

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	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ROYAL OIL CO.,

TORONTO
and
MONTREAL

CYLINDER
DYNAMO
ENGINE

OILS

also Extra Fine Quality Involving Oiling
MONTREAL, ONT. Telephone 1100

1897
1898
1899
1900
A. D. JARVILLE & CO.
MACHINE SHEDS
MONTREAL, ONT.
MACHINISTS' TAPS
SEND FOR CATALOGUE.

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

MANUFACTURE THAT PROSPERS

VOL. 40.

TORONTO, MAY 18, 1900.

No. 10.

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 Sole Manufacturers.

286-287 West St., New York
Montreal Office:
524 Board of Trade Bldg.
Chicago Office—Fisher
Bldg., 281 Dearborn St.
London Office—49 Queen
Victoria St., E.C.
Cleveland, 133 Water St.
Atlanta, Ga. - 421 Austell
Building.

Magnolia Metal is still selling at the same price it has always sold at—No advance.

ANILINE LIZARINES

DOMINION DYEWOOD & CHEMICAL CO.
TRADE MARK
TORONTO

PRODUCTS OF
Die Farbenfabriken vorm. F. Bayer & Co.

DOMINION DYEWOOD & CHEMICAL CO.
SOLE AGENTS FOR CANADA TORONTO.

Tested over 40 Years.

"QUEEN'S HEAD" Galvanized Iron.

JOHN LYSAGHT, Limited,
MAKERS,
BRISTOL.

A. C. LESLIE & CO.,
MONTREAL,
Canadian Sales Agents.

"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 workman-hip.

Elevators

The Fensom Elevator Works...
52, 54, 56 Duke Street, Toronto, Ont.

RUBBER GOODS OF ALL KINDS.

THE GUTAPERCHA & RUBBER MFG CO.
TRADE MARK
OF TORONTO.

61 and 63 FRONT ST. WEST, TORONTO.

THE...
Walkerville Malleable Iron Co., (Limited)
Manufacturers of.
REFINED AIR FURNACE Malleable Castings

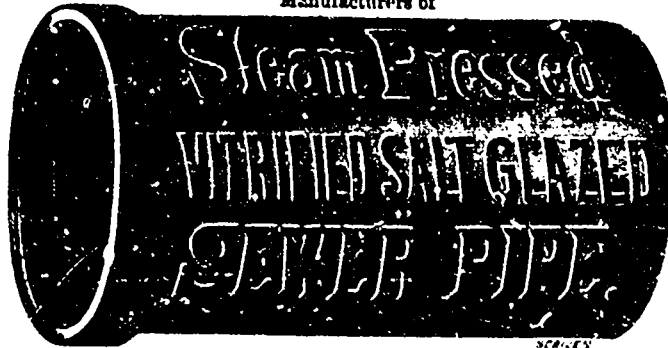
ALSO LIGHT GREY IRON CASTINGS.

WALKERVILLE, ONTARIO.

PATENTS Fetherstonhaugh & Co.

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, Sec'y-Treas.

Works, **SHALLOW LAKE, Ont.**

Head Office, **OWEN SOUND, Ont.**

Engine Packing,

Magnesia Pipe Covering

Lubricating Oils and Grease.

The **WILLIAM G. WILSON CO.,**

LIMITED.

24 Front Street East,

TORONTO, ONTARIO.

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 Cono.

Yarns of all kinds for Manufacturers' use.

Twines, Lampwicks, Webbing, Etc.

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

CANADA IRON FURNACE CO., LIMITED

Montreal, Radnor and Three Rivers

Manufacturers of the well-known

"**C.I.F.**" Three Rivers Charcoal Fig Iron

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

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

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

MONTREAL PIPE FOUNDRY CO...

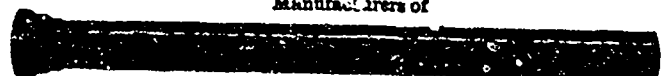
SUCCESSORS TO

(Limited)

DRUMMOND-McCALL PIPE FOUNDRY CO.

Manufacturers of

(Limited)



"Specials," Hydrants, Valves, Etc.

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

AN ENGINE that runs smoothly with good regulation, and uses the least fuel per H. P. and keeps in repair longest, is the Engine manufacturers' desire. No Engine can fill these requirements better than the **WHEELOCK and IDEAL ENGINES** built by **The Goldie & McCulloch Co., Limited, Gait, Ont.**

We also make GAS AND GASOLINE ENGINES, BOILERS, PUMPS, WATER WHEELS, FLOUR MILL MACHINERY, OATMEAL MILL MACHINERY, OATMEAL STEAM PAN KILNS, WOOD WORKING 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, wool stocks, leather and tanners' oils, fuel gas, machinery, cylinder oils, &c. And solicit opportunity to compete against any oil on the market. Write for prices and samples.

