture, fine arts and ladies' work, but none to manufacturers; mentions the heavy cost incident to displays of machinery, and on these grounds sets up a claim that the newspapers should assist in obtaining the necessary aid—several hundreds of thousands of dollars—from the city of Toronto, the Provincial and Dominion Governments, to enable the Association to properly house and handle a grand Dominion exhibition in 1901. The other combatant argues that the manager of the Fair and the members of the board alluded to have not used due diligence to induce manufacturers to exhibit, and cites the fact that he holds hundreds of letters from manufacturers and others to that effect.

Let the war go on, but this wordy correspondence, and an editorial in this journal on September 21, when read in the light of facts recorded, show that some things are wrong that should be righted, and unless they are righted, and that without delay, it will be a vain effort to induce the city, the Province or the Dominion to give large sums of money to help promote a Dominion exhibition next year. These warring gentlemen, and all others interested, should understand that without the infusion of new blood into the Association, it is bound to collapse, and that quite speedily. Who and what is the Toronto Electoral District Society that it should have twelve members in the Industrial Association, and five members on its Board of Directors, while the Canadian Manufacturers' Association, the only representative of all the manufacturers of the country, should have but five members and two directors? One of the combatants unintentionally touches a keynote when he alludes to the expenditure of \$35,000 per annum in prizes and premiums to the interests he names. Hundreds of thousands of dollars have been expended by these representatives of the Toronto Electoral District Society and their associates, in the construction of stables, cattle byres, sheep and hog pens, an elegant two-storey dog house, grand stand, etc., to which no objection has been raised by the other exhibitors, but some money should have been expended in providing for the comfort and convenience of exhibiting manufacturers and in assisting in defraying their expenses, particularly where processes of manufacture are illustrated by machinery in motion.

In the opinion of many the influence of the representatives of the Canadian Manufacturers' Association is not very pronounced in the councils of the Exhibition Association. None

of them are exhibitors at the Fair, and at this time the Association has but two directors on the Exhibition Board, whereas, until quite recently, it had three. If the Association is wise it will demand that all of their five representatives be directors; and it should also insist that all of the separate guilds, connected with it or not, such as the Furniture Manufacturers' Association, the Piano and Organ Manufacturers' Association, the Carriage Manufacturers' Association, the Agricultural Implement Manufacturers' Association, the Iron Founders' Association, and others, should have adequate representation both in the Industrial Exhibition Association and upon its Board of Directors. And while such improvements are being made, it would be well if the Canadian Press Association be included. This should be done even if the pet nursery for would-be directors—the Toronto Electoral District Society—and its abnormal preponderating influence, were consigned to oblivion.

TRADE OF CAPE COLONY.

The Cape of Good Hope Government Gazette publishes some statistics showing the value of the imports into Cape Colony for the year ended June 30, 1900, as compared with a similar period of 1899. The following table shows the imports of articles into the colony for the two periods, distinguishing the principal categories of merchandise, articles imported for the use of the Colonial Government, and specie:

Categories of Merchandise	Year ended June 30, 1899.	Year ended June 30, 1900.
Provisions:— Butter; margarine; cheese; chicory, coffee; confectionery and cocoa; meats, salt and preserved; general provisions, oilmen's stores, etc.; rice, sugar, tea.....	£1,951,000	£2,277,000
Wearing apparel, etc.—Apparel and slops; haberdashery and millinery; hats.....	2,107,000	1,742,000
Cereals.—Flour; maize; oats; wheat.	887,000	1,018,000
Cotton manufactures.....	1,087,000	831,000
Hardware, cutlery and ironmongery...	896,000	692,000
Machinery and agricultural implements	1,255,000	688,000
Leather and leather manufactures:— Boots and shoes; saddlery, harness, etc.....	644,000	615,000
Wood, and manufactures thereof.— Wood, manufactured, planed or grooved; manufactured other than furniture; furniture and cabinetware	856,000	579,000
Beverages (alcoholic):—Ale and beer; spirits; wine.....	360,000	362,000
Books and stationery.....	452,000	359,000
Coal, coke and patent fuel.....	211,000	289,000
Woolen manufactures.....	330,000	241,000
Metals, manufactures of:—Iron, bar, bolt, rod and sheet, corrugated and galvanized; lead, bar, pipe, sheet, and shot.....	234,000	245,000
Drugs and chemicals.....	303,000	202,000
Other articles of merchandise.....	3,819,000	3,556,000
Total merchandise..	15,392,000	13,704,000
Imports of articles for Colonial Government.....	1,096,000	706,000
Specie.....	766,000	4,647,000
Grand Total.....	£17,248,000	£19,057,000

The Federal Council at Berlin has issued a notice extending favored-nations treatment to Great Britain and all of her colonies excepting Canada and Barbadoes.

EDITORIAL NOTES.

The Postmaster-General of New Zealand has sent a message to Hon. William Mulock, Postmaster-General of Canada, announcing that the colony will adopt penny postage on January 1, next.

We are under obligations to Mr. George Johnson, Dominion Statistician, for a copy of "The Statistical Year Book of Canada, for 1899." This is one of the most interesting publications issued by the Government, as it contains a fund of information condensed into compact form not elsewhere easily attainable. Its contents are largely made up from the Departmental returns submitted to Parliament, but it contains in addition valuable and instructive information which the people of the Dominion would do well to acquire. The dates and events connected with the discovery and history of Canada are of themselves sufficient to recommend the publication, but in addition to this we have a short history of the country, a description of its physical features, its constitution and government, treaties affecting it, etc. The statistical portion includes agriculture, minerals, fisheries, trade and commerce, currency and banking, railways and canals, marine, post office, finance, insurance, telegraph and telephones and electric light, militia, social and other statistics, a list of senators, members of the House of Commons, those of the provincial legislatures, and a copious and comprehensible index.

It is the custom of the management of THE CANADIAN MANUFACTURER to send copies of this paper to non-subscribers when the issue contains anything supposed to be of special interest to those to whom it is sent. In doing this an opportunity is offered to those interested to quickly correct any incorrect statements, if such have been made, as well as to bring the paper into notice and obtain new subscribers and advertisers. This is a proper and legitimate procedure recognized by the postal authorities. Persons have sometimes hesitated to receive the papers thus sent, under the impression that they would be asked to pay for them. There is no expectation of pay. Such papers are sent as a compliment and as business policy. They are free.

At the recent meeting of the Canadian Manufacturers' Association a resolution was passed calling upon the Government to make the following changes in the administration of the Patent Office: To spend such proportion of the net revenue from the fees as is necessary to secure competent examiners, and provide them with the necessary facilities for their work; to provide for the printing of all patents, so that copies could be obtained at reasonable rates; to have the examiners trained in the method of examining in vogue in the United States; to make it incumbent on examiners to take the applications in the order of filing; to provide a sufficient number of examiners to expedite the business of the office. Mr. F. B. Fetherstonhaugh, the well-known patent barrister, speaking of this matter, said that while the passage of the resolution would do no harm, he desired to pay a tribute to the manner in which Hon. Sydney Fisher had administered the patent office. The Minister of Agriculture had done and was doing all he could to keep the office at a high standard. Dealing specifically with the matters touched

on in the resolution, Mr. Fetherstonhaugh said Mr. Fisher had already arranged for printing the patents. He was getting more money for the service, and the examiners were trained men, who were thoroughly competent. They were required to and did take applications in the order of their receipt.

We are in receipt of a letter from Mr. J. S. Larke, commercial agent of the Government of Canada at Sydney, New South Wales, in which he says:—"I thank you for sending me a copy of the tariff edition of THE CANADIAN MANUFACTURER. It is indeed very useful to me in my work here, the advertising portions of it being as valuable as any. I have had it but a week, and already correspondence has been begun with twenty different concerns who advertise in it, with a view of securing agencies for the sale of goods thus brought to the attention of the Australian public." It is quite evident, from what Mr. Larke says, that a large number of our friends who advertise their business in THE CANADIAN MANUFACTURER are reaping a good reward therefrom by selling their products in Australia. Our tariff edition is on file in every important commercial centre in Queensland, New South Wales, Victoria, South Australia, West Australia, Tasmania and New Zealand.

THE CANADIAN MANUFACTURER is in receipt of a letter from a firm of general merchants in Waimate, Canterbury, New Zealand, who desire to be placed in communication with Canadian manufacturing concerns who do or would like to do export trade to that country. They are dealers in all lines of iron goods, furniture, woodenware, oils, etc. They inform us that they pay cash at sight draft for all goods sent to them. They offer as references some of the best banking houses in London. Further particulars upon application to this office.

Mr. James M. Swank, general manager of The American Iron and Steel Association, has favored us with a copy of the second edition of the supplement to the directory to the iron and steel works of the United States, in the preface to which we are informed that in March last was presented to the trade a descriptive list of the consolidations of iron and steel companies which had taken place in the United States since January 1, 1898—twenty-three in all, the present publication being a more complete list of such consolidations, embracing those organized since March as well as those previously described, numbering thirty in all, the information relating to each consolidated company being revised and verified down to August 15. The book comprises seventy-eight well-printed pages, and contains an authorized description of the organization of each of the consolidations mentioned, giving its capitalization, list of officers, and a list of properties owned and operated by it, with the names of previous owners of iron and steel works. The name and character of every plant are fully stated. For detailed information concerning the plants mentioned and their products reference is given to the page or pages in the directory in which they are fully described. Iron ore mines, coal mines, coke ovens, railroads, and lake vessels owned by the consolidated companies are also given in sufficient detail. The supplement is printed and bound in uniform style with the directory; price \$2.00 per copy.

THE CANADIAN MANUFACTURER

ESTABLISHED IN 1880.

Devoted to the Development of Canadian Trade,
Foreign and Domestic.

THE INTERNATIONAL BUREAU OF COMMERCE

.. OF CANADA ..

In connection with The Canadian Manufacturer, works to attain this end.

Any inquiry addressed to THE CANADIAN MANUFACTURER will result in placing the writer, if he so desires, in communication with Manufacturers, Buyers or Sellers of any sort of merchandise in Canada or any other country.

Merchants, Importers, Exporters, Boards of Trade, Chambers of Commerce and Commercial Organizations in any part of the world are invited to make full use of the facilities afforded by THE CANADIAN MANUFACTURER whenever they may desire information about any article produced in Canada, Tariff Law, Customs Regulations, Routes of Transportation, etc.

We especially request Canadian manufacturers to send us lists of the different lines of goods produced by them so that we may address to them special letters of inquiry as soon as information is received by us.

ARGENTINE REPUBLIC.

Files and Rasps.
Electric Novelties.
Office Supplies.

Writing Inks.
Paper Fasteners.
Stationery (all kinds).

AUSTRALIA.

Window Glass.
Building Papers.
Upholstered Furniture.
Precious Stones.
Agricultural Seeds.
Hops.
Carpets and Oilcloths.
Office Furniture.
Boots and Shoes.
Umbrellas and Canes.
Pianos and Organs.
Picture Mouldings.
Strawboards (enclined).
Carpenters' Tools.
Machinists' Tools.
Engines and Boilers.
Pumping Machinery.
Metal working Machinery.
Mining and Hoisting Machinery.
Milling Machinery.
Textile Machinery.

Wire Rope.
Paints and Oils.
Electric Light Fixtures.
Folding Boxes.
Contractors' Goods.
Portable Forges.
Corrugated Iron.
Electrical Supplies in General.
Carriage and Wagon Wood-working Machinery (forging, turning and finishing).
Hickory Spokes and Elm Hubs (finished in rough).
Hickory Hims, Shafts and Poles.
Hickory Strips for bending Rims.
Hickory and Ash Planking.
Steel for Forging Buggy and Wagon Axles.

BELGIUM.

Oak Logs.
Black Walnut.
Pitch Pine.

Barrel Staves.
Cotton Wood.

BRAZIL.

Boot and Shoe Machinery.

BULGARIA.

Pig Iron.
Kitchen Utensils.

Household Hardware.

CHINA.

Builders' Hardware.
Machinists' Tools.
Window Glass.
Rops and Twine.
Shafting, Hangers and Pulleys.
Wire Rope.
Wrought Iron Pipe.
Factory Supplies in General.

Kitchen Utensils.
Stoves and Ranges.
Refrigerators.
Wrapping Paper.
Rags and Twine.
Hides and Skins.
Sole Leather.

GREAT BRITAIN.

Brass and Iron Bedsteads.

Linseed Meal (oil cake).
Linseed Oil.
Bacon, Hams, Pork and Lard.
Apples.
Canned Food Products.
Whips.
Boots and Shoes.
Office Desks.

GERMANY.

Shoe Tacks.
Bicycle Parts.
Typewriters.
Office Furniture.
Household Hardware.
Sideboards.
Chairs.
Writing Tables.

HOLLAND.

Steam Boilers and Engines (2).
Oil and Gas Engines.
Refrigerating Machinery.
Hoisting Machinery.
Wood-working (2) Machinery.
Metal-working Machinery.
Pumping Machinery.
Box and Barrel Machinery.
Bolt and Nut Machinery.
Printing Machinery.
Shafting, Hangers, etc. Machinery.
Contractors' Tools.
Machine Machinists' Tools.
Locomotives (steam and electric).
Corrugated Iron.
Tool Steel.
Bar Iron and Steel (2).
Dynamos and Electric Motors.
Elevators—belt, hydraulic and electric.
Factory Supplies in General.
Children's Cheap Shoes.

Picture Mouldings.
Groceries.
Typewriters and Supplies.
Builders' Hardware.
Sole and Upper Leather.
Satin Hides.
Wooden Pegs.
Cut Soles and Findings.
Hickory Hammer Handles.
Joiners' Benches.
Turning Lathes.
Tube Machines.
Building Lumber.
Hard Woods.
Pig Iron.
Steel Plates.
Printing Paper.
Rotary Trucks.
Sugar.
Hams, Bacon, Pork and Lard.
Butter and Cheese.
Druggists' Sundries.

MEXICO.

Agricultural Implements.
House Furnishing Goods.
Clothes and Linen Goods.
Musical Instruments.
Garden and Flower Seeds.

Building Material.
Furniture.
Jewelry.
Papers and Stationery.

RUSSIA.

Carpenters' Tools.
Blacksmiths' Tools.
Household Hardware (2).
Wagons.
Agateware.
Drugs and Chemicals.
Dyestuffs and Extracts.
Fine Wagons.
Paints and Oils.

Lamps.
Kitchen Utensils.
Refrigerators.
Trunks and Travellers' Requisites.
Bicycles.
Sewing Machines.
Locks.
Dental Instruments.

SOUTH AFRICA.

Boots and Shoes.
Upper Leather.

Cut Soles and Findings.
Sole Leather.

TURKEY.

Wire Nails.
Shoe Nails.
Hand Pumps.
Cutlery.
Prints.
Iron Pipe.
Carpets.
Oilcloths.
Hides and Skins.
Sole Leather.
Wall Paper.

Butter.
Starch.
Folding Boxes.
Wagon and Carriage Parts.
Axles and Springs.
Pig Iron.
Blankets and Counterpanes.
Carriage Hardware.
Horse and Mule Shoes.
Mantles, Stair Work, etc.

Preserve this Bulletin for Reference—it will not be Duplicated.

If You want Information, Ask for It.

Address,

THE CANADIAN MANUFACTURER, Toronto, Canada.

Reports to the Department of Agriculture show that numerous inquiries as to the location and extent of Canadian coal fields have been made at the Canadian mineral exhibit at the Paris Exhibition by merchants, manufacturers and railwaymen from all parts of Europe. It was a surprise to them to learn of our Atlantic coal fields, their extent, excellence and proximity to the European market. Most European coal fields are now being worked to their full output. The demand for coal is increasing by reason of industrial progress and railway extension, particularly in Russia, with the result that consumers look to America for an increase of the supply. The coal fields of Nova Scotia and Cape Breton have a great advantage over those of the United States, not only in their shorter distance from Europe, but also in the fact that from many of them the coal can be loaded directly into steamships without a railway haul at all.

Messrs. Brown, Boggs & Co., Hamilton, Ont., manufacturers of tinsmiths', canners' and heavy sheet-metal workers' tools and machines, write us that they are in receipt of a letter from a merchant in Sydney, New South Wales, who writes them concerning their goods, and who states that he was induced to do so by having seen their advertisement in THE CANADIAN MANUFACTURER. A probable result of the advertisement alluded to will be the opening up of a market in Australia for a valuable line of Canadian machines. We are also in receipt of a letter from Mr. M. J. Henry, of The Manufacturers' List Co., Toronto and Montreal, informing us that he was in receipt of a letter from a merchant at Danneville, Napier, New Zealand, ordering a copy of the Manufacturers' List and Buyers' Guide, which he had seen advertised in THE CANADIAN MANUFACTURER. Mr. Henry says that this is but one of many such letters he has received from different parts of the world, all traceable to his advertisement in this journal. We have, in another column, alluded to a letter received from Mr. J. S. Larke, Canadian Commercial Agent at Victoria, N.S.W., bearing testimony to business growing up between that country and this brought about by the presence and influence of this journal in Australia.

OPPORTUNITIES FOR CANADIAN 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 numerals opposite the enquiries.

328. A firm at Bucharest desires to enter into an export trade with Canada, and enquires whether business can be done in Italian produce (wines, almonds, oranges, olive oil, etc.) as well as in woollens, cotton manufactures, yarns, etc.

329. A wholesale confectioner in Scotland asks to be placed in communication with a Canadian exporter of strawberry pulp.

330. An English inventor of a patent chimney-pot, designed to prevent down draught in every condition of wind, desires to hear from a Canadian manufacturer willing to take up and push the article in the Dominion.

331. The manufacturers of umbrella component parts desire to hear from Canadian umbrella makers interested in the direct importation of such goods.

332. A firm of oil, grease and varnish manufacturers, who have one or two special lines, desire to be placed in communication with a good house in Canada willing to undertake their agency.

333. A Canadian importer of button cloth (punched), and of button parts, i.e., shells and collets, wishes to correspond with English makers who would supply samples with a view to business.

334. A correspondent in Ottawa asks for a catalogue of English manufacturers or brokers who might desire to import from Canada wood turnings, such as chair stock, broom handles, and similar classes of woodwork.

335. A Nova Scotia firm are prepared to quote for the better grades of box shooks, cloth boards, and goods of a similar character.

336. An agent in Montreal, who has time at his disposal in the winter, is prepared to take up the agency for an English firm.

337. English houses desiring to be represented at the Pan-American Exhibition at Buffalo in 1901 can have the name of a Canadian who is prepared to undertake such work.

338. A firm of flag and bunting makers ask for the name of a likely firm to take up the agency in Canada for the wholesale sale of bunting, flags, etc.

339. A merchant in Copenhagen who is desirous of working up a regular trade in Canadian salmon, wishes to hear from exporters of salted salmon, "Labrador," white bright, or red sweet salted, in barrels of 300 lb. net, the fish to be whole and not weighing less than 2½ kgr. each.

340. The makers and manufacturers of specialties suitable for shirt-makers, such as collars, cuffs, union and cotton interlinings, etc., desire to get direct correspondence with good Canadian factories and firms open to do business.

Transfer Ornaments, AMERICAN MADE.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

Guaranteed
Quality.

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

Sketches submitted free of charge. Being home makers can deliver promptly. Write us.

THE MEYERCORD CO., Inc., MAIN OFFICE— CHAMBER OF COMMERCE, - CHICAGO.

Canadian Travelling Representative,
CHAS. H. JAGGAR, Buffalo, N.Y.

Largest Makers in the World Guaranteed Decalcomania Transfers.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CAPTAINS OF INDUSTRY.

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

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

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

The trunk factory of Messrs. Brown & Scrimger, Galt, Ont., was a few days ago destroyed by fire. Loss about \$2,000.

The planing mill of Peter Weltial, Dundas, Ont., was destroyed by fire last week.

The Garfield Oil Co., Cleveland, Ohio, with branch office at Windsor, Ont., are in receipt of a letter from Mr. J. Harrad, Inspector of Painting for the Toronto Industrial Exhibition Association bearing testimony to the excellence of Zanzibar roof paint as follows:—"The Zanzibar roof paint which I have used this summer on the buildings of the Toronto Exhibition turned out, without any exception, the best paint I have ever handled and fully bears out your statements as to its merits. When so many useless preparations are advertised and sold as first class goods and the results are fraudulent, it is a real pleasure to find an article to be as represented and it gives me great pleasure to say that, in my opinion, you have the best roof paint to-day on the market and I cheerfully recommend it to any one requiring such an article.

The Canadian Pacific Railway Co., is about to make the experiment of hauling Nova Scotia coal from St. John, N.B., to Montreal and the west. The present high price of coal affords a tempting prospect for the profitable sale of the Nova Scotia product, and the C.P.R. will see what there is to be made out of it. A contract has just been made by the railway company with the Springhill, N.S., mines for the immediate delivery of 80,000 tons of coal at St. John. The coal will be carried from Springhill to St. John in barges, and will then be brought to Montreal over the C.P.R. line. The cost

of the latter transportation will be very small in view of the fact that the freight cars which are used to carry winter freight from Montreal to St. John, will be utilized on the return journey to carry the coal westward. Heretofore, these freight cars have come back from St. John empty, there being practically no return freight from that port to Montreal. By their present project, the C.P.R. will have at once solved the important problem of return freight from the east, and may accomplish a considerable development of the Nova Scotia coal fields.

The Meaford Elevator Co., Meaford, Ont., has been incorporated with a capital stock of \$130,000. The provisional directors include J. E. Botsford, F. D. Jenks and W. L. Jenks all of Port Huron, Mich.

The Garfield Oil Co., Cleveland, Ohio, inform us that they manufacture a dust-proof floor dressing, one application of which lasts from four to six months, dries over night and gives the floor a rich, lustreless finish. The dust is absolutely prevented from rising.

Louis Fox, C. H. Worden and Henry Miller, of Fort Wayne, principal owners of the Hartford City Paper Co., Hartford City, Ind., have purchased 70,000 acres of spruce timber on Manatoulin Island, Georgian Bay. The total yield will be more than a million cords, and the greater part of it will be converted into pulp at the company's mill at Hartford City.

A by-law has been passed at Petrolia, Ont., for the exemption of taxes and water rates for ten years in favor of the Petrolia Pork Packing Co. From fifty to seventy-five men will be employed.

The Niagara Falls Gas Co., Niagara Falls, Ont., has been incorporated with a capital stock of \$50,000. The provisional directors include J. A. McRae and Alexander Fraser, both of Niagara Falls, Ont., A. C. Hastings, Niagara Falls, N.Y., and C. L. Ingham, Buffalo, N.Y.

The carriage works of D. J. Shannhan, at Penetanguishene, Ont., were destroyed by fire recently. Loss about \$6,000.

The curled hair factory of P. & P. Griffin, Toronto, was destroyed by fire September 22. Loss about \$40,000.

Messrs. Harris & Co's. glue factory, Toronto, was destroyed by fire September 22. Loss about \$40,000.

Messrs. Arpin, Scott & Finger, lumbermen, Grand Rapids, Mich., are buying supplies to operate No. 1 limit, near Pigeon River, Ont. They propose cutting 10,000,000 feet of logs per year for ten years. The mill will be located either at Port Arthur or Fort William.

A by-law to authorize the loan of \$20,000 to the Knight Bros. Co., Burk's Falls, Ont., to aid them in enlarging their present planing factory and saw mill, and to put in up-to-date machinery, etc., and to exempt the factory from municipal taxation, was carried. Burk's Falls will boom now, as the Magnetawan Railway River Co., has been formed, with a capital of \$30,000, and Mr. A. White, superintendent of the freight department of the Grand Trunk Railway, makes the assurance that the spur line will be built at once.

The Valleyfield Paper Mill, Valleyfield, Que., has been purchased by the Montreal Cotton Co. The old building will be torn down and two large cotton mills will be erected in their stead.

We are in receipt of a circular from the Garfield Oil Co., Cleveland, Ohio, in which they have the following to say about their Black Beauty leather oil: It is a leather dressing with unequalled virtues, not a cheap black oil, but a carefully prepared solution of the best leather preserving ingredients, which softens and preserves the leather. Old harness made to look like new and its usefulness prolonged, and new harness protected from the ravages of the weather and kept in perfect condition. The dressing is always ready for use there being no settling of the black or separation of the ingredients.

The Toronto Woolen Machinery Co., Toronto, have recently supplied several broad looms for the woolen mills of Messrs. S. Myers & Son, at St. Mary's Ont.

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.

A. S. Parker, New Toronto, Ont., is putting in another 60 inch garnet machine, supplied to him by the Toronto Woolen Machine Co., Toronto.

Circulars have been issued to the shareholders of the Canadian General Electric Co., Toronto, calling a meeting for the purpose of considering a project of the directors to acquire the plant of the Canada Foundry Co. The last named company was formed recently to take over the business and plant of the old St. Lawrence Foundry, Toronto, which has been in active operation for some fifty years, and at that time it was stated that the foundry would be enlarged, and that the trade in castings and other iron products used by electrical and railway companies, and then purchased outside the city, would be taken up by the new company. Up to the present time the Canadian General Electric Co. has been purchasing its castings from foundries in different parts of the country, and owing to the industrial activity of the past year or so, considerable difficulty has been experienced in securing delivery of goods. This difficulty the directors intend to overcome by the purchase of the stock of the Canada Foundry Co., and the continuation of the work of enlarging the premises and plant. It was stated

recently upon indisputable authority that the business would not be removed from Toronto, although there may be a change in the location of the foundry.

The American Silk Waist Mfg. Co., Montreal, has been incorporated with a capital stock of \$10,000. The charter members include Z. Fineberg, J. A. Cars and Isaac Rose, all of Montreal.

The Gas Appliance Mfg. Co., Montreal, has applied for incorporation with a capital stock of \$50,000 to manufacture gas stoves, furnaces, heaters, etc. The applicants include John Fee, F. J. E. Browne and W. J. Freeman, all of Montreal.

James McCready & Co., Montreal, have applied for incorporation with a capital stock of \$400,000, to manufacture boots and shoes. The applicants include C. F. Smith, Edouard Laliberte, both of Montreal, and M. J. Burns, London, Ont.

The Dominion Industrial Co., Sherbrooke, Que., has applied for incorporation with a

capital stock of \$200,000, to manufacture pulp, paper, etc. The applicants include R. H. Pope, Cookshire, Que., G. G. Foster, Montreal, and G. Stevens, Waterloo, Ont.

The Canada Dairy Supply Co., Montreal, has applied for incorporation with a capital stock of \$125,000, to manufacture butter and cheese factory outfits. The applicants include J. S. Clunie, W. B. Bashaw, both of Montreal, and S. Senecal, St. Cesaire, Que.

The Canadian Pacific Railway will erect extensive workshops at Westboro, Ont., to employ 1,500 men.

The Intercolonial Railway of Canada has placed an order with the Richmond, Va., Locomotive & Machine Works, for ten large consolidated locomotives, at an aggregate cost of about \$150,000.

The Detroit Bridge & Iron Co., Detroit, Mich., will erect a new factory at Walkerville, Ont.

ESTABLISHED 1823.

Telegrams:—"WILSONS, CORNHOLME."—A.B.C. Code Used.

WILSON BROS. BOBBIN CO.

(LIMITED)

CORNHOLME MILLS, TODMORDEN, ENGLAND.

BOBBIN AND SHUTTLE MANUFACTURERS.

FORTY PRIZE MEDALS AWARDED.

HIGH-CLASS WORKMANSHIP. SEVENTY YEARS' REPUTATION.

LARGEST BOBBIN MAKERS IN THE WORLD—(Over 1,400 Workmen).

ADDRESS—

CORNHOLME MILLS, TODMORDEN, ENG.

BRANCH ESTABLISHMENT:

ATLAS BOBBIN WORKS, GARSTON, LIVERPOOL.

OFFICE AND SHOWROOMS:

14 MARKET PLACE, MANCHESTER.



SOUTH AFRICA

Messrs. Kelley's Directories Limited, (London, Eng.) beg to announce that a new edition of the **General Directory of South Africa** is now in course of preparation and desire to draw the attention of Canadian Manufacturers to the importance of the work as an advertising medium for making their goods known to buyers in South Africa. Being **THE STANDARD WORK** it reaches the very people whom manufacturers desirous of opening up or extending their export trade with South Africa, would desire to get in touch with, **THE ACTUAL BUYERS THEMSELVES.**

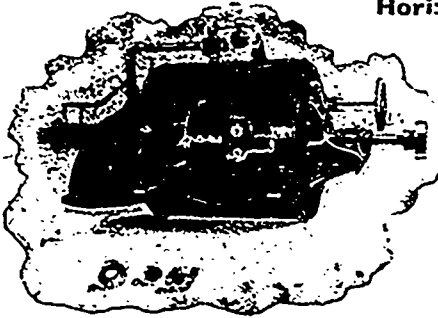
For further particulars, charges for advertisements, etc., apply to

Dominion Branch, Kelley's Directories Ltd.
71 Victoria St. Toronto, Ont.

H. P. DENT, Manager.

THE Crocker Patent Turbine

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.

The Diamond Machine & Screw Co., Toronto, have just issued an illustrated price list and catalogue having reference to the different lines of goods manufactured by them, and we are informed that the catalogue makes mention of only a limited part of the great variety of work which the company are constantly producing. The articles alluded to include iron set screws, steel set screws, hexagon head cap screws, square head cap screws, oval and flat fillister head cap screws, flat or countersunk head cap screws, button head cap screws, collar screws, milled iron studs, coupling bolts, planner head bolts, boiler patch bolts, steel taper pins, studding or stay bolts, iron and brass machine screws with pressed heads, malleable thumb screws, malleable winged thumb nuts, cold pressed nuts, case-hardened hexagon and square nuts all styles, iron washers, etc. The company manufacture all kinds of special screws and milled work from steel, iron or brass, and carry complete lines of V. thread screws and nuts, besides having a great variety of special work in stock, which enables them to fill orders promptly.

Messrs. F. E. Myers & Bro., Ashland, Ohio, have sent us their new catalogue and price list having reference to their products, including double acting force and lift pumps, hand, windmill and power pumps, hydraulic, barrel and bucket spray pumps, atomizers, cylinders, pipe-hose, fixtures, etc; also haying tools, hay carriers, hay forks, steel track pulleys, slings, etc; also store ladders, bicycle stands, door hangers, gate hangers, etc. The catalogue is complete and concise, dealing fully with each article manufactured by the concern. The lists are so classified that one discount applies to a full line, so that the purchaser may know the cost without trouble or complication. The illus-

trations and descriptions are very complete, so that the publication may be used both as a text book and also as reference book. The book is increased in value because of the information given regarding barometric pressure at different altitudes, tables showing weight of water contained in pipes of different size, number of gallons contained in cisterns and tanks, table of diameters and areas of circles, etc.

The Board of School Directors, Windsor, Ont., have contracted with the Garfield Oil Co., of that place and of Cleveland, Ohio, to paint the roofs of the Windsor school buildings with Zanzibar Anti-Rust Roof Paint. This paint was adopted on account of its great durability, high degree of elastic and freedom from blistering, cracking and peeling off. The high recommendation given by the Inspector of Painting at Toronto Exhibition should certainly have great weight with any one in need of a first class paint of this kind. Write to the Garfield Oil Co., Windsor, Ont., or Cleveland, Ohio, for their booklet, "A Study in Black."

The Toronto Woolen Machinery Co., Toronto, inform us that J. G. Reimer's woolen mill at Wellesley, Ont., is being refitted and being supplied with some new and up-to-date machinery supplied by them, including a 72 spindle and 3 1/2 inch D. & F. ring twister, a Tomkins winder and a King cuff machine for cardigan jackets. The Toronto Woolen Machinery Co., has but recently started in business but have succeeded in giving good satisfaction to all their customers.

The Packard Electric Co., St. Catharines, Ont., are offering what they call "The New Century" incandescent lamp guard, in nests, regarding which they say:—In getting up

the new "Century" lamp guard it has been the aim to facilitate and lessen the cost of handling this line of goods. The "Century" Guards are made to nest, or pack one inside another—thereby requiring about one-half the shelf or storage room required by the other guards now on the market. These guards are made with the same excellent socket fastenings used on the "Perfection" guards, and when attached to the sockets are held firmly at a proper distance from the lamps to protect them when subjected to breakage. They are made with bright tinned wire, silver finish, are neat in appearance and do not intercept the light. They are packed one dozen in a box, and crated in lots to suit the trade.

Messrs. H. Brown & Sons' flour mill, Brockville, Ont., has been destroyed by fire. Loss about \$1,000.

The Hamilton Electric Supply & Construction Co., Hamilton, Ont., has been incorporated with a capital stock of \$40,000. The provisional directors include E. E. Cary and G. A. Powell, both of St. Catharines, Ont., and W. L. Henderson, Hamilton, Ont.

The Tip Top Copper Co., Toronto, has been incorporated with a capital stock of \$1,000,000. The provisional directors include B. W. Folger, Kingston, Ont., James Hammond, Fort William, Ont., and H. J. Dawson, Petrolia, Ont.

The Wiarton Oil & Gas Co., Wiarton, Ont., has been incorporated with a capital stock of \$20,000. The provisional directors include G. E. Willis, Hepworth, Ont., and W. G. Towle and W. H. B. Spotton, both of Wiarton, Ont.

Nanaimo, B.C., will expend \$25,000 on a water-works system.

W. A. FLEMING & CO.

MILL SUPPLIES

CAMEL BRAND BELTING

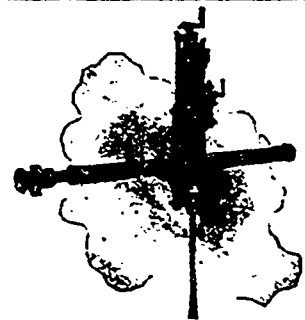
HOSE of all kinds

DRIVING ROPE

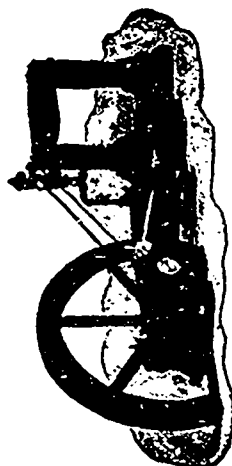
BELTING of all kinds



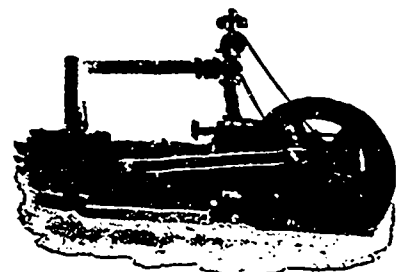
771 CRAIG STREET, MONTREAL.



R
A
N
D



R
A
N
D



**MINING
MACHINERY**

The Canadian
Rand Drill Co.

MONTREAL
SHERBROOKE,
HALIFAX, N.S.
TORONTO, ONT.
RAT PORTAGE, ONT.
ROSSLAND, B.C.
GREENWOOL, B.C.
NELSON, B.C.

The Patterson syndicate of Hamilton, Ont., has another big scheme on hand. It has acquired a large tract of coal lands in the Pennsylvania district, and will bring soft coal to this city and instal large coke ovens. At the present time the coke used in Canada comes from the other side, where it is produced at the pits, and the coke oven industry in the soft coal region of the United States is a big thing indeed. Mr. Patterson and his company propose that coke shall be made in or near Hamilton. In a letter to the City Clerk, Mr. Patterson says:—"I beg to state that the Patterson Coal & Coke Co., of Pennsylvania, Pa., are about to erect 300 coke ovens immediately east of the city, and that they will be prepared to supply tar of as high or higher quality than that provided by the Warren Chemical Co., and at a much lower figure, and they will also guarantee to supply the same at the figure quoted whether their works are in operation or not; but this letter need not be taken into account, as the contracts for the buildings will be let almost immediately. In this connection I might say that the company will also have a large amount of gas for sale at very low figures—in fact at such figures that it will be cheaper than natural gas is now sold in any of the natural gas belts in the United States."