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

Merchandising Branches at:

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

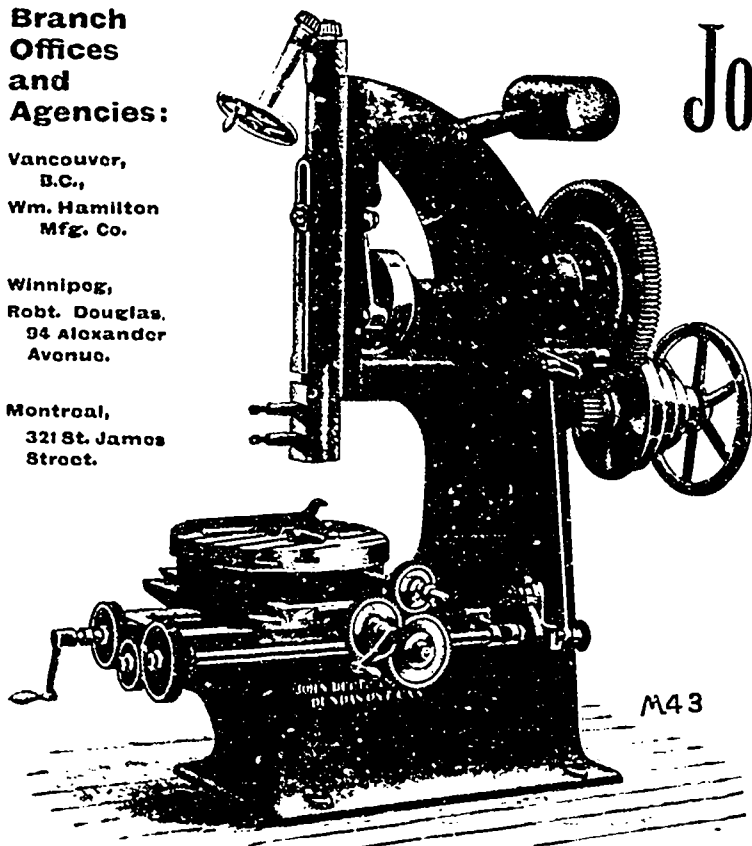
Canada Tool Works

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 6 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

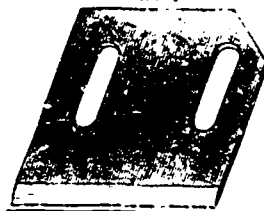
GALT Machine Knife Works

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, GIRDERS, CHANNELS, ANGLES, TEES, Z BARS and PLATES**

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

ALWAYS ON HAND

IN LENGTHS TO THIRTY-FIVE FEET.

Post Office Address,
MONTREAL,

GEORGE E. EVANS,

Agent, 38 Canada Life Building,
TORONTO, ONT.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



TRADE MARK.

WINN &
HOLLAND,
MONTREAL,
SOLE
AGENTS FOR CANADA.

BRUNNER MOND & CO.'S

Pure Alkali,
Bleaching Powder,
Caustic Soda, ALL STRENGTHS.
Bicarbonate of Soda,
Concentrated Sal Soda,
Soda Crystals.

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



BUTTERFIELD & CO.
BICYCLE SCREW PLATE
WITH 22 BICYCLE TAPER TAPS.
14 DIES INCLUDING TAP WRENCH DIES.

STOCK 12 IN. LONG

CHEAPEST AND BEST

Bicycle Screw Plate

14 PAIRS DIES—22 TAPS

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

BUTTERFIELD & CO.

Rock Island, P.Q.

If your Dealer Does not Keep Them Send to Us.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ALBERT MANUFACTURING CO.

MANUFACTURERS OF THE
WELL-KNOWN

"HAMMER BRAND"

Calcined Plaster

AND

Patent Rock Wall Plaster

HILLSBOROUGH, N. B.,
CANADA.

KEMP MNFG. CO.

TORONTO.

Galvanizing

DONE FOR THE TRADE.

GET OUR PRICES.



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

Address:

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

BROWN & CO.

Manufacturers of

Square and Hexagon

HOT PRESSED NUTS.

PARIS, - ONT.



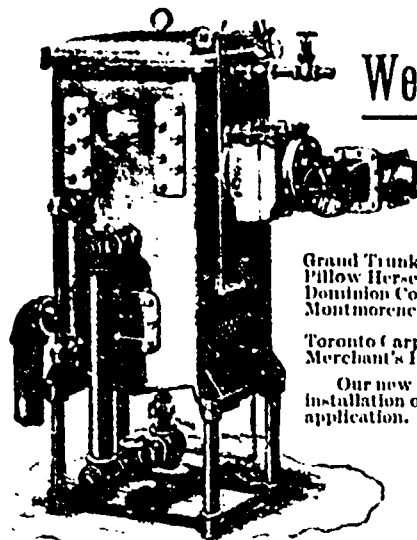
Send for Catalogue and Price
List to



Mfrs. of Set, Cap and Special
Screws, Studs, Flnt-hed Nuts, &c.



Advertise in **The Canadian Manufacturer**



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 Hersey Mfg. Co., Montreal	(1)	1000 "
Dominion Colton Mills Co., Montreal	(5)	200 "
Montmorency Cotton Mills,		
Montmorency, Que	(1)	200 "
Toronto Carpet Co., Toronto, Ont	(1)	100 "
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.

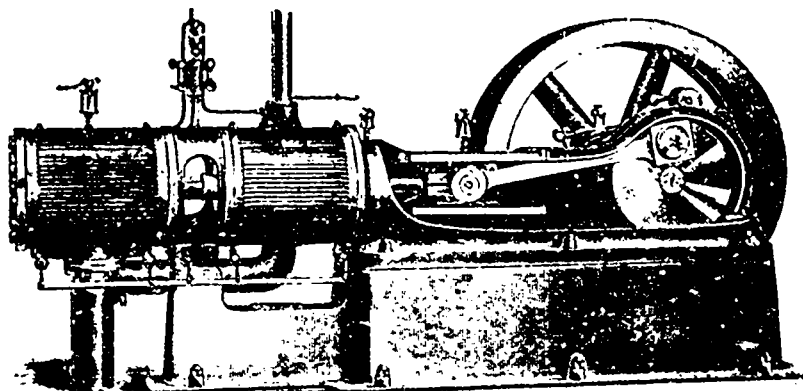
A. KLIPSTEIN & CO. 122 Pearl St. New York

Anilines, Dyestuffs & Chemicals

DELIVERY MADE AT NEW YORK, MONTREAL OR HAMILTON.

WRIGHT & DALLYN, HAMILTON, ONT.

AGENTS,



OUR ENGINES ARE USED IN

England,

Spain,

Isle of Man,

Brazil,

Australia,

Cuba,

British Guiana,

Newfoundland,

AND ALL PARTS OF CANADA.

Robb Engineering Co., Ltd., Amherst, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CANADIAN RUBBER CO.,

OF MONTREAL,

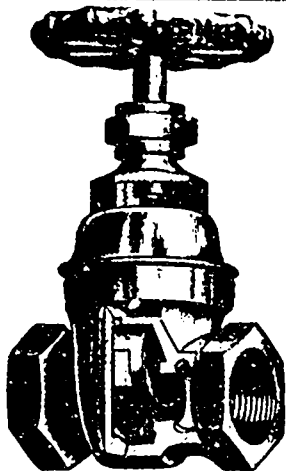
Manufacturers of High-Grade Rubber Goods
of all Descriptions.



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.



The WEBBER Patent
STRAITWAY VALVE

For
...Steam, Water or Gas..

EVERY VALVE TESTED.

The Kerr Engine Co., Limited
WALKERVILLE, ONT.

Sole Manufacturers for Canada. Send for
Price List.

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 OAKY & SONS, LIMITED,** Wellington Mill,
Westminster Bridge Road, London, Eng.

Inquiries should be addressed to
JOHN FORMAN, 650 CRAIG ST., MONTREAL.

ABSOLUTELY ACCURATE

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

METERS

Current
Completely
Registered

No
Current
Lost

Entire
Revenue
Secured

No Friction

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.

Advertise in THE CANADIAN MANUFACTURER—Send for Rates.



REFLECTORS, SHADES, LAMPS

We Stock a Large Variety of SHADES
and REFLECTORS in

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

Imperial Lamps and Helios Upton Enclosed Arcs Give **BEST LIGHT** with **LEAST CURRENT**
ELBRIDGE Sparking Dynamos, SAMSON Batteries and IMPERIAL Salts, for Gas or Oil Engines.

Write us about Lighting
your Factory or Office.

JOHN FORMAN, 708 and 710 Craig St., MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



ESTABLISHED IN 1880.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

SUBSCRIPTIONS:

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

The Canadian Manufacturer Publishing Co., Limited.

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

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

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.

THE ALGOMA CENTRAL RAILWAY GRANT.

The session of the Provincial Legislature which closed on April 30th, will be remembered as a noteworthy occasion in relation to the industrial development of Ontario by reason of the substantial progress made in carrying out the promises with which Hon. G. W. Ross took office. It is greatly to the credit of his administration that on the first opportunity which presented itself, they set to work energetically to redeem their pledges by encouraging the opening up of New Ontario, and the exploitation of our natural wealth, insisting in every case on enforcing the principle for which THE CANADIAN MANUFACTURER has for many years been contending, of the manufacture of the raw material within the country. The only regrettable feature of the case is that the representatives of the Conservative party in the Legislature should have allowed a spirit of factious opposition to prevail, and should have belied the professions and the record of their party in making a futile endeavor to obstruct the good work.