The Bolgo Canadian Pulp & Paper Corporation have recently completed arrangements to establish at Shawinigan Falls, Que., a hundred-ton ground wood pulp mill, a seventy-five ton pulp mill and a hundred-ton paper mill, and have contracted with the Shawinigan Water & Power Co. for 15,000 horse power of water and the necessary land for the storage of pulp and for their numerous mill buildings, and have also purchased over 700 square miles of

heavily timbered spruce lands on the St. Maurice river, which will afford them an almost inexhaustible supply of pulp wood. The Company's engineer, A. C. Rice of Worcester, Mass., has engaged to take the natural conditions as they are, furnish all plans and specifications, place all contracts for the development of power, the erection of buildings and the furnishing of such machinery and supplies as may be necessary to equip the mills to make the required product. The building of the pulp mills will be commenced at once, and the contract calls for the completion of the same not later than June 1, 1901, while the other mill buildings must be completed within two years from the present time. Nearly 1,000 men will be required to perform this work within the specified time, in addition to which over 750 men will go into the woods this fall to secure a supply of pulp wood for these mills during the season of 1901.

The Toronto World is trying to induce Canadians to make their own white lead. It says: Canada produces much more pig lead than she requires for her own uses. And yet we are importing 7,000 tons of white lead annually from Germany. The statement would hardly be credited if the blue books did not corroborate the fact. We might as well import wheat and butter from Great Britain as white lead from Germany. We are an exporting country of both products and the idea of importing the one is as ridiculous as our importing the other. What is required to break up the grip that Germany has on the Canadian market is the imposition of a protective duty on white lead, litharge and other articles of which lead is the base. We have a duty of thirty-

five per cent. on lead pipe, with the result that we manufacture that article ourselves. On white lead, litharge, etc., the duty ranges from nothing to five per cent., which, of course, affords no protection whatever. The white lead industry has reached large proportions in the United States, and there is no reason why it should not become a proportionately important industry in Canada. The miners of British Columbia are taking a firm stand on this question. The electors of both political parties are insisting that their representatives shall pledge themselves to favor such a revision of the tariff as will prevent the further importation of white lead to this market from Germany, in order to encourage and establish the white lead industry in Eastern Canada, and give the western lead miner a market for his product.

The new pulp mill of the Sissiboo Pulp & Paper Co., Weymouth, N.S., will be ready for operation shortly. Its capacity is to be thirty tons of wet pulp per day. The Burrell-Johnson Iron Co., Yarmouth, N.S., is building a flume for the Sissiboo Co. It is to be twenty feet long, and to taper from nineteen to fifteen feet in width and will weigh 115 tons. It is said that a railway car can pass through it, as if it were a tunnel. The big dam for the mill is about finished. It follows a natural ridge of rocks across the river bed, which thus affords a strong foundation. The dam is seventy-five feet thick at the base and eight feet at the top.

The Kerr Engine Co., Walkerville, Ont., are supplying the hydrants and valves for the waterworks of the corporations of Arnprior and Barrie, Ont.

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



Manufacturers of
Cotton, Jute, Hemp and Flax,
Twines and Cordage,
Mill Banding and Driving Ropes,
Chalk and Fishing Lines,
Sole Twine, Hammocks, Tennis,
Cricket and Fly Nets,
Cotton Rope and Clothes Lines,
Plough Lines, etc.

HUTCHISON, SHURLY & DERRETT,
1078 Bloor St. West, TORONTO.

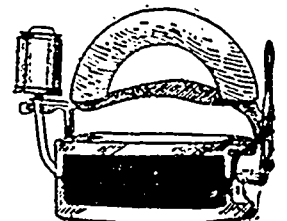
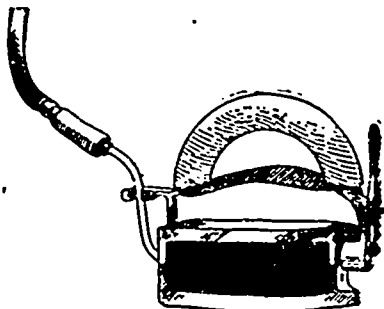
ONE AGENT ONLY IN EACH TOWN WANTED

WRITE US FOR PARTICULARS ABOUT

"PERFECTION"

Self-Heating Sad Iron

Something New. Sells Well.



The EDWARDS SAD IRON CO., Confederation Life Building, Toronto, Canada.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

DOES INVENTION INCREASE INDUSTRY?

The Census reports show that during the period from 1880 to 1890 every branch of industry with but one exception increased the amount of wages paid its employees anywhere from five to eighty-two per cent. The introduction of improved machinery not only increased wages, but increased the number of employees. This statement seems impossible, but it is explained as follows:

The introduction of improved machinery reduces the cost of the goods, then more goods are consumed. The consumption thus increased requires more labor in production.

During this period more patents were granted by the United States than in any prior period of the same duration. The significance of which is that every new invention that is produced enlarges the field for the employment of labor and correspondingly increases the rate of wages to the employee.

Notwithstanding the fact that many laborers of the present time assert that the introduction of machinery is a menace to the employed, it has been demonstrated beyond the peradventure of a doubt that the introduction of improved machinery has advanced the interests of the employees. The model of the first knitting machines was broken to pieces by an infuriated mob in London, who feared that the machine would be the means of depriving them of their occupations. They could not appreciate the fact that the machine would cheapen the cost of the manufactured material to the consumer, and thus increase its consumption

and thereby create a greater demand for labor.

The glass blowers to-day are looking with great misgivings upon the advent of the machine for blowing glassware. As a rule they believe that the introduction of these machines will deprive them of their vocations. Such will not be the case. History will repeat itself. Glass articles will be cheapened, the public will consume more, and their will be as much or even more work for the workman.

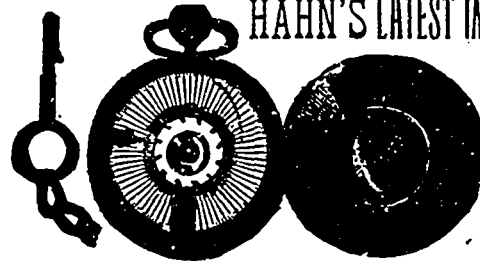
One of the greatest drawbacks to the introduction of railroads in China comes from the people who have followed in the footsteps of their forefathers for thousands of years. Many have gained a livelihood by transporting freight in small packs on their backs from place to place. They entertain the idea that the introduction of steam railroads will deprive them of their means of making a living. They do not take into consideration the fact that where one man is forced to change his occupation ten or even one hundred others are given employment. The laborer in China has witnessed no great object lesson of the advantages of the introduction of machinery in all branches of

industry, therefore there is some excuse for his antipathy to modern ideas.

In America, however, we have time and again demonstrated the advantages to the employee of the introduction of improved machinery. At this time the man who maintains that invention is detrimental to labor it indeed a back number.

The introduction of the steam railroad gave employment to thousands, yet there are about as many persons employed on turnpikes as of yore.

The binder and reaper opened up a line of industry for a vast number of employes, not alone in the field, but in the factory. At the same time the old cradle has its uses on farms to-day. The cotton gin performs in a few minutes more work than one hundred hands can do in an hour. There are far more persons employed in this line than there were before the cotton gin was invented. And so we might go on indefinitely. The established facts remain that as invention is stimulated and accomplished employment is increased, the laborer receives better wages, and the wealth of the individual and country at large is increased all on parallel lines.—The Manufacturer.



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. NANTZ & CO., Room No. 45, Graham Building, 127 Duane St. NEW YORK

This Clock received the First Prize at World's Fair.

SADLER & HAWORTH

Manufacturers of

OAK-TANNED LEATHER BELTING

MONTREAL and TORONTO.

Orders addressed to our Toronto or Montreal Factory will have prompt care. Goods will be forwarded same day that order is received.

BELTS MADE SPECIALLY FOR ELECTRIC POWER USE.

CRUSHERS--ROLLS

Roll Jaw Fine Crushers Reduce Large Rocks at once to Gravel and Sand. Centrifugal Rolls. Cost half and do three times as much as Common Rolls of equal dimensions, and do finer work.

SEND FOR CIRCULAR.

STURTEVANT MILL CO., 104 Clayton St., BOSTON, MASS.

NEWFOUNDLAND'S WONDERFUL IRON MINES.

What the gold reefs of Johannesburg are to the Transvaal the Wabana iron beds are to Newfoundland, says the New York Tribune. They form immense deposits of rich, red hematite ore, three miles long and several hundred feet wide, and showing 34,000,000 tons in sight above the water. The beds dip downward at an angle of eight degrees, and it is believed that they extend below the sea in practically unlimited quantity, though what is now in sight will suffice for a generation's work. To all intents and purposes the mine is open quarry. The ore is got at by chopping off a surface covering of earth and rock and then loosening the hematite with charges of dynamite.

The deposit is one of nature's freaks. It is a perfect reproduction of a tiled floor. Countless millions of cubes of mineral are laid out with rectangular precision, following the trend of the stratification, and these seem to have been cemented and forced together by some giant machinery in prehistoric days. Layer upon layer of these cubes is seen in a vertical section of the mine, and the lines of cleavage are as clearly defined and the general arrangement is as perfect as a child's box of blocks. The only difference is that one cannot lift out one of these mineral cubes with the fingers, but a dynamite charge fixed in a portion of the deposit by a steam drill shatters it for an area of many feet in every direction, and separates the solid mass into its thousands of little bricks, each about three inches square and as perfect in alignment as if produced by an artist. No mining, in the customary sense, is needed. The deposit lies open to the sun and all the work involved is the loosening of successive sections and the gathering up of

the fragments, which is done by men shovelling them into ore cars, which run on a light cable railway to a pier on the sea-shore.

The mine occupies the northern end of the island, and hard by is a sheltered cove, where a pier has been built whence 10,000 tons of ore may be loaded in a day. The laden cars run down an incline by gravity and are upset automatically, their contents falling into one of ten pockets constructed in the interior of the pier. Each pocket takes 1,000 tons, and can be emptied into a steamer's hold in ten minutes. Two ships a day can be loaded there when business is brisk. The output for seven months last year was 310,000 tons. From 1,000 to 1,500 men are employed this year, as the output is to be trebled, and to do that the force of employees will have to be still further augmented. For years the surface workings will continue, and even when regular underground mining is required there will be none of the deep descents associated with coal and copper mines.

The ease of working and the proximity to tidewater make this deposit one of the most advantageous from an economic industrial point of view that capitalists could possess. The cost of mining the ore and putting it on shipboard is but twenty-five cents a ton, and the freight to Canada only twenty-five cents more, fifty cents being charged for its conveyance to Europe or the United States. It is in great demand in Germany where ironmasters work it in very conveniently with poorer ores, and large quantities of it are also absorbed at Philadelphia and Baltimore. The price at which it sells there yields the owners of the Wabana mine a profit of \$1 a ton, and as contracts for the delivery of 500,000 tons have been signed for this season, it is very easy to see that there is a handsome dividend in it for the shrewd capitalists who control it.

In a recent paper on mechanical draft read before the New England Cotton Manufacturer's Association, Walter B. Snow states that from a comparison of a considerable number of plants it appears that under ordinary conditions a single forced-draft fan with direct-connected engine and short stack can be installed for less than twenty per cent. of the cost of a brick chimney; a single induced-draft fan with direct-connected engine and short stack will cost less than thirty per cent. of a chimney, and that a duplex induced-draft apparatus consisting of two fans with direct-connected engines, inlet and outlet connections and short stack will cost but little more than forty per cent. of a chimney. The latter arrangement is only used where, as in the case of an electric lighting plant, it is the practice to introduce relay units.

"Quality Talks" In Electrical Work.

The fact that we have installed, and are installing electrical equipments for the foremost concerns of the country, should convince you that our work is of the best and our prices close.

Among our customers are :-

Menzie, Turner & Co. Toronto.
McLaughlin Carriage Works.. Oshawa.
Mail Job Printing Co., Ltd. Toronto.
Brodie Woolen Mills. Hespeler.

Always pleased to quote prices.

R. A. L. GRAY & CO.

Electrical Contractors,

83 YORK ST., . TORONTO.

"Capitol" Cylinder

"RENOWN"
ENGINE

"ATLANTIC" RED

RELIABLE WELL-KNOWN BRANDS.

ALL ORDERS PROMPTLY FILLED

THE...
QUEEN CITY OIL CO.

LIMITED

SAMUEL ROGERS, President.

TORONTO, CANADA



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.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE CYCLONE GRATE BAR.

The Cyclone Grate Bar Co., Toronto, inform us that they are meeting with much success in placing their apparatus beneath the boilers in many of the large manufacturing establishments, office buildings, public buildings, industrial and mercantile warehouses, etc., in various parts of the country. Following is a list of some of the users:—
 Toronto:—Osgoode Hall; Allen Mfg. Co. white goods factory; D. Gunn, Bros. & Co., pork packers; Seaman, Kent & Co., wood workers; J. D. Nasmith & Co., bakery; Confederation Life Building; Walker House; The Robert Simpson Co., departmental store; Loretto Abbey, young ladies' college; Methodist Book Room.
 Montreal:—Montreal Park and Island Railway.

Winnipeg, Man.:—Post Office Building, New City Fire Hall; Government Buildings; J. J. Phillips; Canadian Pacific Railway Building.

Valleyfield, Que.:—Montreal Cotton Co.
 Ottawa, Ont.:—Bronson & Co., saw mills.
 Toronto Junction, Ont.:—Watt & Watson, flour mill.

Hamilton, Ont.:—Insane Asylum; Hamilton Water Works; St. Nicholas Hotel.

Waterloo, Ont.:—Schaefer, Killer & Co., furniture factory; A. Bauer & Co., upholsterers' supplies; R. Roschman & Bro., button factory.

Berlin, Ont.:—Berlin Piano Co.
 Merritton, Ont.:—Riordan Paper Mills Co.

Picton, Ont.;—W. Boulter & Sons, fruit canners. Kingston, Ont.:—Insane Asylum.

Brantford, Ont.:—Institute for the Blind.
 Grimsby, Ont.:—F. E. Read.

Harvey, Illinois:—Whitney Foundry Co.

RUBBER AND GUTTA-PERCHA SUBSTITUTES.

There seems to be a large demand at present for substitutes for gutta-percha and rubber for use in insulating and for other applications in the electrical arts. The search for a substitute for, or perhaps, for a method of manufacturing, gutta-percha or rubber synthetically is progressing at an accelerated rate, and new compounds, many of them of great value, are constantly being brought forward and placed upon the market. So far nothing has been found that can supplant gutta-percha for submarine cable insulation, nor has any perfectly satisfactory substitute for rubber been found, though several of the compounds that have been brought out come very close in their properties to the original gum. We have seen so much of the extraordinary ability of the modern chemist to make organic compounds by synthesis that there should be no fear felt that india-rubber and gutta-percha will prove beyond his skill. To-day, many substances of original organic origin are manufactured in the laboratory, among them notably many that it was considered impossible ever to find a substitute for, or to construct, except in the natural laboratory of the vegetable or animal cell. Such a substance is quinine, which is now manufactured in enormous quantities, practically no natural quinine being on the market to-day. The flavors of fruits and the colors of vegetable dyes are to-day made from gas-tar products and their manufacture is an important industry. Looking at these facts it does not seem unreasonable to hope for the synthesis of rubber and gutta-percha, and all alarm about the disappearance of the natural sources of these materials should be allayed by their possible manufacture from other components in the laboratory and the workshop.—Electrical Review.

AGENCIES WANTED.

An old established firm in Victoria, British Columbia, is desirous of securing the Agency in that Province for one or two manufacturers of Standard Lines suitable for the Grocery Trade. References exchanged.

Apply to **B. C.**, Office of
 THE CANADIAN MANUFACTURER, Toronto.

What the Trade Wants

YOUR OWN PAPER ENVELOPES ANY SIZE OR MADE INTO SHAPE.

WE SELL TO THE TRADE ONLY.

YOUR OWN PAPER - YOUR OWN LABEL - YOUR OWN BANDS. NO NEED TO BUY FOREIGN GOODS. OUR GOODS ARE MADE EQUAL TO THE BEST IN THE WORLD.

The Trade will find it to their advantage to get our prices.

L. P. BOUVIER, Envelope Manufacturer, 31 Lombard St., TORONTO.

THE BEST ROOF and IRON PAINT



Visit Our Exhibits

TORONTO
 LONDON
 OTTAWA } Exhibitions.

Branch Warehouse

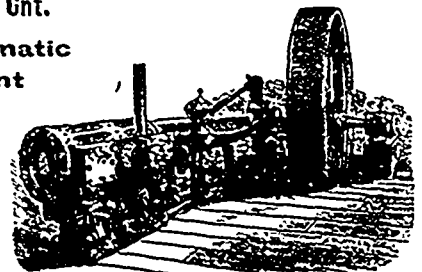
WINDSOR, ONT.

THE SMART-EBY MACHINE CO. LIMITED.

191 Barton Street East, Hamilton, Ont.

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—435 Ross Av., Winnipeg.



BELTING

EXHIBITED BY

D.K. McLAREN

MONTREAL & TORONTO.

AWARDED

SILVER MEDAL

PARIS EXPOSITION

1900

GENUINE OAK REGISTERED TRADE MARK

D.K. McLAREN MONTREAL QUE. LEATHER BELTING CANADA

ALL OUR LEATHER IS STRETCHED 15% BEFORE BEING MADE INTO BELTING.

WE GUARANTEE OUR CEMENTED ONLY JOINTS AS MUCH STRAIN WITHOUT BREAKING OR COMING APART AS SOLID LEATHER.

THE BLOWER SYSTEM.

The particular features of the Blower System of mechanical ventilation and heating are thus summarized in a recent lecture by Walter B. Snow, of the engineering staff of the B. F. Sturtevant Co., Boston, Mass.

The entire heating surface is centrally located, enclosed in a fire-proof casing, and placed under the control of a single individual, thereby avoiding the possibility of damage by leakage or freezing incident to a scattered system of steam piping and radiators. The heater itself is adapted for the use of either live or exhaust steam, and provision is made for utilizing the exhaust of the fan engine thereby reducing the cost of operation to practically nothing. At all times ample and positive ventilation may be provided with air tempered to the desired degree. Absolute control may be had over the quality and quantity of air supplied. It may be filtered and cleansed, heated or cooled, dried or moistened at will. By means of the hot and cold system, the temperature of the air admitted to any given apartment may be instantly and radically changed without the employment of supplementary heating surface.

The pressure created within the building is sufficient to cause all leakage to be outward, preventing cold inward drafts and

avoiding the possibility of drawing air from any polluting source within the building itself. By returning the air, using live steam in the heater and operating the fan at a maximum speed, a building may be heated up with great rapidity, as is usually desirable in the morning.

The area of heating surface is only one-third to one-fifth that required with direct radiation, while the primary cost and operating expense of a fan is far less than that of any other device for moving the same amount of air.