The greatest and most important step in advance achieved by the government was the particularly advantageous agreement made with the Algoma Central Railway Co., and the other interests controlled by Mr. Clergue, of Sault Ste. Marie, by which, in return for a grant of some 1,500,000 acres of land, at present unsettled and inaccessible, the company undertake to build a line of railway about 200 miles in length connecting the Sault with the C. P. R. and Michipicoton; to largely increase their manufacturing enterprises at the Sault and elsewhere, and in addition to locate one thousand male settlers on the land every year for a term of ten years. The company bind themselves to develop water power at Sault Ste. Marie to the extent of at least 40,000 horse power in addition to that already in operation. The canal for the purpose is to be begun within sixty days from the passing of the Act, and to be completed within three years. Smelting or reduction works are to be commenced within sixty days and completed within two years, having a capacity for handling 300 tons of ore daily, and within the same time chemical works are to be begun and finished requiring 5,000 horse power for their operation. An additional pulp mill is also to be

completed within one year having a capacity for handling fifty tons of pulp daily. So far as the conditions respecting the construction of the railway and the establishment of these various enterprises are concerned, it is provided that any failure to comply with them involves a forfeiture of the land grant whether the patents have been issued or not.

The land is to be granted in alternate blocks containing as nearly as may be 148,000 acres each, the rights of those who may have already settled upon or purchased lands being respected, and an equal acreage given to the company elsewhere. The grant includes minerals and pine timber, but all nickel and copper must be subject to the conditions of the general law as to the treating and refining of the ore in Canada, and the pine timber is to be paid for at the same rate as that on the reserved adjoining blocks fetched at auction in addition to the regular Crown dues. On the request of the Commissioner of Crown Lands the railway company must build a station in the centre of each block of land, including the reserved blocks, and survey a town plot in the neighborhood of each station in the company's blocks. They are also bound as soon as the Government shall declare it to be necessary, to build school-houses and public halls sufficient for the requirements of a population of 500. Immigration offices in Toronto and Great Britain are to be established by the company, who are to maintain a line of not less than four steel steamships between Michipicoton and Sault Ste. Marie, each vessel to be of a tonnage of not less than 2,000 tons. The rates for passenger and freight traffic on the railway are to be subject to approval by the Governor-in-Council.

From the above summary of the conditions imposed in the Act it will be seen that the public interest has been thoroughly safeguarded in every particular. The agreement compares most favorably with any contract hitherto made by which public land has been granted to railroad corporations as a means of opening up new districts and promoting settlement. Instead of providing merely for the building of the road, it ensures the establishment of extensive and important industries by which employment and a market for the sale of their produce will be afforded to incoming settlers, and gives the companies a powerful incentive to push the work of colonization in order to obtain the labor they will permanently require to keep these enterprises in operation. But the best guarantee which the public can have that the stipulations will be faithfully carried out is the wonderful record which Mr. Clergue and his associates have already made in the development of Sault Ste. Marie as a manufacturing centre. What they have accomplished in the course of a few years past is an earnest of the great developments which have been made possible by the wise and judicious liberality of the Government. It is only because Mr. Clergue has already large interests at the Sault and has embarked so heavily in varied industrial enterprises which require increasing supplies of raw material, that he can afford to undertake the construction of the Algoma road on such conditions. Only the blindness of partizan prejudice, and the mistaken idea that by opposing everything the Government undertakes they can somehow gain political capital, could have induced a party which formerly made the development of home industry the leading plank in their platform to offer the violent and unreasonable objections to this agreement made by Mr. Whitney and his followers.

There are some who consistently protest against any alienation of the public land to corporations to enable them to construct railways, on the ground that it is the proper function of the state to build, own and operate the railways themselves. While there may be a good deal to be said for such a proposition, public opinion in this country has never been sufficiently pronounced in favor of such an entire change of system as to bring it within the scope of practical politics, and until that time arrives, it is generally conceded that it is advisable to extend a reasonable amount of aid in the form of money or land grants to railways built to open up new regions. During the debate on the question, Mr. Whitney was repeatedly challenged to take the position that he was opposed to all grants to railways, but refused to do so.

Had nothing more than the building of the road been stipulated for, the Government would have been amply justified by the accepted practice of both parties and the needs of that portion of the Province in making the grant, and no Conservative could have consistently opposed it. But when in addition, men who have given the most abundant guarantees of their enterprise and the power to carry out their undertakings, bind themselves to promote settlement, to provide employment, and to expend the vast amounts of capital so necessary for the prosperity of a new country, it is difficult to understand how such a measure can fail to command the warm approval of all believers in progress and industrial expansion.

GREAT CONVENTION OF MANUFACTURERS.

Mr. J. P. Murray, Chairman of the Trade and Industry Committee of the Canadian Manufacturers' Association, has sent out a draft of the announcement of the proposed convention of manufacturers to be held under the auspices of the Association next fall. It is as follows:—

No. 1.—The Canadian Manufacturers' Association intend organizing a convention of manufacturers to be held in Toronto early in September, to which you are invited to give attention, and for which you are asked now to prepare. The convention will be held in the most densely populated industrial centre in Canada. It will be a co-operation of several organizations of manufacturers. It will be a memorable occasion in the history of Canada, in being the largest gathering of its kind and importance, being composed of the greatest number of employers of craftsmen and artisans, representing millions of capital invested in industrial enterprises and producers of nearly all that goes to make the freight of the railways.

No. 2.—It is intended to review what has been done in past years and so organize and plan for the future development of Canadian industry as to enable each and every manufacturer to know how and where he can sell his wares, the best methods of delivering them, and the simplest manner of being paid.

No. 3.—Every manufacturer should attend this meeting. The mere association with so many leading manufacturers will well repay the time and expense of such a trip.

You, Sir! Will meet the leading manufacturers in your industry, and if it is not already organized with an association should at once move in this direction.

Note.—This convention will be wholly without political significance and it is a purely business occasion of the utmost importance to all Canadian manufacturers.

No. 4.—You are asked to discern the points in foreign productions in your industry wherein they excel those of Canadian manufacture, and consider the best methods of meeting and overcoming them.

And at the same time demonstrate wherein the Canadian production has its strong points over the foreign.

No. 5.—A report is asked from each manufacturer as to the effect on his industry of alterations in the tariff. This information is important, as legislation which may be sought for, will be based on it.

No. 6.—The Department of Railways and Canals having intimated that rulings of the Canadian Manufacturers' Association on inland freight rates will be accepted on the basis of adjustment, reliable information as to their relation to your industry should be sent to the Secretary.

No. 7.—Any measure which you think would further the industry in which you are engaged, and would be well to discuss, should be formulated and sent to the Secretary.

No. 8.—The Convention will be called to order on the morning of the first day. Business meetings will be held every morning and afternoon by the various allied trades and industries. The second evening a monster meeting will be held, at which important measures affecting the trade and commerce of Canada will be reviewed. The third afternoon, the Annual Meeting, President's Address, Election of Officers and Committees. The third evening a grand banquet to close the Convention.

No. 9.—The various trade associations are asked now to immediately prepare subjects which are to be discussed, relating to their industry, and if special papers are to be read, the subject and lecturer chosen should be communicated to the Secretary as soon as possible.

No. 10.—As only four months is all the time to organize and prepare for this great and important convention, each individual manufacturer is requested to give attention now to the part he intends to take.

Allied manufacturers in associations are also requested to move at once and formulate their programmes.

The Association has sent out to its members the following suggestions regarding this great convention of manufacturers.

The Reception Committee should be notified of the intended gathering.

Mining, Electricity, important leaders of Government, Law, Banking, Railways and Education should be asked to attend.

The Railway and Transportation Committee should make arrangements early for special fares from all parts of Canada and return, good for ten days.

Members of the Association coming from any town should strive to come in a body with a special car and conductor.

The first evening an entertainment in the way of theatre, smoker, or light entertainment.

The various Trades Associations should be asked at once to arrange for subjects which are to be discussed in their line, and if special papers are to be read, the subject and lecturer chosen should have name sent in to the Secretary of the Association.

DISSATISFACTION WITH FREIGHT CLASSIFICATION.

In order to obtain facts which will exemplify the existing general dissatisfaction with classification in railway freights, the Canadian Manufacturers' Association have sent out a circular to its members in which certain questions are formulated, and to which immediate consideration is requested and replies returned. The questions are as follows:—

- 1st.—Have you any complaints respecting the classification of your goods?
- 2nd.—Have you any complaints respecting unfair discrimination in rates between different points?
- 3rd.—Have you any complaint respecting "Owner's Risk" regulations as per classification No. 11?
- 4th.—Have you any other remarks to make respecting the transportation problem?
- 5th.—Are you injured in competition by better rates being extended to foreign manufacturers?
- 6th.—Do you find the rates to the extreme Eastern and Western Provinces detrimental to your business, directly or indirectly?

SIR CHARLES AND THE NATIONAL POLICY.