POSSIBILITY OF CANADIAN TRADE.

HOW TO PROMOTE INCREASE OF TRADE BETWEEN CANADA AND THE NORTH EUROPEAN COUNTRIES.—VIEWS OF A DANISH MERCHANT.

Editor THE CANADIAN MANUFACTURER:

SIR,—Presuming that many Canadian manufacturers are still unaware of the possibilities of an increase of the trade between Canada and the North European countries which are afforded by the commercial circumstances in my native country, Denmark, and which have been considerably enlarged since the establishing of the Free Port of Copenhagen, I should be glad to call their attention to this subject. Before turning more

directly to my special aim, let me, however, first mention a few facts which for centuries have destined Copenhagen to become what it is to-day, viz., the unquestionable shipping centre for commercial enterprises between the North European countries and the outer world.

Denmark, once so great and powerful, is now but a small country with a population of a little less than two and a half million people, but still the Danes are what they always have been, a progressive folk, who do not neglect in their industrial and commercial life, the future for the present. Copenhagen, the capital of Denmark, forms what might be called an incongruously large head on a "small body," counting as it does within its limits about 450,000 inhabitants. But its position on the boundaries between the Baltic and the Sound (the Gresund) which connects it, by means of the Kattegat and the Skagorak, with the North Sea, will fully account for its ever increasing growth in size and importance, while the country itself actually grew smaller and smaller. This central position on the main waterway to and from the North European countries has naturally made it the central mart of these countries, especially of those surrounding the Baltic, and has enabled it to maintain during several centuries, a prominent lead in general commerce.

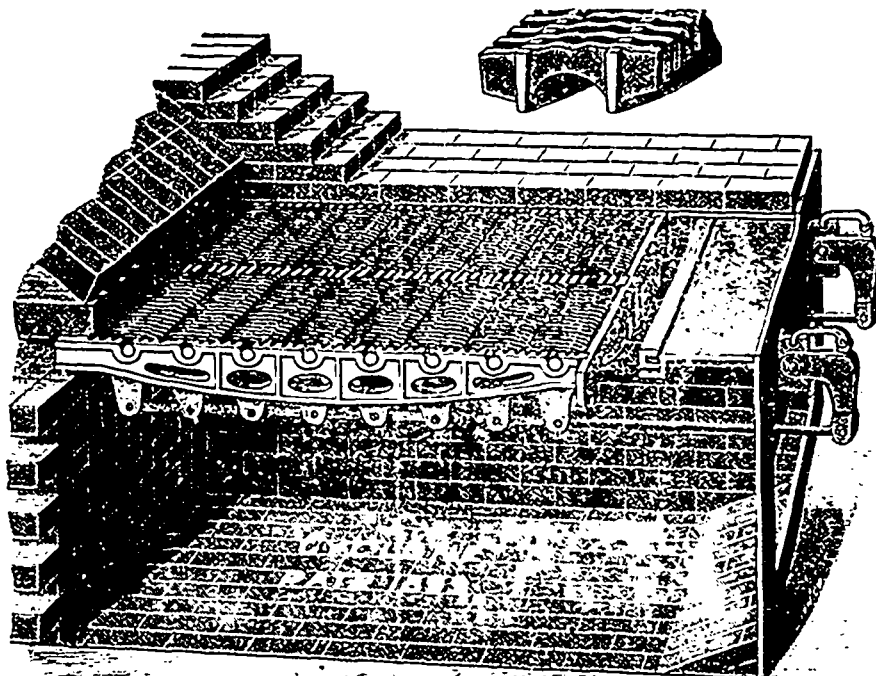
THE CUMMER DRYERS. FOR **Mechanically Drying Everything**
THE F. D. CUMMER & SON CO.,
HUNDREDS IN OPERATION. CLEVELAND, OHIO.

John R. Barbor, President.

Geo. E. Challes, Sec.-Treas.

Henry Truesdell, Bus. Man.

THE CYCLONE GRATE BAR



Simplicity, Durability, Economy.

FIRST TEST at Hamilton Asylum was reported as follows: Was taken with the Grate Bars put in by Waterous Engine Co. of Brantford.

People's Coal used	1,910 lbs
Water Evaporated	18,160 "
Weight of ash remaining	532 "
Test commenced	at 9 a.m. April 17th.
Ended	at 5 p.m.

SECOND TEST was made with the Cyclone Grate Bar of Toronto, with the following results:

People's Coal used	1,520 lbs
Water Evaporated	20,928 "
Weight of ash remaining	315 "
Test was made	April 21th.
Test commenced	at 9 a.m.
Ended	at 5 p.m.

These tests were made under 5 horse power boiler in west boiler house now building.

(Signed) J. W. MARLER.

Chief Engineer

TESTIMONIAL.

CYCLONE GRATE BAR CO., Limited, Toronto, Ont.
 DEAR SIRS—We acknowledge with great pleasure your recent favor inquiring how the Cyclone Grates are working, and beg to say in reply that we have found the two Grates you mentioned to be very satisfactory. They admit of good draught, are easily handled and seem to give good combustion with very little clinkers and ashes. Yours truly

THE RICHMOND PAPER MILLS, Limited.
 F. J. STEVENSON.

W. G. BLACKGROVE,
 Gen'l Agent for Ontario,
 Office, 10 KING ST. WEST,
 TORONTO, CAN.

Manufactured by... **Cyclone Grate Bar Co. Limited,**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

In the year 1800 Copenhagen had 100,000 inhabitants, in 1860 the number had increased to 160,000, since which time the population has increased so enormously that with the suburbs, the inhabitants of Copenhagen now, as mentioned, number about 450,000 souls.

The old Copenhagen harbor has been formed in the sheltered waters of a channel dividing Lolland, on which the main part of the city is situated, from the island of Amager, which forms the south-eastern part of the town and faces the Baltic. Every advantage of this naturally excellent position of the harbor has been taken, quays and basins having been constructed and the fairway deepened. But still, as the town grew and its resources expanded and its trade increased, all this was found to be insufficient and the idea of a large Free Port struck several influential men simultaneously. In 1880 this idea took root and was supported enthusiastically by the nation. A commission was appointed to consider the project, to settle on the site and other important questions, the result being that the present position of the new harbor was decided on.

The Free Port Bill passed through Parliament in 1891. It was decided that the new harbor should be an integral part of the old Copenhagen harbor under the control of the Minister of the Interior. The harbor authorities were to be responsible for all the planning of the new undertaking, including the construction of warehouses, sheds, cranes, works for the transmission of light and power, etc. The Bill provided that a company should be formed, answerable for all expenses, and that it should be denominated, The Copenhagen Free Port Co., Limited. The company was organized with a capital of four million kroner, or a little over one million dollars. It is calculated that the value of the Free Port, including the expropriated land, amounts to \$6,000,000.

The area of land reclaimed from the sea to form the harbor is about 148 acres. From the excavating and filling up of eighty-nine acres, the large basins and stretches forming the quays were formed, and the harbor includes four large basins or docks with a depth of from 24½ to 30 feet. The whole length of the quays exceed twenty-one mile:

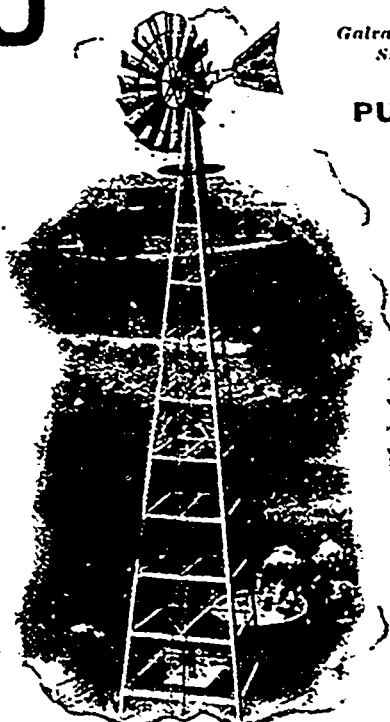
besides which there is a fairway mole 309 feet long. Alongside the quays numerous warehouses, sheds, granaries, etc., are erected. The harbor entrance is protected by a breakwater. Ships of the deepest draught are able to enter the port, as its depth is from 24½ to 30 feet, and there is no rise and fall of tide. The draught of water not being as great in other Baltic ports, Copenhagen becomes the central harbor for all the countries bordering on the Baltic seas.

No port in the Baltic is so little incommoded by ice as Copenhagen, as may be shown in that for a period of fifteen years, from 1880-1 to 1895-6, the traffic in the Sound was stopped for seventy-four days only, which is slight compared with the conditions existing in Russian and German Baltic ports.

During the last four years traffic has not been stopped for one day, and the communication with Malmo on the opposite Swedish coast, which communication is kept open not only by regular daily steam ferries, but also by powerful steamers and ice-breakers when necessary, has been stopped for one single day only during the last fifteen years.

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.

GALVANIZED

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 AND "Fast Mail" PUMPS

Designs and Prices Furnished. Write for Catalogue.

Address **FLINT & WALLING MFG. CO.**

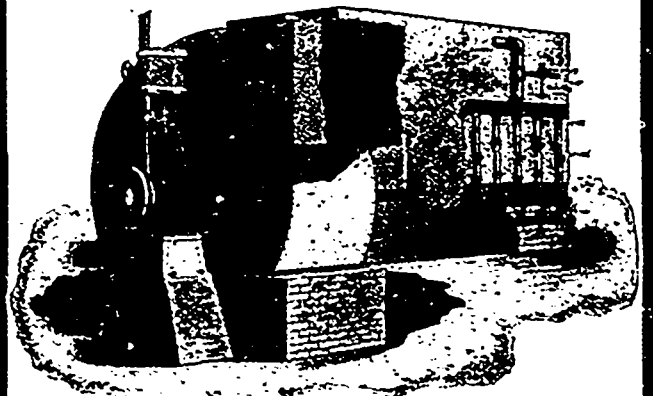
"STATION A"

KENDALLVILLE, IND.

Buffalo Fan System

- OF -

HEATING and VENTILATING



Type of Apparatus for Single Duct Installation.

BUFFALO FORGE COMPANY, BUFFALO, N.Y.

CANADIAN REPRESENTATIVE:

E. A. WALLBERG, 410 Temple Building, Toronto

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

Wire Screens for Every Class of Material.

Perforated Metal of Steel, Copper, Brass, Zinc for all purposes.

Special Attention given to Minors' Requirements.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The barriers which formerly hampered Danish foreign trade have been removed. Dues on outgoing ships were abolished in 1887, and for incoming vessels on the opening of the Free Port in 1894. There is now left only a mere nominal payment for quay dues.

The great advantage derived from the Copenhagen Free Port is that all kinds of goods destined for markets in the North European countries, may be shipped collectively to Copenhagen, and after being separated they can be transhipped to their respective places of destination at less cost than if each part had been sent direct from the shipping port. It must always be borne in mind that all kinds of goods are entered into the Free Port without any payment of custom duties, and thence transhipped free of all public charges. The Copenhagen Free Port Co., will rent office and warehouse premises to exporters from foreign countries, thus enabling them to establish branch departments in the Free Port, from which the goods to the surrounding markets. In certain cases it would therefore prove profitable to ship raw or unfinished materials into the Free Port, having them manufactured there. The Free Port Co., offers very liberal terms to parties wishing to establish factories within the Free Port, and a good many such factories are already in operation there. The ease with which loans can be effected on warrants and certificates, issued by the Free Port Co., on goods stored on their territory is another decided advantage.

Since the opening of its Free Port, Copenhagen, still more than formerly, has become the centre of the North European transit trade, and in consequence thereof a good

many Copenhagen business men have taken up this branch of trade as a speciality. Any trans Atlantic firm desiring new commercial connections in the Baltic countries may, therefore, without difficulty find a suitable Copenhagen agent possessing the necessary knowledge of the commercial circumstances in Denmark and the surrounding countries.

Considering the fact that the total exchange of commodities between Canada and Denmark has not exceeded an average of \$40,000 a year for the last five years, there must, no doubt, be a fair possibility of a considerable increase in the trade between these two countries. Denmark's trade with the United States last year was about \$40,000,000, and is constantly increasing. In the list of imports from the United States into Denmark is to be found according to the report of Mr Blom, the vice consul of that country at Copenhagen nearly every kind of manufactured article, while among the goods sent from Denmark to the United States the principal articles were hides and skins, wool (Iceland), seeds, rags, old rope, rannet, gloves, cork, scraps, flint stones, marble, chalk and porcelain.

Canada's principal export articles to Denmark last year were canned lobsters, bread-stuffs, grass seeds and clover, agricultural implements, carriages, tobacco and wood, and manufactures of both, etc. But although such articles have already found a market there, still the amount of same is comparatively very small and might easily be multiplied over and over again if more energetic steps were taken, and the possibilities herein mentioned be turned to account. In reality, I mean that anything Canada produces for export, save, perhaps butter and cheese, when introduced via

Copenhagen Free Port, might easily find a ready sale there, if not in Denmark itself then in some one of the surrounding countries, Norway, Sweden or Germany, or at least in the Russian empire, where trade is now rapidly increasing and where nearly everything can be sold at fair prices. I also believe that most things Canada needs to import, or that Canadian import merchants might wish to take hold of, might be profitably procured from among those countries if some progressive firms here were to look so far for their supplies.

If by this description I have been fortunate enough to arouse the interest of any Canadian manufacturers so that they might feel inclined to take advantage of the circumstances described, I should be very glad, indeed. And always at disposal for any further information on the subject which I might be able to give, I remain, Sir,

Yours very truly,

TH. N. VISHOLM.

Toronto, October 1, 1900.

Fire at Morrison's lumber mills, near Fredericton, N.B., on September 9, did damage to the extent of about \$5,000.

The Montreal Canning & Preserving Co., Montreal, has been incorporated with a capital stock of \$10,000. The charter members include A. Laing and J. S. Stanley, both of Montreal, and W. P. Innes, of Simcoe, Ont.

La Compagnie de Pulpe de Peribonka, Roberval, Que., has applied for incorporation, with a capital stock of \$30,000. The provisional directors include T. du Tremblay and P. A. Potvin, both of Roberval, Que., and A. Robitaille, Quebec.

THE BEST PIPE THREADING and CUTTING-OFF MACHINES

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

Also Manufacturers

of a FULL LINE of

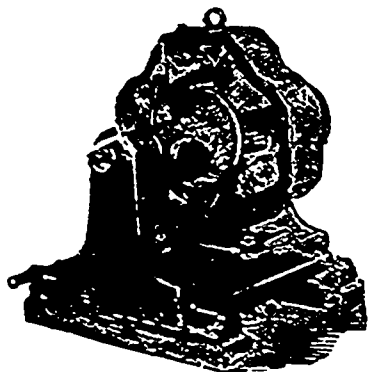
ADJUSTABLE STOCKS and DIES and Water, Gas and Steam Fitters' Tools.

Send for Catalogue 27.

Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

THE Electrical Construction Co. of London, Limited.



MULTIPOLAR MOTORS & DYNAMOS

And Direct Connected Plants for Isolated Lighting.

Repair Work a Speciality.

HEAD OFFICE AND FACTORY:

90 YORK STREET, London, Canada.

760 Main St., Winnipeg.

12 York St., Toronto. 131 Granville St., Halifax.

RICE LEWIS & SON, LIMITED

HARDWARE and METAL

Bar Iron, Steel,
Boiler Plate Tubes.

**MACHINIST TOOLS,
PIPE FITTINGS.**

A COMPLETE STOCK OF

STOCKS and DIES. PIPE VICES.

STILLSON & TRIMO

WRENCHES.

STEAM PIPE.

Cor. King and Victoria, **TORONTO**

**Toronto and Hamilton
ELECTRIC CO.**

SECOND-HAND DYNAMOS

IN GOOD CONDITION,
WILL SELL CHEAP.

We have in stock the following Incandescent Dynamos, 110 volts:

200	Light Multipolar.
120	" Bipolar.
60	" Multipolar.
80	" Bipolar.
15	" Bipolar.

Write us for Prices.

99-103 McNAB ST. NORTH,

'Phone 958

HAMILTON.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

"STAR" WINDMILLS.

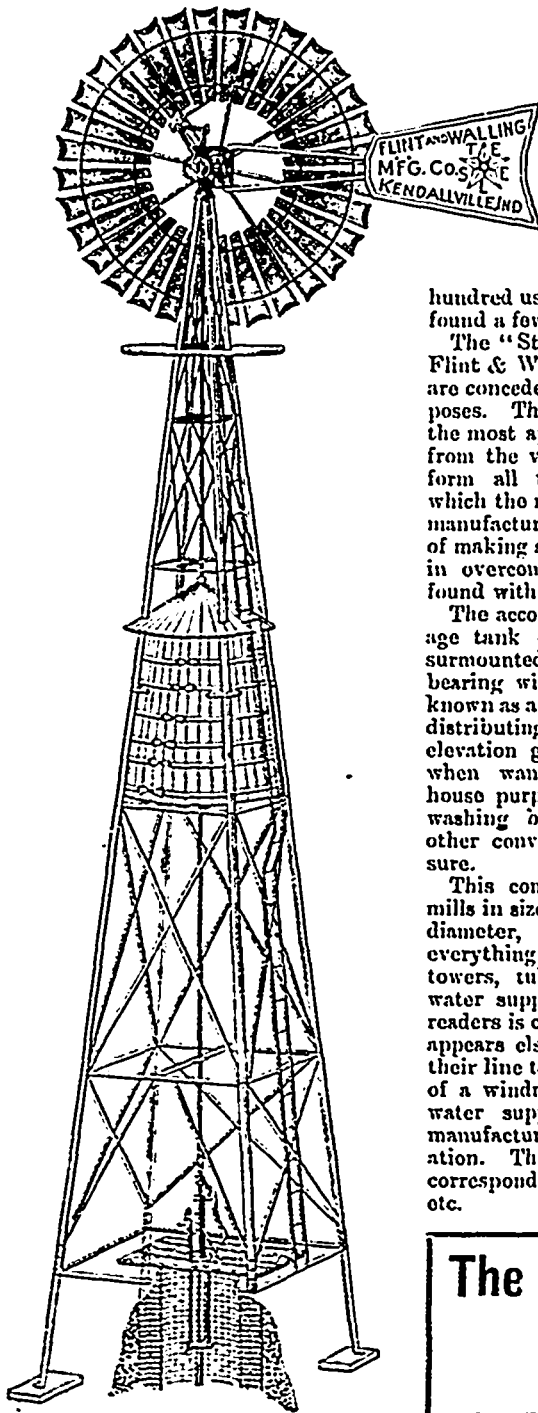
With the impetus of trade in all lines throughout the world, there is a constant demand for improved machinery of all kinds, and this is particularly true of the windmill. It is growing in favor with the farmer, planter, florist, gardener, suburbanite, and ranchman, and at this time there are a

hundred used where not a single one could be found a few years ago.