One of the most remarkable acts of political tergiversation that ever came to our notice was that of Sir Charles Tupper in the House of Commons when he requested the Laurier Government to take power, and to enforce it immediately, to place printing paper upon the free list until such time as some of the recently destroyed Canadian paper mills might be rebuilt, and also to allow all newspapers free transmission through the mails. Preparatory to this remarkable move on the part of the great champion and one of the fathers of the National Policy, a meeting was held in Ottawa composed of newspaper proprietors and publishers, to consider the best means of obtaining relief from the present difficulty in obtaining paper as a result of the destruction of the mills of the E. B. Eddy Co., and the Laurentide Paper and Pulp Co. The gentlemen participating represented both sides of politics, the discussion going to show that there was a combination among the paper makers, a feature of the relief to be asked for being that newspapers might have free transmission through the mails.

Just previous to this Ottawa meeting a hole and corner meeting of the Toronto Press Association, so-called, was held in Toronto at which a committee was appointed to wait on the Government regarding the postal tax, and urge that something be done in the line of the following resolutions which were passed:—

"Resolved. That in view of the unfairness of the zone system in the present law, and of the great rise in the price of paper, we appeal to the Postmaster-General to recommend the Government to remove the postage from newspapers and periodicals."

"Resolved. In view of the great rise in paper prices, and in view of the scarcity of paper, resulting from the destruction of some mills, the Government be asked to request Parliament to pass an Act empowering the Governor-in-Council to temporarily suspend or reduce the duty on news and printing paper under such conditions as may be deemed advisable."

The plea advanced by Sir Charles was based upon the ideas expressed at these meetings; and in our opinion, if it were

not believed that a general election was to be held in the near future, the country would not have been treated to the spectacle of the great champion of tariff protection with some of his followers joining in with their political opponents in asking that the tap roots of protection be severed merely to serve a necessity that does not exist to the extent indicated, and which is now already fast disappearing. Why should Sir Charles ask to have the duty upon printing paper removed? It has always been a plank in his platform, that to enable the building up of the paper industry in Canada a duty should be imposed upon the article. Under that theory a vast industry is being developed, and now the Government are requested to injure and retard its growth because a scarcity of paper exists; and the Government are also requested to allow newspapers free transportation through the mails, an idea as absurd as it would be to ask that groceries and every other possible merchantable article should be transported in like manner.

We do not believe that the Government will entertain the proposition. We hope not.

**MEETING OF THE SHAREHOLDERS
OF THE
CANADIAN MANUFACTURER PUBLISHING CO., Limited.**

The Shareholders of the Canadian Manufacturer Publishing Co., Limited, are hereby notified that a General Meeting of the Company will be held on Monday, the 4th day of June, 1900, at the hour of 11 o'clock in the forenoon, at the Head Office of the Company, Room 408 McKinnon Building, corner Jordan and Melinda Streets, Toronto, for the purpose of receiving and considering a report from the Directors upon the affairs of the Company, to elect a Board of Directors for the ensuing year, and generally to consider other business of importance to the Company.

ARTA CASSIDY,
Secretary.

Dated at Toronto, this 18th day of May, A.D. 1900.

EDITORIAL NOTES.

We have received from Messrs. Pitt and Scott, 39 Broadway, New York, a prospectus setting forth plans regarding the establishment by them of an institution in London for the permanent exhibit of American manufactured products. The advantages of such an exhibit as this for manufacturers seeking export trade are apparent. The idea is that the space allotted to them in the building would practically amount to a branch office which they could advertise as a London address. A monthly bulletin will be issued by the exhibition managers, calling attention to new exhibits, and this will be circulated among the importing houses and buyers of Europe. The exhibition would have as its object the bringing of Foreign consumers into actual contact with American producers, while relieving the latter of all responsibility and reducing the expense to a merely nominal amount. It is intended to be permanent, and will be situated in the most central part of the city of London. We understand that after the establishment of the enterprise it is probable the advantages of it will be available to Canadian manufacturers also.

The Toronto Board of Trade delegation which was in Ottawa a few days ago brought a question before Mr. Fielding, which shows the remarkable grip which the Standard Oil Co. has on this country. Many manufacturers use fuel oil, but they are crippled by the refusal of the Standard Oil Co. to sell them crude oil and oil refuse. The Board of Trade are doing a good work in the interest of Canadian manufacturers.

Messrs. J. N. Morang, A. W. Thomas, J. M. Taylor and S. M. Wickett, all of Toronto, and Harrison Watson, Curator of the Canadian Section of the Imperial Institution of London, England, have been named to represent the Canadian Manufacturers' Association at the Congress of Chambers of Commerce of the Empire, which is to be held in London in June.

Foreign vessels entering United States ports with cargoes are of course of all nations. The comparison in numbers, however, according to nationality, is somewhat of an eye-opener. For instance, Germany furnished 653; France but 110; Norway, 931, and Italy, 127; Belgium, 113; Holland, 112; Portugal, 35; Spain, 37; Sweden, 12; Japan, 21; Austria, 53; Mexico, 2; Russia, 8; and Great Britain, 9,031. If any one is in doubt as to what country our commercial interests are the most closely interwoven, and which is really the dominant sea-power of the world, these figures of incoming loaded ships for a period of twelve months, ought to set their peradventures at rest. The figures include both steam and sailing vessels entered at the Custom Districts of the United States. These do not include vessels entering American ports in ballast. The total of American and foreign vessels, with cargoes and in ballast was 32,094. —The Age of Steel.

Several Toronto firms connected with the Press Association, at an emergency meeting held last week adopted the following resolutions:—"Resolved that in view of the unfairness of the zone system in the present law and of the great rise in the price of paper, that we appeal to the Postmaster-General to recommend the Government to remove the postage from newspapers and periodicals." "Resolved, in view of the great rise in paper prices, and in view of the scarcity of paper, resulting from the destruction of the mills, the Government be asked to request Parliament to pass an Act empowering the Governor-in-Council to temporarily suspend or reduce the duty on news and printing paper, under such conditions as may be deemed advisable." Messrs. W. J. Douglas, of the Mail and Empire; J. A. Cooper, of The Canadian Magazine; and D. T. McAlinsh, of the Westminster Publishing Company, were appointed a deputation to wait on the Government at Ottawa and press for action on the lines of the resolutions.

The Parliament of Canada is now considering a project to give newspaper publishers free transmission in the mails for their various publications. There is no valid reason why the owners of newspapers should enjoy any such immunity, and we do not believe any important publishers want such a free gift at the hands of the Government. Sir Charles Tupper is wrong in supporting such a measure, and the Government will be more wrong if it yields to clamor in this matter. —Montreal Star.

The Ontario Government have passed an Order-in-Council requiring tanbark cut on Crown Lands in Ontario to be consumed in the country. In other words, the exportation of tanbark cut upon the lands mentioned is prohibited. In taking this step the Government have adopted the policy urged upon them by the tanners of Ontario. These gentlemen waited upon the Provincial Cabinet some time ago and pressed for some measure that would restrict the shipment of tanbark from Ontario. They stated that the supply in the United States was limited compared with that in Ontario, and American tanners were supplying themselves from this Province and conserving their own resources. The run upon Ontario bark was therefore so great that it would exhaust the material in a short space of time unless a stop were put to the drain. Canadian tanners, it is argued, is superior to the raw material used by tanners in any other part of the world, and if preserved for the use of the manufacturers of this country will enable them to turn out more finished products. The Order-in-Council regarding tanbark is regarded as another step in the policy which the Ross Government have adopted looking to the manufacture of Ontario's raw materials in Canada. The list now consists of sawlogs, nickel, pulpwood and tanbark. The present Order-in-Council goes into effect on May 1, but does not affect tanbark cut on the lands of settlers.

President McKinley has been authorized to invite Great Britain to join in a commission, four from each Government, to consider the diversion of waters along the boundary of the United States and Canada. The inquiry is designed principally to ascertain the effect of the level of the great lakes caused by improvements at the Welland Canal, Sault Ste. Marie Canal, and the Chicago Drainage Canal.

The new 33½ per cent. protective tariff is threatening the woollens trade of Canada with something approaching extinction, and has caused a panic amongst the manufacturers. A large and influential deputation of the woolen manufacturers waited on Sir Wilfrid Laurier and Hon. W. S. Fielding a few days ago, pointing out that their living was seriously endangered by the change coming into force on Dominion Day, and asking that in order that they may be defended from the inroads of British competition, which includes a large amount of "made in Germany" goods, the duty be increased sufficiently to retain the same amount of protection as they now enjoy. The Ministers promised their serious consideration.

Mr. R. W. Elliot has written to Mr. W. E. H. Massey, with reference to a report which the latter recently presented to the Toronto Board of Trade on the question of electric power. Mr. Elliot advocates the liberal distribution of copies of the report, and supports the calculations and conclusions contained therein as to the cost of producing steam power and its relative value as compared with electricity for factory work. Mr. Elliot says:—"But when transportation and markets are studied out, then the great superiority of Toronto as a Canadian manufacturing point becomes fully apparent, and questions of differing costs of power sink out of sight. The city furnishes a market for more than one-third of our goods, and within a radius of one hundred and fifty miles places the greater part of the balance in the hands of consumers."

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.

WE DESIRE NAMES AND ADDRESSES:

Manufacturers of ash boat oars, in quantities.
Manufacturers of shop and other window blinds.
Manufacturers of refrigerators for family and store use.