The "Star" windmills, manufactured by the Flint & Walling Mfg. Co., Kendallville, Ind., are conceded to be among the best for all purposes. They are patterned after the lines of the most approved mechanics and constructed from the very best of material, and will perform all the different kinds of services to which the modern windmill is subjected. The manufacturers have devoted years to the study of making such machinery and have succeeded in overcoming all objections that have been found with windmills in the past.

The accompanying illustration shows a storage tank elevated in "Star" steel tower, surmounted by a galvanized steel "Star" ball-bearing windmill, and is what is commonly known as a suburban water supply outfit, for distributing water to any desired point. The elevation gives adequate force to the water when wanted for sprinkling lawns, greenhouse purposes, the bath-room, domestic use, washing suggies, fire protection, and many other conveniences obtained from water pressure.

This company manufactures "Star" windmills in sizes from four to twenty-eight feet in diameter, either galvanized steel or wood, everything in the line of iron pumps, tanks, towers, tubular well tools and machinery, water supply goods, and the attention of our readers is called to their advertisement which appears elsewhere, and we would recommend their line to all who contemplate the erection of a windmill outfit, or the purchase of any water supply goods, this particular line of manufacture being worthy of careful consideration. The company will take pleasure in corresponding, sending descriptive circulars, etc.



DIAMOND MACHINE DIES.

One of the latest and most wonderful developments in brass making is the use of the diamond die, by means of which ingot brass is to-day drawn down to wire of the fineness of nine-tenths of a thousandth part of an inch. Steel may also be drawn nearly as fine, and the two products, when completed, are as fine and soft as the threads of a cobweb, and are as wavy and glossy as human hair.

The brass hair is of a beautiful auburn color, while the steel is of an iron gray. This wire is about as strong as a human hair, and is of value for mechanical purposes, being in great demand by makers of electrical apparatus. Never before was so fine a wire drawn. Until recent years wire was drawn through steel dies. The development of the diamond die to its present state of perfection has rendered possible the production of much finer wire. In fact, the size of the wire now possible is limited only by the ability to hold together as it comes through the die.

The diamond die is made of a flake diamond looking not unlike a bit of isinglass. The hole through which the wire is drawn is drilled through the diamond, and the stone is then stuck on a steel slab with glue, directly over a hole in the slab which is a trifle larger than that in the diamond. The

Don't Throw Away Oil.



If you don't know it, now, we would like to convince you that a **Cross Oil Filter** will save half your oil bills. Can we send you one on approval at our expense? *Catalogue 22.*

The Burt Mfg. Co.
Akron, Ohio, U.S.A.
Largest Mfrs. of Oil Filters in the World.
We also manufacture the Best Exhaust Head.

The Diamond Machine Screw Co. Limited, Toronto

MANUFACTURERS OF
MACHINE SCREWS and MILLED WORK
OF EVERY DESCRIPTION
COLD PRESSED NUTS SEND FOR CATALOGUE AND PRICE LIST

FOSTER PRESSURE REGULATING VALVES.

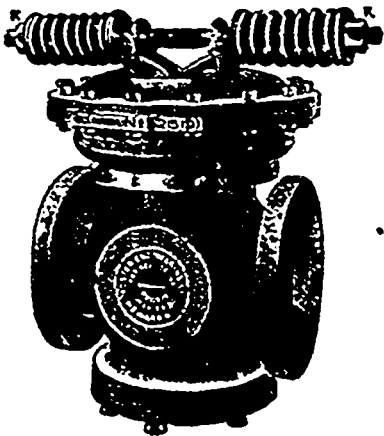
Automatically Control the Delivery Pressure of Steam, Gas, Air or Water, regardless of Variation in Initial Pressure.

SEND FOR CIRCULARS AND PRICES.

THE FAIRBANKS COMPANY,

749 CRAIG STREET, MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



wire to be drawn is then led through the diamond so that the stone bears steadily against the slab. This keeps the diamond in position.

The brass ingots from which the cobwebby wire is made are four inches square and long enough to weigh about 180 pounds. One of these will make miles of the cobweb wire. It is first put through steel rolls until it is reduced to the size of one's finger, and then it is drawn by machinery through a set of steel dies, gradually decreasing in diameter until it comes out in the shape of the wire of the fineness seen in the ordinary trades. Then it is put through a set of eight diamond dies, the diameter of the last being the infinitesimal part of an inch indicated above.

Another curious thing in this brass-making country is the development of hydraulic rolls which are so scientifically adjusted that a copper cent may be rolled out under them to the size of an enormous platter, and to thinness that amounts to transparency, so that a newspaper may be read through the metal. The operation has to be conducted with great care. One of the cents thus rolled out was sent to Queen Victoria as a curiosity some time ago, and the Queen returned a letter thanking the workmen.—New York Sun.

COAL IN CHINA.

Coal deposits in China are said to be the largest in the world, and Herr von Richthofen, the famous geographer, estimated the anthracite coal deposits in the southern

portion of the province of Shanghai at 630 milliards of tons. But these are only a small part of China's wealth of coal, more especially in the provinces of Shanghai, Hunan, Shantung, Szechwan and Yunnan. The deposits in the two latter provinces seem more especially to tempt the French. The Manchurian coal deposits are already, to a great extent, under direct Russian control.

Mining of coal in China is far older than in Europe, more especially in the western and northern part of the Chinese empire, where it dates back more than 1,000 years. That the manner in which the Chinese exploit their coal mines is entirely out of date goes without saying. In the vicinity of Peking there is, according to the reports of certain travellers, a coal mine worked on a somewhat larger scale for the imperial palace, but otherwise the owner of the land, where coal is found, generally confines himself to breaking it for his own private use, selling a little perhaps to his more immediate neighbors.

Still there are mines, which, with the most primitive working, yield some 200 or 300 tons a year. The Kaiping coal mine is, of course, an exception to the rule, being worked on a large scale, in completely rational European manner, with an output of 600,000 or 700,000 tons of coal a year. These mines, which are under the management of a high mandarin, supply the coal to the Chinese railways.

The Canada Iron Furnace Co., Montreal, has increased its capital stock from \$300,000 to \$1,000,000.

Toronto Woolen Machinery Co.

MACHINERY WANTED and FOR SALE

For Immediate Delivery.

- Two 18x18x18 Iron fr. Cards, D. & F. make, clothed.
- One 18x18x18 " " " " " " " "
- Two Self Operators, D & F make, good order
- Two 20 Spindle Hand Jacks, cheap, D. & F. make.
- One 18in. G. & McF. Iron frame Wool Picker.
- One 21in. " " Roll Card, clothed, cheap, ir. fr.
- One " " " " " " " " " " " "
- Four 22in. Bow Jack, 1x1 Box, Crompton Looms.
- Two 18in. D. & F. Double Cam Looms, good as new
- Four 15in. 1x1 Box Crompton Looms.
- Three Spoolers, 18 Spindles.
- Two 14 Spindle, 2in., D. & F. Ring Twisters.
- Two 72 " " " " " " " "
- One 72 " " " " " " " "
- One 71 " " 3in. Fly Twister.
- One 3 D. & F. Double Cloth Brush.
- One 3 G. & McF. Single " " "
- One Rotary Fulling Mill.
- One 2-String Cloth Washer, Karch make.

A lot of Second-hand Card Clothing, good as new. Lot of Steam Piping, Shafting, Dye Tanks, Boiler and Engine, etc., etc.

We also are Builders of the **EMPIRE BALING PRESS** for baling paper, rags, shoddy or wool.

TORONTO WOOLEN MACHINERY CO.

118 DUKE ST., TORONTO.

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

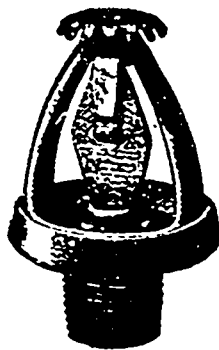
FOR FOURDRINIER PAPER MACHINES,

As Described in CANADIAN PATENT No. 57,819.

Protection Against Fire

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

GRINNELL AUTOMATIC SPRINKLER



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

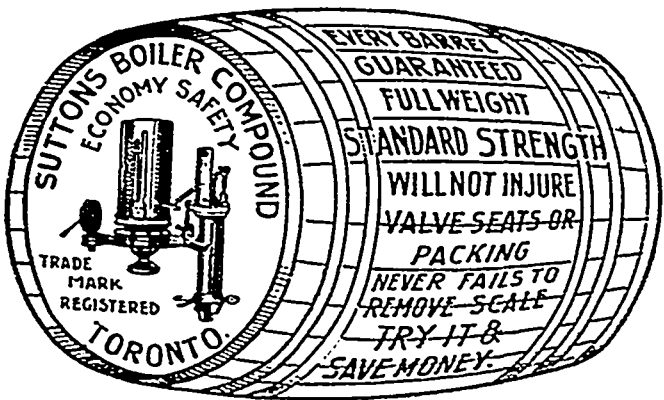
GRINNELL AUTOMATIC SPRINKLER EQUIPMENT

Over 3,990 Fires—**NO FAILURES**

No charge for estimating

Endorsed by Insurance Companies

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



The William Sutton Compound Co.

186 Queen Street East, Toronto.

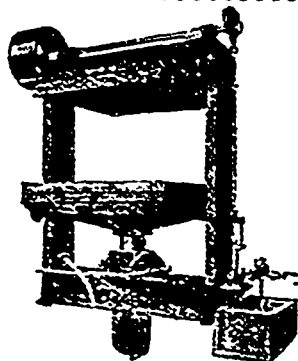
WM. R. PERRIN & CO.

122 Church St., Toronto.

MANUFACTURERS

Hydraulic Presses, Screw Presses, Filter Presses.

SEND FOR CATALOGUE.



A COMPACT GENERATING SET.

In most cases generating sets are provided with outboard bearings for the armature shafts. In the type herewith illustrated this extra bearing is done away with, and the armature is overhung upon the end of the engine shaft.

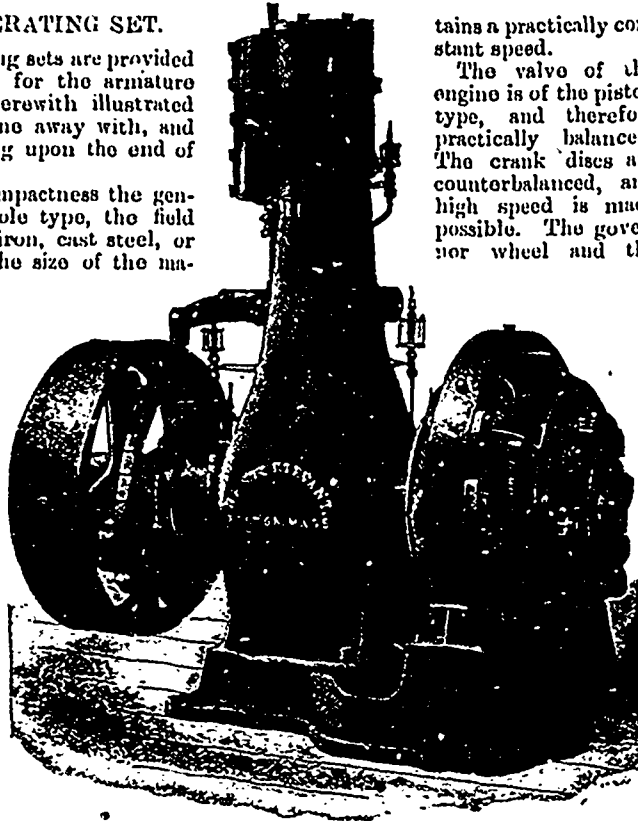
In order to secure compactness the generator is of the eight pole type, the field ring being of wrought iron, cast steel, or cast iron, according to the size of the machine.

The pole pieces of cast iron are provided with cast iron shoes of such size and shape as to render the machine capable of extreme variation of load without sparking at brushes, or without shifting the adjustment.

The field coils are wound in such a manner as to present the greatest amount of radiating surface, and the armature is built up of laminated steel discs mounted on a cast iron spider, having a hub projection for the reception of the commutator. The commutator is of large diameter, and consists of pure rolled or drop forge segments, supported by a cast iron spider, and thoroughly insulated with mica and micanite.

The design of this machine is such that a very small amount of energy is dissipated at the brushes. The spider construction allows perfect ventilation on all sides, and consequently a cool commutator.

Reaction brushes of fibro graphite are used. No shifting of brushes is required from no load to full load, and sparkless operation is maintained. The engine is cast in a single piece, is very compact, and all wearing parts are arranged for adjustment. The engine cylinder is lagged, reliable oiling devices are provided for all bearings, and a delicate regulator, by its operation, main-



tains a practically constant speed.

The valve of the engine is of the piston type, and therefore practically balanced. The crank discs are counterbalanced, and high speed is made possible. The governor wheel and the

armature serve to assist materially in resisting any sudden variation of speed.

This set is one of a line of generating sets designed and built by the B. F. Sturtevant Co., Boston, Mass. The smallest sets have a 4 x 4 engine with an output of 3,000 watts, and a combined weight with the generator of 1,100 lbs. The largest size is a 7 x 7 engine, with an output of 10,000 watts, and a combined weight of 2,700 lbs. These engines are designed to operate at ninety pounds pressure. A line of sizes is also made suitable for operation at very low pressure.

It is evident that this construction makes possible a minimum weight for a given out-

CANADIAN INDUSTRIAL DEVELOPMENT.

An industrial development equal to that at Niagara, perhaps even surpassing it in chemical and metallurgical discoveries and new ideas, is under way at Sault Ste. Marie, Ont., says the correspondent of the New York Sun at that place. He says not less than \$20,000,000 of Philadelphia and New York capital is being invested, with an implicit confidence in the capacity of the management, though it may be years before the returns will be commensurate, and though many of the investments are along lines so new as to bewilder experts who are told of what is being accomplished. As the basis of the entire work, all the water power of Lake Superior at this point has been acquired, and before the establishments are fully completed the rapids of Sainte Marie will be dry, and all the vast flow of the lake will be at work, either turning wheels or passing ships through the canals and locks of the Sault. "It takes one one-thousandth part of the water of Lake Superior to operate the ship locks," says F. H. Clergue, manager of the new enterprise, "and why should not the rest be utilized in employing many thousands in industries which but for cheap water power could not be carried on, and in turning to account natural advantages and materials that but for cheap power would be wasted? It is not too much to say that millions will indirectly feel the result of the enterprises we are installing here."

Mr. Clergue is carrying forward his many enterprises on two basic principles. One of these is that the days of large and steady profits in competitive industries are over, and that such profits must hereafter be made from original processes which shall be to a certain extent monopolistic, the word monopolistic being used to denote advantages of location and exclusive rights and materials. The second of these basic propositions is that to be successful in the broadest way, industrial development must utilize only such materials, ingredients and methods as being natural to the locality can be cheaply assembled at the point of manufacture, and must utilize all of them, disregarding no by-product of possible commercial value that can be economically secured.

THE BEST IS NONE TOO GOOD

**SYRACUSE
BABBITT**

**BEATS
THEM
ALL**

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

Manufacturers of

PIG TIN
ANTIMONY
INGOT COPPER
ALUMINUM

NICKEL
BISMUTH
IRON AND STEEL
SCRAP



BABBITT METALS
SOLDER
TYPE METALS

COLUMBIA
PHOSPHOR TIN
AND ALL OTHER
WHITE METALS

SYRACUSE SMELTING WORKS,

WILLIAM and ST. THOMAS STREETS,

MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

A few years ago, Clergue, a native of Bangor, and then living in New York, went west to look up for some Philadelphians a water power that could be improved and sold as electrical energy. At the lower end of Lake Superior Clergue saw an opportunity to develop an immense power and his people began work. They cut a canal that furnished them 20,000 horse-power, but when they wanted to sell the power they found no takers. The locality was new and too far west. So in order to save the original investment, they were forced to change their policy, utilize the power themselves and find a means for development.

All about the Canadian Sault, north as far as Hudson Bay, and east and west, are vast forests of spruce, the ideal wood for paper making. The Ontario Government was willing to furnish stumpage at low cost, and it was decided that the first development must be a ground-pulp mill. The largest mill in the world was built, and is now making a product that sells for \$900,000 a year, and fixes the price for paper pulp in all the American West, and ships to points from Japan to Europe. In one mail the other day came an order from the centre of the American paper-making region at Menominee, Wis., another from Nagasaki, Japan, and a third from France. A very large share of the mill's product for the past few months has gone to France and Germany. But the success of this mill was not achieved without a struggle. When it was built all wood pulp was shipped from the mill to the paper machines wet, and there were paid freight charges on about fifty-five per cent. of water. This limited the range of shipment. The new company experimented and found a process by which it could dry the pulp. Since then the field of shipment has been limited only by the demands of the paper trade.

While mechanical pulp is worth \$30 a ton, sulphite pulp, wood treated chemically, is worth nearly twice as much, and the company, with its unlimited supply of the best wood in the world decided to make this also. So now the largest sulphite mill in the world is nearing completion. Its product will be worth \$1,500,000 a year. But for sulphite pulp sulphur is necessary, and the cost of sulphur is high. At the great Sudbury works of the Canadian Copper Company they are pouring into the air a thousand tons daily of sulphur fumes. Sudbury is 100 miles from the Sault and produces the bulk of the world's nickel. The nickel ore mined there is what is called a nickelliferous pyrrhotite and contains nickel, sulphur and

iron. At the matte furnaces of the Canadian Copper Company they were saving the nickel, but the sulphur and iron were thrown away. Mr. Clergue's experts found a way to save the sulphur and are now, they say, making a commercial product from the roasting of pyrrhotite. Chemical experts over the world will not believe this possible till they see it done on a commercial scale, and this Mr. Clergue says, will occur in a few months, as soon as the reduction works now under way are completed. So Mr. Clergue's company bought a nickel mine near Sudbury for the sulphur and is now building the Manitoulin and North Shore Railway to and through the rich nickel belt and on to the Georgian Bay.

With the extraction of the sulphur from the pyrrhotite there was left a ferro-nickel ore, whose possibilities for the manufacture of nickel steel were alluring. In line with its laid-out policy the company set about the utilization of this ore. Now the company's experts say they can do the work that has been the dream of metallurgists and electricians for years, the reduction on an economical scale of ores of iron into steel by electricity. Furnaces were devised that, to the extent of a five-ton unit, smelted this soft high nickel ore into a nickel steel, sufficient iron ore being added to the mixture to make a hard steel. The nickel percentage of the ferro-nickel was so great that the resulting steel was very soft, it being a peculiar feature of nickel that an admixture of more than five or six per cent. makes the alloy soft, whilst three per cent. of nickel or thereabouts makes an armor plate. The company has a very large machine shop, and

all the hard cutting tools used there are made of its own nickel steel smelted in its own furnaces by electricity. The plans for the ferro nickel works which are now under construction propose one hundred furnaces of five tons daily capacity each. The company has closed a contract with the Krupp firm of Germany, under which a large amount of this nickel steel will be manufactured at the Sault and shipped to Germany for a period of five years. Under this contract no metal has yet been delivered and none may be sent for a year, but samples have been shown to the Krupps and Mr. Clergue states positively that the contract is closed and will be carried out.

For the separation of the copper in the Sudbury ores the company has devised a process necessitating the use of sodium and by electrolysis salt is decomposed into its elements. Chlorine is a by-product and to utilize it bleaching works have been established to manufacture bleaching liquor, and the company will use lime water as the medium for carrying this instead of lime, as is customary. The lime water makes a better medium and carries a great percentage of chlorine.

From the roasting works the company will save the sulphur fumes, and these will be made into sulphurous acid for use in the paper mill. There will be a larger residuum and this is expected to drive out Sicilian and American sulphur from all the paper mills of Canada at least. There will also be made sulphurous anhydride and gas will be compressed into liquid sulphurous acid. All these will be for use in the arts.

To obtain iron ore to mix with the ferro-

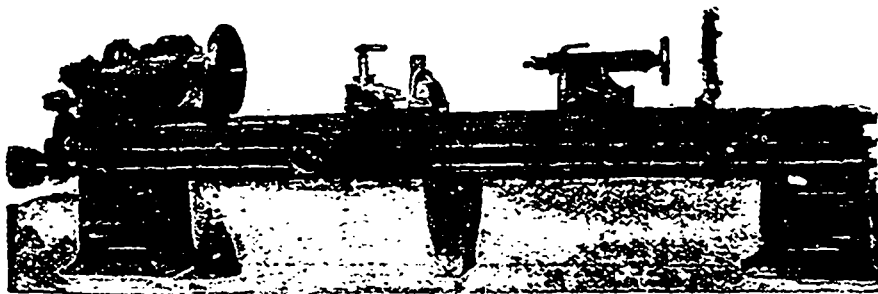
The London Machine Tool Co., LONDON, ONT.

LATHES,
PLANERS,
DRILLS,
SHAPERS,

MANUFACTURERS OF

HAMMERS,
BULL DOZERS
PUNCHES,
PRESSES.

General Machinery



There is only one Profitable Plan—**BUY NORTHRUP 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.”

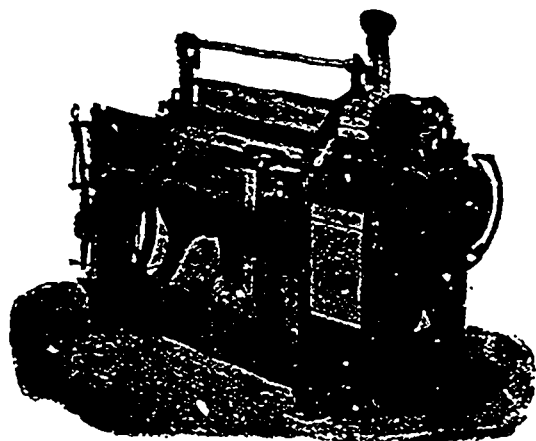
We also Manufacture the Best Warper at present
Known—also Spoolers.

Write for particulars and quotations. Address

The NORTHRUP LOOM CO. OF CANADA, Ltd.

VALLEYFIELD, P.Q.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



THE NORTHRUP LOOM.

nickel ore it was necessary to have a mine. The company secured a mining location 125 miles north of the Sault near the shore of the lake three years ago, and last fall proceeded to its development. This mine has now shipped its first ore, which has been tested successfully in furnaces. It is a vast quarry of high-grade iron ore, suitable for the manufacture of steel, containing at least 30,000,000 tons and perhaps more; no one knows how much. The development of the mine reads like a fairy story. Eleven months before the first ore was shipped twelve miles down to the lake over a standard gauge road, equipped with the heaviest rails, locomotives and cars, out on a big first-class and heavy ore pier, the place was a wilderness of forest and swamp. Then there was neither line nor trail through the woods from Lake Superior at Michipicoton Harbor to the ore. Half of the eleven months since have been winter, with no means of communication with the outside, and now the equipment is complete. From December to May there was no way of getting men, food, materials, supplies or anything else, over 125 miles of ice between the Sault and Michipicoton. All the equipment in sawmills, food, tools, supplies from eighty-five pound steel rails to pails and flour, from a hundred and ten ton locomotives and seventy ton shovels to the to the smallest unnumbered necessities of work in the wilderness, had to be brought in before the winter began. All through the severe cold of the region north of Lake Superior the men graded and built the road and opened the mine. The country is mountainous. In twelve miles the road, though taking advantage of all streams and valleys, rises 650 feet, and skirts, precipices and cliffs hundreds of feet high.

The company has explored the ore region and come to the conclusion that there is a sixth great iron ore range of Lake Superior. The economic importance of this cannot be overestimated. The company under its land grants has taken possession of the entire range of sixty miles in length.

To encourage this company in its expenditures and development both the Dominion and Ontario Governments are pledged, and they have given it a large grant of money and lands. The lands include 1,650,000 acres for a road running from the Sault to Missinabie on the Canadian Pacific, 150 miles northerly, and 1,000 men are now working on this road. The Dominion has also given cash subsidies and \$300,000 was paid a few days ago, to be followed by more as the work progresses. For an extension of the road to Hudson Bay, which will be reached in five years, an additional grant of

\$500,000 and 1,250,000 acres has been offered. The lands of these grants are not to be selected in one bunch, but within a reasonable distance of the lines of road, in small blocks. In order to avail itself of this privilege the company has now in its employ 150 expert timber cruisers, mineralogists and geologists, who are traversing that whole region, each party being accompanied by Indian guides and canoe-men. These men are selecting timber lands, running out the geological formations and verifying and correcting old surveys, and the grants will be selected under their reports. The timber is spruce, valuable for pulp wood and now scarce in the United States, and the land is underlaid by iron, copper and other minerals. Gold has been found in many localities.

"In five years," says Mr. Clergue, "we will be running through fish trains from Hudson Bay to Chicago."

In five years, too, the company will have absorbed all the outflow of Lake Superior, except what was needed for vessels. One canal to give 20,000 horsepower is now in operation, another to give 50,000 horse power is almost completed on the Michigan side of the river. Of its total power 40,000 horsepower has been leased for a long term of years to the Union Carbide Co. and the United Alkali Co. The former is now using a great power at Niagara for the manufacture of carbide of calcium. The Sault power will cost it perhaps a third of what it pays at Niagara, and yet the development concern will, in twenty-five years, get back all the original cost, as well as an annual interest. Some 10,000 horse-power on the Michigan side will be used in the reduction of copper from that state and for other natural uses. Two weeks ago work was

begun on the Canadian side of the river on a canal that is to develop 40,000 horse-power more. It is estimated that this will take all the power of the river. The Michigan canal is to be furnished with 320 turbine wheels, each four harnessed to one great single-phase dynamo, the whole to generate 50,000 horse power. The contracts for wheels and generators have been made, and the canal is being pushed with 1,000 men, and all the steam and compressed air appliances that can be assembled. It is a cutting two and a half miles long, two hundred feet wide and twenty-two feet deep, through the heart of the city and much of it in solid rock. The sides are cut by air channellers from the solid rock ledge, and the waste material is used in erecting the great buildings. There will be a power house 1,380 feet long, 100 feet wide and 106 feet high. It was designed by a Philadelphia architect and is a massive and handsome structure. No such power house exists on any water-power to-day. This canal and power plant will have cost, when done, \$2,750,000. The second Canadian canal will cost nearly as much.

In all, the company has so far spent \$1,500,000, and has plans that will call for the expenditure of \$15,000,000 or more additional. The Algoma Commercial Co., which is the name of the parent organization, is now spending money at a tremendous rate. The daily pay roll is \$5,000, or \$1,500,000 a year, and this will have to be continued for years. So far, there is no return, except from the one pulp mill and the mine, and the latter cannot bring much till another year. The sulphite mill will be a vast profit earning institution in 1901, as is the mechanical mill now.

This fall work will be begun to remedy

The Underwood Typewriter



Visible Writing from start to finish.

The descriptive pamphlet, or any stenographer using the Underwood Typewriter, will explain why 1,000 of these machines have been sold in Canada in one year—more than all others put together.—Visible writing and the tabulator are winners.

SOLE CANADIAN AGENTS.

Creelman Bros. Typewriter Co.,

15 Adelaide St. East, TORONTO, ONT.

Shafting—Hangers—Pulleys

FRICION CLUTCH PULLEYS AND COUPLINGS

Rope Transmission of Power.

HANDSOME ILLUSTRATED CATALOGUE ON APPLICATION.

DODGE MANUFACTURING CO. OF TORONTO, Limited, - - TORONTO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

the difficulty that must come very soon, the permanent lowering of the waters of Lake Superior. It is an international question, and neither the Canadian or American Government will permit any change in these waters. So a dam will be built at once clear across the head of the rapids. The dam will be 2,000 feet long, and will be a series of stone and concrete piers, connected by steel gates to be open or shut as occasion requires. It is not improbable that the company may raise, instead of lower the level of Lake Superior. Every foot of raise in the level will mean much to it.

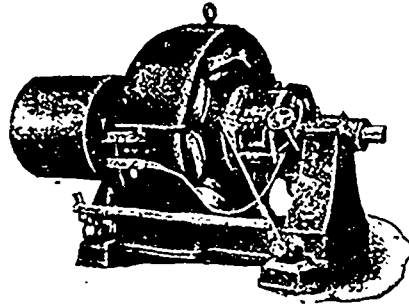
Here, at the Canadian Sault, the company has one of the finest laboratories in existence. It is carrying on analysis by electrolysis in minerals regularly, and the laboratory and library connected with it are fitted up as completely as those of any technical school in America. The company has also a machine shop, where 250 men find work day and night on its own machinery and tools. The shop is the best in Canada and few in the United States excel it. An addition, 180x100 feet, and two storeys high has just been completed, and is now being filled with tools from the best makers in the world. There will be 1,800 feet of these tools. The shop does no custom work but is steadily employed with a large foundry connecting for the Algoma Company.

In order to permit the shipment of iron this year and in vessels it could utilize in winter on the oceans, the company sent one of its men to England three months ago, and he bought four steel ore ships that had been in the Greek and Spanish trade. They are all here now carrying ore. When lake navigation closes in the fall they will be sent to the sea, carrying cargoes of pulp for wherever the company has orders—France, England, Russia, Japan or India. During the winter they will trade on the seas, and in the spring they will return to the upper lakes. This is made possible by the completion, last June, of the Canadian canals to the seas. Next year the company will have four more of these ships, now building in England, and the eight will find steady employment in ore-carrying on the lakes. It is expected to invade the American market, in face of the forty cent tariff, for this will be no obstacle on account of the short rail-haul and the ease of mining. The ore is mined now, and will be for years, by mere quarrying from the face of high cliffs. By draining a small lake, a face of ore 220 feet high will be exposed, and the draining will be a mere cut through rock across a ledge fifty feet wide.

It is proposed to erect a mill for rolling nickel steel rails, etc., and the product will be 1,000 tons a day. This will not be in operation for some years, however. The company is now erecting half a dozen great stone structures for its mills, reduction works, electrical smelting furnaces, etc., and the whole neighborhood of its works is being improved on a large scale.

In excavating for the works now under way, Mr. Clorgue disclosed the original lock for carrying vessels past the rapids. It was built by the Hudson Bay Co. 150 years ago, and its very existence had been forgotten. It is an impressive commentary on the life of the West, standing beside the locks of the present day. It is forty feet long and ten feet wide, while, a stone's throw away, are locks 1,000 feet long and 100 feet wide, filled to overflowing with the commerce of the Northwest. Close by was the block-house of the Hudson Bay Co., surrounded by a barely-discernible stockade of rotted

**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.**

**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.
67 Adelaide St. E. Toronto, Ont.

Advertise in
The Canadian Manufacturer.
Send for Rates.

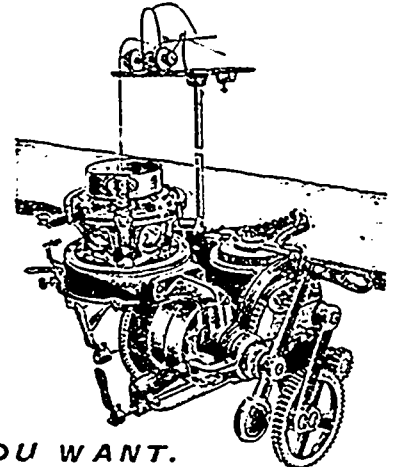
**RICHARD SCHOFIELD,
TORONTO**

Sells "BRANSON THREE-QUARTER
AUTOMATIC"

KNITTING MACHINES

AND ALL OTHER KINDS OF
Hosiery and Underwear **MACHINERY**

ASK US FOR WHAT YOU WANT.



Paper Mills and Pulp Mills

And all Users of ENDLESS FELTS get the
Best Value by ordering from

**Hamelin & Ayers,
LACHUTE MILLS, QUE.**

We are now prepared to make all grades, from the finest Bristol Board to the coarsest Sulphide Fibre. With our 24 looms, and all other machinery to match, we are in a position to fill all orders promptly.

When ordering state kind of Paper or Board made, and speed of machine.

You will not be asked to pay for Felts that are not satisfactory. Every Felt is tested in our factory, and is shipped with our guarantee.

CAPACITY 1,000 SQUARE YARDS DAILY.

ADDRESS

HAMELIN & AYERS, Lachute Mills, Quebec, Can.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

wood. The building was put in repair, and is now the home of the directing genius of the place. The stockade is replaced by a handsome stone wall with a unique parapet.

THE COAL OF THE WORLD.

It is a curious thing that, while never was coal so plentiful, never was coal so scarce as it is just now. This may seem "a paradox, a paradox, a most amusing paradox, but it is strictly true. More coal is being produced in all parts of the world than ever was done before, yet in all the principal centres of consumption the demand is greater than the supply. It is probable that a change is about to take place, but we are referring generally to the position as it has existed for the last six or nine months, during which prices have risen from fifty to seventy-five per cent. It is, of course, a mistake (which some newspaper writers seem determined to perpetuate) to suppose that the Boer war has increased the consumption of coal; on the other hand, it has to a small extent restrained the

production. For instance, in 1898 the collieries of the Transvaal, Cape Colony, and Natal turned out 2,487,669 tons; but it is doubtful if last year (1899) they turned out as much as 2,000,000 tons before the war put a stopper on some of them, while the reduction in output this year to date must be much greater.

The production of the United Kingdom last year was 220,085,000 tons, the previous largest output having been 202,130,000 tons in 1897. The increase was thus about 18,000,000 tons on the previous maximum, and the output of 1899 was 44,000,000 tons greater than that of 1889. In the United States the increase has been even more remarkable. The output of 1899 is stated by the United States Geological Survey at 230,838,973 tons, but by our Board of Trade (on a New York non-official estimate) at 218,376,000 tons. The one estimate is probably as much too high as the other is too low, and we take 225,000,000 tons as approximating the correct total. This is 29,000,000 tons more than the previous maximum (in 1898), and no less than 99,000,000 tons more than in 1889, in which, however, the production dropped from the previous year. America, therefore, is not only now producing more coal than England, but is increasing her output at a greater rate than is England. Germany is the next largest producer, and last year turned out 101,622,000 tons, being 5,312,000 tons more than the previous maximum (1898), and 34,000,000 tons more than in 1889. France comes next with 32,331,000 tons last year, being 500,000 tons above previous record (1898), and 8,500,000 tons more than in 1889. Belgium comes fourth with 21,918,000 tons, which is a drop of 170,000 tons from the record output of 1898, but about 2,000,000 tons more than that of 1889. The following is the coal production of foreign countries as near as we can get at it:

COAL OUTPUT OF FOREIGN COUNTRIES.

	Tons.
German Empire.....	101,622,000
France.....	32,331,000
Belgium.....	21,918,000

Russian Empire.....	12,185,000
Austria-Hungary.....	12,500,000
Spain.....	2,672,000
Sweden.....	250,000
United States.....	225,000,000
Japan.....	5,500,000
Transvaal.....	1,500,000
Turkey and Greece.....	50,000
Portugal.....	25,000
Holland.....	120,000
China and Indo-China.....	3,000,000
Netherlands India and Borneo..	150,000
Chili.....	500,000
Mexico.....	500,000

Total foreign coal..... 419,823,000

The above relates to bituminous and anthracite coal, in addition to which the following "brown coal," or lignite, is produced.

LIGNITE PRODUCTION OF FOREIGN COUNTRIES.

	Tons.
German Empire.....	34,203,000
France.....	603,000
Spain.....	70,000
Italy.....	350,000
Austria.....	22,000,000
Hungary.....	5,000,000
Russia.....	150,000
Japan.....	20,000
United States.....	1,500,000

Total lignite..... 63,896,000

Of course, although lignite cannot be used for all purposes, it is used for some purposes instead of ordinary coal, and therefore enters into the world's coal supply.

So far foreigners; now for the British Empire. The output of the United Kingdom is stated above, and under the British flag, India, Canada and New South Wales, are running each other hard for second place. That of India in 1898 was 4,604,980 tons, being 600,000 tons above previous record, and nearly 3,000,000 tons more than in 1889. That of New South Wales was 4,706,251 tons, being 320,000 tons above the previous year, and upwards of 1,000,000 more than in 1889. Each of these countries would produce at least 5,000,000 tons last year, though no returns are yet available. Canada in 1899 produced 4,566,000 tons, or 390,000 tons above previous record, and 2,000,000 tons more than in 1889. We take the following as the

OUTPUT OF BRITISH POSSESSIONS.

	Tons.
India.....	5,000,000
Canada.....	4,566,000
New South Wales.....	5,000,000
Victoria.....	250,000
Queensland.....	450,000
Western Australia.....	4,000
Tasmania.....	55,000
New Zealand.....	1,000,000
Cape Colony.....	190,000
Natal.....	350,000

Total British possessions.... 16,865,000

Summing up, we have the following as the WORLD'S OUTPUT OF COAL (1899).

	Tons.
United Kingdom.....	220,085,000
British Possessions.....	16,865,000

Total British Empire.....	236,950,000
Foreign countries.....	419,823,000
Foreign (lignite).....	63,896,000

Grand total.....	720,669,000
Deduct lignite.....	63,896,000

Total ordinary coal..... 656,773,000

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, TORONTO.

McLaughlan 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 ½ h.p. up.
Motor Carriages for Pleasure or Business. One cent spent for a postal will bring you any information you wish.

The Packard Electric Co., Limited.

ST. CATHARINES, CANADA,

Makers of Lamps, Transformers

Sole Agents for Canada for SCHEFFER RECORDING WATT METERS,
D. & W. ENCLOSED FUSES, and DIAMOND C.P. ELECTRICAL SUPPLIES.

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.

This is at least 60,000,000 tons more than was ever before produced in any one year. Yet it has all gone into consumption, leaving the world unsatisfied. Of course, the consumption, both in gross and per head of population, is naturally greatest in those countries which make most use of steam traction and of steam machinery. But, while the largest aggregate consumption is in the United States, the proportion per capita is higher both in the United Kingdom and Belgium, in which coal is practically the only power-raiser. In America there is a large employment of other fuel, and of water-power. Yet the consumption thereof of coal is simply enormous. The following shows in the principal countries the

COAL CONSUMPTION, 1899.

Country.	Quantity. Tons.	Per capita. Tons.
United States.....	193,497,000	2.60
United Kingdom....	153,798,000	3.83
Germany.....	88,141,000	1.62
Belgium.....	18,349,000	2.75
France.....	40,921,000	1.06
Austria-Hungary....	17,171,000	0.37
Russia.....	15,114,000	0.11
Italy.....	4,414,000	0.14
Sweden.....	2,694,000	0.53
Spain.....	4,429,000	0.19
India.....	4,657,000	0.01
Canada.....	6,625,000	1.37
New South Wales....	1,915,000	1.42
Victoria.....	805,000	0.68
New Zealand.....	957,000	1.29
Cape Colony.....	385,000	0.20

Note—In the case of the United States and Russia lignite is included, not otherwise. Some of these figures relate to 1899, and some to 1898, returns not being all to the same date; but they give a fair view of the relative positions. It will be seen that the countries consuming more coal than they produce are France, Russia, Sweden, Spain, Italy, Austria-Hungary, Canada, Victoria and Cape Colony. The only countries which have absolute surpluses over home consumption and imports are the United Kingdom, Germany, Belgium, Japan, the United States and New South Wales.—Fairplay.

DEVELOPING CANADIAN INDUSTRIES.

An Ottawa correspondent of the Chicago Times-Herald writes. In many respects Canada and the United States are much alike. In regard to minerals the two countries are about equally resourceful, but with the important difference that Canada has had less than \$1 of capital for her mineral development for every \$20 spent for similar purposes in the United States. Moreover, while the United States exports of iron and steel and their products are increasing by leaps and bounds, Canada has hardly begun to make iron for her own needs, although she has all the requisites for the economic production of these commodities.

All that is needed by the Dominion is the investment of capital to develop the iron industry. American business enterprise is now beginning to provide this necessary desideratum.

To American enterprise and capital are due much of the substantial progress and prosperity of recent years in the mining industry of this country and these are to-day important factors in the upbuilding of all lines of industrial development in Canada. A striking case in point is the awakening of Cape Breton, in the province of Nova Scotia, from its long slumber of 150 years to re-occupy, though in an altered capacity, the place in the world's history which that Island possessed under the ancient regime. This revival is entirely the result of American push and money and it will not only enrich the province of Nova Scotia, but will beneficially affect the whole Dominion.

The great duel of the eighteenth century was that between England and France for colonial empire. In those days the name of Cape Breton was a well known one at the courts of Versailles and St. James, and the conquest of Canada was achieved as well beside the Atlantic breakers of Louisburgh as on the plains of Abraham. Under British rule Cape Breton entered into a long oblivion.

In 1820 the island was united to Nova Scotia, but not until many years afterward

was it again heard of by the outside world, but this time in the commercial, not the political, world.

Seven years ago H. M. Whitney, a Boston (Mass.) capitalist, formed a syndicate called the Dominion Coal Co., and acquired a ninety-nine-year lease of most of the mines in the Sydney coal field from Sydney to Louisburg. Consolidation under a vigorous company with ample capital soon showed its effects. New machinery was introduced and old shafts were widened and new ones dug of immense capacity, one of which when completed will be the largest on the continent.

In 1892 the total amount of coal exported by the mines of this coal field was 842,870 tons. For the current year the export will be at least 2,500,000 tons.

In March of last year the Dominion Iron & Steel Co., was incorporated, with Mr. Whitney as president, to operate in Cape Breton. Already a revolution has been brought about in what, only a little over a year ago, was the moribund country town of Sydney. In that brief space this little town has developed into a bustling city of some 15,000 with a rapidly increasing population.

It is difficult to imagine a more favorable spot for the establishment of a great iron industry than the one selected in Cape Breton. It provides all the facilities for shipping and easy access to raw materials and to available markets, which are the three main considerations in founding such an industry.

The three main constituents needed to produce iron or steel are iron ore, coke and limestone. The two latter are abundantly supplied from the bituminous coal of Sydney and the company's large quarries of limestone, both near at hand. There is iron ore in Cape Breton, and the company owns extensive claims. It has also made arrangements for shipping ore, if advisable, from the Santiago district in Cuba, and from Spain, but practically all the ore, for many years at least, will be brought from what is one of the most remarkable iron mines in the world.

PITT & SCOTT

ESTABLISHED 1876.

Foreign Freight Brokers and Express Carriers TO ALL PARTS OF THE WORLD.

THROUGH BILLS OF LADING ISSUED AND RATES QUOTED TO ALL PARTS OF EUROPE, ASIA AND OCEANICA.

SENDERS INVOICES COLLECTED AGAINST DELIVERY OF GOODS ANYWHERE ABROAD.

PITT & SCOTT, - - 39 Broadway, NEW YORK.—121 Water Street, BOSTON.

ALSO AT..... LONDON, LIVERPOOL, PARIS, HAMBURG.

AND AGENCIES EVERYWHERE ABROAD.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Off the southeast coast of Newfoundland, on Great Bell Island in Conception Bay, about twenty miles from the city of St. John's, is the Wabana mine. The ore bed consists of small regular blocks of red hematite, most of them about four inches long, two wide and two thick, but some considerably larger. These blocks are piled one upon another, and close together, making a bed of ore of an average thickness of eight feet, extending over 817 acres. The bed is estimated to contain over 23,000,000 tons of available ore, beside the areas under the sea, where there are undoubtedly far larger quantities concealed than even the vast masses already known.

The price of this ore delivered at the furnaces in Sydney, including cost of mining, loading on ship, transportation and unloading, will not exceed \$1 a ton. When it is considered that the American furnaces are buying Lake Superior ore at Cleveland for \$5.75 a ton and transportation thence by rail to Pittsburgh, the difference in price is so striking that the advantage which it gives to the Canadian enterprise is obvious. It is thought not to be improbable that Sydney

will eventually surpass even Alabama in the cheap production of pig iron.

A MODERN MACHINE SHOP IN CANADA.

The Canadian Rand Drill Co., of which James F. Lewis, the well-known Chicago engineer, is president, has a well equipped and thoroughly modern plant at Sherbrooke, Que., which was visited by the members of the American Institute of Mining Engineers on their recent Canadian trip. We take the following detailed description from the Engineering News:

The new plant consists of a large main machine and erecting shop, pattern shop, storage shed and subsidiary buildings. The main building, two hundred by ninety feet, is of brick with side wall fifteen feet high, with the monitor portion of the roof thirty-five feet high. The roof trusses are of Georgia pine; the roofing is three-inch plank covered with tin, and the flooring is three-inch hemlock plank, set on eight by eight-inch timbers, filled between with broken stone pounded down and covered

with concrete. This floor construction has proved to be so solid that all ordinary machinery needs simply to be fastened to it by lag screws, individual concrete foundations being required only for the larger machines. The window area in the side walls and in the monitor roof is very large and the whole interior of the building is covered with asbestic whitewash, making the shop an exceptionally light one. To one side of the main building are joined three wings, each thirty by thirty-six feet, one at each end and one at the middle, which serve respectively for a blacksmith shop, power house and offices. The wing containing the offices has a second story, which is utilized for the drawing rooms, blue-print rooms, vaults, etc. To the rear of the centre wing containing the power plant is a coal storage shed arranged for the separate storage of steam, tempering and blacksmith coal. Behind this coal storage shed is the pattern shop and to one end of the main shop is the pattern storage house, both buildings being similar in construction to the main building.

The arrangement of the machinery in the main shop is on two sides of a centre aisle. The plan adopted was not to group similar tools together; but knowing exactly the work to be done upon the product, it was planned to place the tools so that the rough casting is passed from the machine performing the first operation to that performing the second and so on to the erecting floor for assembling. Air compressors and hoists are built on the left side and drills and coal cutters on the right side of the shop. The assembling floors are at the ends of the shop. The erecting floor for small compressors is covered by a two-ton travelling crane. For the erection of large compressions the main aisle is employed so that the main travelling crane, running lengthwise of the shop, can be used for handling the heavy parts.

Roughly speaking, the main erecting floor occupies the centre aisle space for one-half the length of the building. The floor consists of I-beams set on cast iron bed plates which in turn rest on concrete foundations. These beams are leveled up so that a

D. CAMPBELL DAVIES & CO.,

—REPRESENTING—

The Largest European and American

MANUFACTURERS OF

MILLS, MINES AND SMELTING MACHINERY SUPPLIES

EXPORT TRADE A SPECIALTY.

Apartado No. 83, - - DURANGO, MEXICO.

JOHN J. KELLER & CO.

104 and 106 MURRAY ST.
NEW YORK

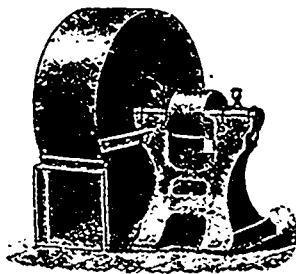
220 Church St., Philadelphia.
135 Pearl St., Boston.
18 Pryor St., Atlanta, Ga.

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

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

MANUFACTURED BY

JOHN R. GEIGY & CO.
BASEL, SWITZERLAND



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.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

machine placed upon them requires to be lined sideways only. At one end of the floor is a pit four feet wide and twenty-foot long, walled with masonry, which serves as a fly-wheel pit when the large compressors are set up for testing previous to shipment. The heavy tools are placed along the sides of the main aisle so that the handling of the heavy work done on them may be accomplished by the large crane. The smaller tools are placed nearer the sides of the building and are run by two rows of line shafting extending longitudinally of the building at about the middle of each side. The transfer of power across the shop is by means of a rope drive at one end. The line shafting is mostly two and seven-sixteenth and two and three-sixteenth inches in diameter, fitted with split steel pulleys and Hyatt roller bearings throughout. Most of the machine tools are of Canadian manufacture. In the drill department, where standardization is an absolute requirement of construction, the construction is all jig work, each individual part having its special jig. The tool room which is necessary for keeping the jigs in order, is equipped with a lathe, twist-drill grinder, universal grinder and milling machine, and in addition emery wheels are placed at convenient intervals around the shop. At one end of the building is a supply room separated from the main shop by a wire fencing, and here are kept all finished duplicate drill parts, packing, pipe fittings, compressor and engine parts and attachments, etc.

At the same end of the building as the supply room is the blacksmith shop occupy-

ing one of the wings. This shop is equipped with two large and two small forges, and three tempering forges. Here also is placed the power hammer which is operated by compressed air. The handling of heavy work is done by a radial crane arrangement consisting of an I-beam pivoted at the centre, the ends of which travel on a circular track. A trolley travels along this I-beam and carries an air hoist. By means of the horizontal swing or revolution of the beam on its centre pivot and of the travel of the carriage running along the beam it will be seen that the whole floor area of the shop is covered by the air hoist. The draft for the forges is obtained by a blower and the smoke is removed by an exhauster. In the middle wing opening off the main building is located the power plant, a fire wall separating the boilers from the rest of the plant. A ninety horse-power Jencks-Corliss engine operates the main line shafting, while a Rand standard duplex compressor with eight by fourteen by twelve inch compound air and eight by twelve by twelve inch compound steam ends furnishes compressed air for operating the power hammer, travelling cranes and air hoists, and for testing drills, cleaning castings, operating piston drills, etc.

In some respects the most interesting of the compressed air machines is the large travelling bridge crane covering the main shop floor from one end to the other of the building. This crane is of ten tons capacity and was built by the Whiting Foundry Equipment Co., of Harvey, Ill. It is employed for loading cars, erecting work and

handling heavy work on the large machine tools bordering the main centre aisle. The weight of any machine or of its individual parts is ascertained while loading the cars by means of a Fairbanks' scale hung from the crane hook. The hose carrying the air to the crane is taken care of by an arrangement over head of a carriage traveling on an I-beam. The crane is said to have proved especially satisfactory in its operation.

For heating the building the Evans-Almiral hot-water system is employed. The water is heated by exhaust steam after it comes from the feed-water heater, which passes into a large exhaust heater similar to a feed-water heater. A centrifugal pump in the engine room provides the necessary circulation of the water through the heating coils which comprise some 1,500 feet of one and a half inch pipe located around the sides and overhead on the cross beams of the building. This system has successfully heated the shop with the temperature at thirty-five degrees F outside. The shop building is equipped with the Walworth Sprinkler system, consisting of 450 sprinklers arranged to cover every part of the shop. The supply of water is furnished from two sources; one being the city water mains and the other a five hundred gallon fire pump located in a separate pump house and taking its water from the Magog river. In addition there are four two and a half inch hose lines from the city water mains. The pattern shop has a similar sprinkler system to the main shop, but the pattern storage house and general storage house are equipped with dry sprinkler systems.

THE ELECTRICAL CONSTRUCTION CO.

Some of the orders for electrical machinery recently filled by the Electrical Construction Co., London, Ont., include as follows:—

Berlin Furniture Co., Berlin, Ont., a 150-light multipolar dynamo to be installed in their new factory.

McLaughlin Carriage Co., Oshawa, Ont., a 600-light generator, and the complete wiring of their new factory.

The Jackson-Cochrane Co., Berlin, Ont., a 75-light multipolar dynamo for their iron working establishment.

Messrs. McLaren & Bate, Montreal, one 5-h.p. bipolar motor.

Oram & Cartor, Kingston, Ont., one 8-h.p. bi-polar motor.

L. Allcock, Sault Ste. Marie, Ont., one 5-h.p. bi-polar motor.

Rohder Plating Mfg. Co., Thorold, Ont., one 12-h.p. motor.

G. E. Mathews, Montreal, three electrical machines of different sizes. Parties in Manitoba through their agent at Winnipeg, one 15-h.p. multipolar motor, one 16-h.p. multipolar motor, one 8-h.p. bipolar motor.

COWAN & CO.

Messrs. Cowan & Co., Galt, Ont., are enjoying the "growing time." Some of the recent sales of machinery made by them include as follows:—

Adamson Moulding Co., large moulding machine.

George Gray, Harriston, Ont., large double surface moulder and planer.

Gold Medal Furniture Mfg. Co., Toronto, revolving bed extra heavy double surfacer.

Great Northern Railway, City of Quebec, Corliss steam engine and boiler, and car load of wood-working machinery.

Richard D. Walsh, Chatham, N.B., heavy planer and matcher, and improved saw table.

John McDonald & Co., Chatham, N.B., full outfit of wood working machinery for one of the largest and best equipped planning mills in the Maritime Provinces.

The Dominion Coal Co., a variety saw table for their works at Green Bay, N.S.

King & Yorston, Toronto, outfit of woodworking machinery.

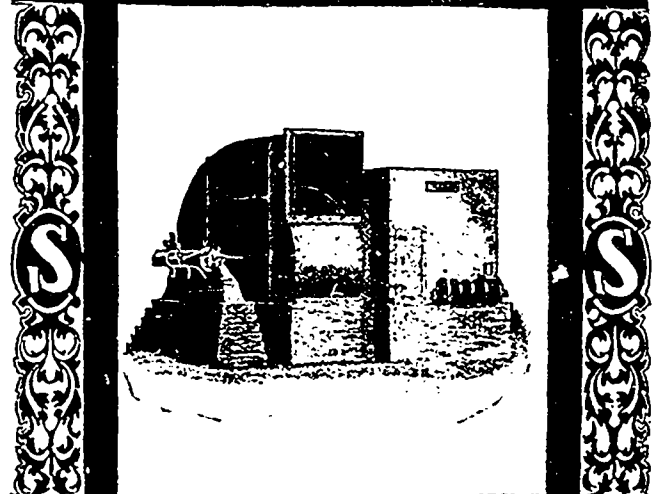
Hepworth Mfg. Co., Hepworth, Ont., large 12-inch moulder.

McDonald & Whicher, Colpoys Bay, Ont., 60-in. x 13-ft. steam boiler. Isaac Sargent, London, Ont., ro-saw machine.

Fernie Lumber Co., Forni, B.C., carload of saw mill machinery.

Joseph Lumy, Ottawa, resaw machine. W. C. Edwards & Co., Hull, Que., cut-off saw and machinery. Sydney Mfg. Co., Sydney, N.S., large 12-in. moulder.

STURTEVANT SYSTEM OF MECHANICAL DRAFT.



*Saves cost of chimney.
Burns cheap fuel.
Increases boiler capacity.
Send for Catalogue No. 110.*

B. F. STURTEVANT & BOSTON.
NEW YORK · PHILADELPHIA · CHICAGO · LONDON ·

THE WATER POWERS OF CANADA.

To this day Canada, although three hundred and sixty-five years have elapsed since Jacques Cartier sailed up the St. Lawrence in search of the coast of China, remains in many respects an undeveloped country. For all the years that it has been known and explored, and for countless thousands of years before, its mighty rivers have rushed headlong to the sea wasting an uncounted total of power that must ultimately be available for all sorts and manners of industrial enterprises. It is only lately that due attention has been given to the magnificent resources of this character which the country possesses, and now there is going on all over the provinces of Ontario and Quebec an awakening of interest in water-power stimulated by the capacity of modern electrical engineering to utilize and distribute the valuable power of the many cataracts contained in that region. The St. Lawrence is partly—and every American must regret that it is not wholly—an international boundary line, and upon it and its tributaries some of the most notable developments have taken place. On the New York side, at Massena Springs, a gigantic plant capable of producing 150,000 horse-power, is nearly finished. Further down the river, at Montreal, the Lachine Rapids plant has been in operation for several years to the great satisfaction of all concerned in it. Near by, at Chambly, on the Richelieu River, is another fine plant, developing 12,000 horse-power, and further down at Three Rivers, is still another. At Quebec, the falls of Montmorency, celebrated in verse and story, have lately taken on the less poetical but more utilitarian attitude of turning water-wheels and generating electricity. These develop-

ments, as large as they are, have yet failed to abstract more than an insignificant percentage of the vast energy that is running to waste in the multitudinous cataracts of Canada. It is merely a beginning that has been made and the future that lies before the happy region blessed with such prodigal gifts of nature in the shape of an abundant and inexpensive power is almost impossible to foresee.

It is pleasant to note that many of these plants have been developed by American enterprise and that practically all of them have been made possible by the use of American-made machinery. Canada has fully waked up to the immense value of this variety of its natural resources. Against it may be placed only the inhospitable climate of the country, which, during certain months of the year, inevitably causes more or less trouble from ice in any hydraulic development. The fact that Canada has so appreciated its own resources should be an object lesson to certain regions equally well favored with respect to natural power and comparatively blessed as regards climate and situation.

For example, the state of Georgia contains as fine water-powers as are found anywhere on the Atlantic slope of North America. These powers are in a situation practically ideal as regards climate, transportation facilities, and abundant labor. Already they are beginning to be developed, but on a scale incommensurate with their

possibilities. It is gratifying to know that in New York State no effort has been spared to take advantage of the extraordinary possibilities which nature has provided in the way of rapidly flowing and swiftly descending streams. Now England is a country of water-powers, but so far there has been but little attempt to develop these electrically. On the Pacific coast, both of Canada and the United States, there are magnificent waterfalls simply awaiting a greater density of population in the country for a demand for their utilization as sources of power.

There seems no reason to think that Canada will not eventually be a great manufacturing country, if cheap power and an abundance of raw material can make a country great in that direction.—Electrical Review.

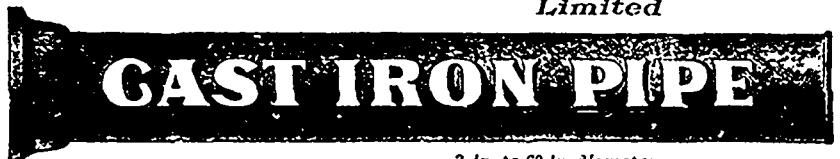
FERRO TITANIUM.

Since the power plant at Niagara Falls has been in operation the tendency of the processes successfully operated there has been to revolutionize the various fields of manufacture. The fact that a wonderful amount of electric current is available at the Falls has made it possible for inventors of processes requiring great heat to secure it, and the electric furnaces of the Niagara locality are not equalled in the world. Now comes news of another establishment, the product of which is destined to exert an influence on the iron market.

It is estimated that of the iron ore avail-

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

THE **GARTSHORE-THOMSON PIPE & FOUNDRY CO.**
Limited



3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers

Special Castings and all kinds of
WATER WORKS SUPPLIES

FLEXIBLE AND FLANGE PIPE.
HAMILTON, ONT.

SOMETHING GOOD

Who Wants it ?

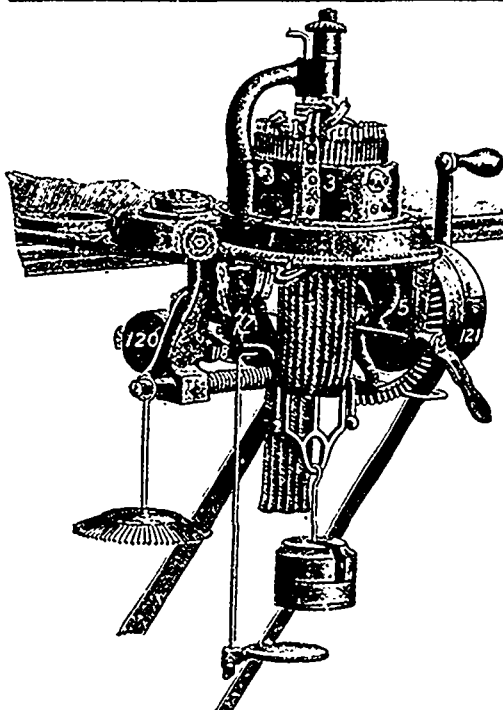
A prominent American Typewriter Manufacturing Company desires to establish connections with a first-class party, with the purpose of placing their machine upon the Canadian market.

Must have knowledge of the business and able to show a first-class record. All answers treated strictly confidential.

Address, with details of experience,

VISIBLE WRITING,

Care of
CANADIAN MANUFACTURER,
TORONTO, 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.

CREELMAN BROS.,
Manufacturers,
GEORGETOWN, ONTARIO, Canada.

able in the United States at least thirty per cent. of it is unfitted for use because it is what is known as titaniferous iron ore. It contains a percentage of titanium.

According to a Niagara Falls, N.Y., correspondent of The Paper Mill, in a small old stone building on the property of the Niagara Falls Power Co., Augusto J. Rossi has been experimenting with this ore, and has found a process by which it is made suitable for all kinds of use where iron is demanded. This means that the enormous deposits of this class of ore, heretofore thought unavailable, will now be brought into consumption. In the State of New York there are mountainous deposits of this class of ore, and in the Adirondack region alone there is said to be a deposit that would last the world a century or longer.

At the same time that these experiments have been conducted search has been made in a no less important field for results whereby the quality of steel might be increased and its production cheapened. Success has also crowned these efforts, the result being the discovery of a method of producing a ferro-metal. This, in fact, is ferrotitanium, an alloy which, if all the statements are maintained, is destined to win the favor of the world. Up to the present time it has been thought that iron ore containing titanium could not be worked as the titanic acid produced developed an infusible slag.

About 500 pounds of this new alloy, ferrotitanium, is turned out every twenty-four hours at Niagara, and it has been given around to steel manufacturers with which to

Canadian Advertising is best done by The E. DESBARATS ADVERTISING AGENCY, Montreal.

THE ABBEY IMPROVED CHILLED SHOT COMPANY, Limited, Newcastle.
What better testimonials do Sportsmen require than the following, viz.:

Output of Shot in 1899 exceeded 1897 by 5,010 cwt., or equal to the loading of (at 1 oz. per load) 9,031,680 Cartridges.

The winner of the All-England Championship Cup in December, 1898, fired with our shot, and speaks highly of it.

F. W. Hore's Sons, HAMILTON, ONT.
Manufacturers of
Wheels, Wheel Materials, Shafts, etc.

WILSON & BURNIE,
FLOUR, OATMEAL,
and COMMISSION AGENTS.

Also at GLASGOW, SCOTLAND. LEITH.

Advances on Consignments.

PATENTS, TRADE MARKS, CAVEATS, ETC.

EGERTON R. CASE,

Registered Solicitor of Patents. Notary Public.
TEMPLE BUILDING, - TORONTO, ONT.



THE....

A. R. WILLIAMS MACHINERY CO.

(Limited)

Head Office, - SOHO MACHINE WORKS, TORONTO

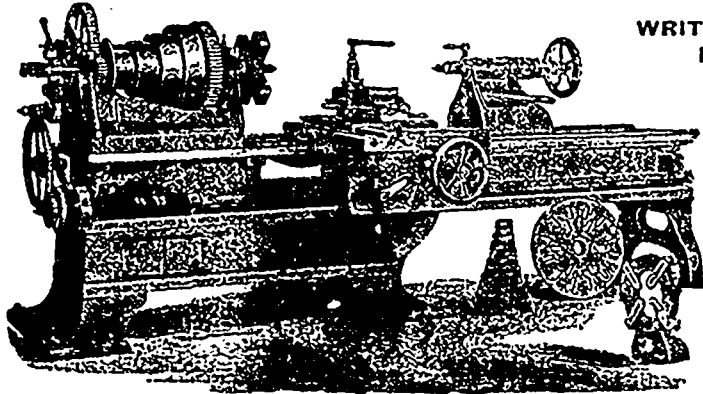
Manufacturers of and Dealers in

**High-Class Iron Tools,
Wood-working Machinery,
Engines, Boilers,
Motors, Water Wheels,
General Machinery
and Supplies.**



WE ARE THE EXCLUSIVE AGENTS OF THE **McGregor-Courlay Co. Limited, GALT, ONT.**

IRON WORKING MACHINERY.



WRITE TO US FOR PRICES.

BRANCHES

193 Colborne St.,
BRANTFORD

345 and 347
St. James St.,
MONTREAL

Send for Circulars,
Referring
to this Advt.

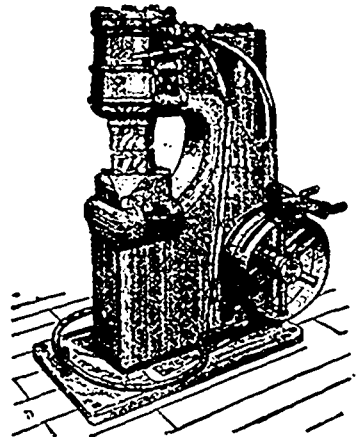
The Yeakley Vacuum Hammer.

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.



THE JAMES MORRISON BRASS MFG. CO. LIMITED.

MANUFACTURERS OF
ENGINEERS BRASS GOODS
AND SUPPLIES.
TORONTO, ONT.

"HOMESTEAD" PATENT
Best Blow-off Cock
Always Tight. — —
Always Works Easy

HIGH
P.

THE JMT SERIES
THE STANDARD
IN VALVE EXCELLENCE
IN THE DOMINION

ASK FOR PARTICULARS

HEADQUARTERS
for the
CELEBRATED "HEINTZ" STEAM SAVER



A. C. NEFF
CHARTERED ACCOUNTANT
 Room 600 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 Wave Foul-caps, Account, Envelope and Lithographic Papers, etc.

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

W. F. SCOTT,
Architect - Engineer.
 Domestic, Residential, Civil and Memorial Architecture.
 Specialty: STEEL & FIRE-PROOF CONSTRUCTION
 410 MCKINNON BUILDING,
 MELINDA STREET, - TORONTO, ONT.

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.
 409 Temple Building, Toronto, Ont.
 TELEPHONE 907

JOHN J. GARTSHORE,
 31 Front St. West, Toronto.
RAILWAY, TRAMWAY, and
Contractors' Supplies
 METALS and SCRAP IRON
 Bought and Sold.

CANADIAN OFFICE & SCHOOL FURNITURE CO. LIMITED,
 PRESTON ONT.
 FINE BANK OFFICE, COURT HOUSE & DRUG STORE FITTINGS.
 Office School, Church, Store Furniture.
SEND FOR CATALOGUE

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 Australia.

experiment, and these experiments have created a demand, and a company is about being formed to erect a large plant at Niagara Falls for the production of this article.

HOW COMES IT SO?

The Confectionar, a leading organ of the German textile and clothing manufacture, recently contained an article from its correspondent at Chemnitz which is of interest to our readers. It says, under the heading "How the Americans cause us Competition with our Own Workmen."

Year by year, the American textile industry grows and makes our manufacturers look with dire anxiety to the future, for the United States not only competes with us in its own market, but will at no distant date be a powerful competitor in other markets. Even the most optimistic manufacturers of Saxon textiles do not deny that in some articles they cannot approach American fabrics. Such are the sixteen pin lines which were formerly imported into the United States from Germany, but are now entirely replaced by the home goods. The question obtrudes itself, How has the rapid rise of manufacturing been made possible in the agrarian Union? The immediate cause was the transplantation of the German industry to the United States.

The writer here gives names of German firms which have established textile factories in various sections of the United States, and adds:

Aside from these, many of the largest manufacturing firms in the United States have German members or German managers, and the operatives are almost without exception Saxon textile workers. Thus our industry has been deeply hurt. It is a sorrowful fact that Saxon manufacturers have refrained from doing anything to check the emigration of such a vast number of skilled operatives; it is now too late to make up for this omission, the consequences of which are shown in the lack of requisite working force here and the steadily rising capacity of the American industries to take foreign markets from us.

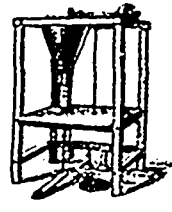
This conveys a lesson in economics that our free trade friends should profit by. If the mountain will not go to Mahomet, no thing is left to be done but for Mahomet to go to the mountain. If German manufacturers are restricted entrance into the American market, nothing is left to be done but for German manufacturers to transfer their factories to the United States. Protection does it.

The Toronto Woolen Machinery Co., Toronto, have recently placed several broad looms in the woolen mills of Messrs. E. Warner & Son, Alvinston, Ont. They are affording entire satisfaction.

Another colony will follow the lead of Canada and provide its people with penny postage within the Empire. It is announced that Australia will probably take this step on January 1 next, when the federation of the colonies on the island continent is also inaugurated.

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
Shipping Tags. Invoice Tags.
DUPLICATING BOOKS

HEAD OFFICE
AUTOMATIC CHECK BOOK COMPANY
 16 & 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 209 St. JAMES ST. MONTREAL.

I BUY all Minerals at Mines by contract or otherwise. Mineral Lands and Timber Properties bought and sold.
H. FAWCETT HARTLAND,
 Room 302 310 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.
 109, Adelaide St. W. - 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
Adelaide St. W. TORONTO.

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. Carroting 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
Suits and Trouserings.**

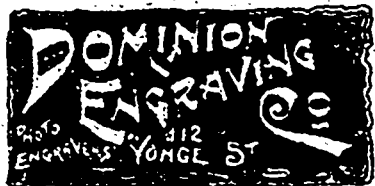
LEITCH & TURNBULL, Canada Elevator Works,
Queen and Peter Sts.,
HAMILTON, ONT. Patent Safety Hydraulic,
Hand and Power ELEVATORS.
.....Telephone Connection.

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.

PHENIX ASSURANCE COMPANY

OF LONDON, ENGLAND.

ESTABLISHED 1782.
AGENCY ESTABLISHED IN CANADA, 1804.

PATERSON & SON,

GENERAL AGENTS FOR THE
DOMINION.

London and Lancashire Insurance Buildings,
184 St. James Street,

- - MONTREAL, QUE.

Agent at Toronto; - 20 Toronto Street.

**BELL
PIANOS and ORGANS**

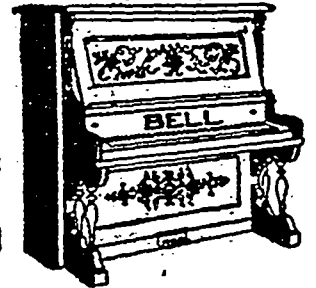
BUILT TO LAST A LIFETIME
AND USED THE WORLD OVER

Send for Catalogue No. 37 to

THE BELL ORGAN AND PIANO CO., LIMITED

GUELPH. - - ONTARIO.

LARGEST MAKERS IN CANADA.



**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 Sargent'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

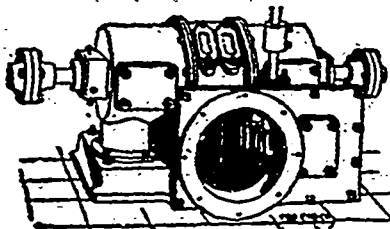
Ten Highest Awards Columbian Exposition, 1893

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.

Catalogues and Gear List mailed on application.

Correspondence Solicited.

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

ROLLED THREAD MACHINE SCREWS

Equal
to CUT
THREAD



COST LESS.

HARVEY HUBBELL, BRIDGEPORT, CONN.

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 substance, 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., 15 PEARL ST. BOSTON.**

PATENTS PROMPTLY SECURED

Marion & Marion, MONTREAL and WASHINGTON
ENGINEERS AND EXPERTS.

Write for "Inventor's Help"—FREE.

KEYSTONE BRAND
One found will do more and better work than two or three gallons of any other lubricating oil on the market.

**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.

REDUCTION OF EXPENSES
ECONOMICAL
BETTER SERVICE

THE UNITED ELECTRIC CO. Limited.

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.

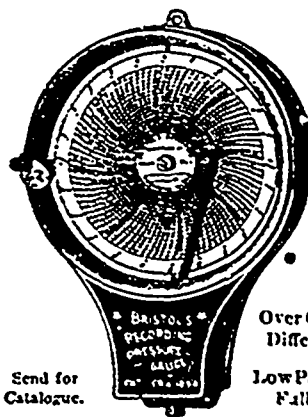
Head Office, - **134 KING ST. W., TORONTO, ONT.**

CANADA LUBRICATING CO.,
80 Confederation Life Building,
TORONTO, CAN.

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 Recording Instruments



Send for Catalogue.

For
**Pressure,
Temperature and
Electricity.**

Over One Hundred Different Varieties.
Low Prices and Fully Guaranteed

THE BRISTOL CO.
WATERBURY, CONN., U.S.A.

SMITH'S FALLS Malleable Iron Works
00000
CAPACITY 2,000 TONS.
00000
WILLIAM H. FROST
PROPRIETOR,
SMITH'S FALLS.
ONTARIO, CANADA.

CARRIER, LAINE & CO.
LEVIS, P.Q.

ENGINEERS, FOUNDERS, MACHINISTS,
BOILER MAKERS AND
GENERAL CONTRACTORS

Montreal Branch....
147 St. James St.
Quebec Branch....
283 St. Joseph St.

LAURENCE LEATHEN BRAND
ASK
US
FOR
PRISES.
DEMONSTRATION