Desire names and addresses of any one who wishes hides from Paraguay, dry salted for tanning.

Who make machinery for the manufacture of waterproof or celluloid goods.

Who produce machinery for cutting box boards out of slabs, and also machinery for making small hardwood handles, dowels, skewers, etc.

We have information, principally from buyers, that is valuable to manufacturers who desire to increase their trade in the British and foreign markets, that will be furnished on application. If you find any item in this list (which is changed overy issue), that you are interested in, write to us. If you see an item that does not interest you but would be of value to some friend, kindly inform him or us.

BRAZIL.

Patented Specialties.
Builders' Hardware.
Carpenters' Tools.
Machinists' Tools.
Cutlery.
Rope and Twine.
Blacksmith's Tools.
Wagon Material.

Pumps.
Kitchen Utensils.
Agricultural Machinery.
Floor Coverings.
Refrigerators.
Toys and Games.
Groceries.

CHILI.

Cutlery.
Bicycles.
Mattan Furniture.
Rubber Clothing.
Trunks and Traveling Requisites.
Watches.
Clocks.
Jewelry.
Patent Medicines.

Toilet Articles.
Notions.
Silverware.
Organs.
Toys and Games.
Sportsmen's Clothing.
Canned Goods.
Bottled Goods.
Confectionery.

CHINA.

Builder's Tools.
Carpenters' Tools.
Bicycles (2).
Paints, Oils, Varnish.
Blacksmiths' Tools.
Lamps.
Prints, Gingham, etc.
Sheetings, Shirtings, etc.
Blankets (2).
Counterpanes.
Clothing.
Watches.
Clocks.

Flour.
Confectionery.
Sole Leathers.
Upper Patent, Enameled and Fancy Leathers.
Pumping Machinery.
Farming Tools.
Planters and Seeders.
Drills.
White and Grey Shirtings.
Anything suitable for Chinese Market.

GERMANY.

Hams.
Pork Products.
Bacon.
Lard.
Canadian Pig Iron.

Bicycles.
Typewriters.
Sewing Machines.
Cottage Organs.
Pianos.

GREAT BRITAIN.

Paper, all kinds. (2)
Wood Pulp, Chemical and Mechanical.
Pine Doors.
Oak Timber.
Watches, Cases and Works.
Clothes Pins.
Household Utensils.
Wood and Zinc Washboards.
Canned Goods (2).
Bottled Goods (2).
Wooden and Willow Ware.
Dried Fruits.
Coffee, Rice and Sugar Machinery.
Agricultural Implements.
Dairy Supplies.
Wrapping Paper.
Writing Paper and Envelopes.
Hams.
Pork.

Lard.
Butter.
Cheese.
Drugs.
Patent Medicines.
Heavy Chemicals.
Acids.
Lumber.
Ash and Hickory Handles.
Electrical Apparatus.
Plumbers' Materials.
Woodworking Machinery.
Metal working Machinery.
Pumps.
Asbestos Goods.
Beans.
Peas.
Buckwheat.

INDIA.

Household Hardware.
Cutlery.
Bicycles.
Rope and Twine.
Blasting Powder.
Row boats.
Stoves and Ranges.
Optical Goods.
Sporting Goods.
Toys and Games.
Hardware, Shell and Heavy.
Factory Supplies.
Refrigerators.

Metal Bedsteads.
Office Furniture and Safes.
Agricultural Implements.
Machinery, Hand and Power.
Trunks and Travelling Requisites.
Stoves and Ranges.
Paper (all kinds).
Bicycles.
Chemicals.
Arms and Ammunition.
Cotton Piece Goods.
Cut and Plug Tobacco.

JAPAN.

Surveyors' Instruments.
Mining Machinery.
Band Saw Mills.
Valves, Pipes and Fittings.
Pumping Machinery.
Gang Saw Mills.
Circular Saw Mills.
Wire Rope.
Cotton Yarns.
Cotton Piece Goods.

Iron Nails.
Sewing Machines, Hand & Treadle.
Paper (all kind-).
Bicycles.
Textiles.
Watches.
Clocks.
Steam Engines and Boilers.
Electric Machinery.
Textile Machinery.

JAVA.

Household Hardware.
Bicycles.
Ropes and Twine.
Electrical Instruments.
Metal Bedsteads.
Boots and Shoes.
Umbrellas and Canes.
Trunks and Satchels.

Clocks.
Jewelry.
Organs.
Musical Instruments.
Writing Paper and Envelopes.
Hams.
Bacon.
Lard.

SOUTH AFRICA.

School Furniture.
Household Hardware.
Plows and Cultivators.
Light Business Wagons.
Children's Vehicles.
Kitchen Utensils.
Enameled Ware.
Refrigerator.
Hardwood Furniture.
Silverware.
Toys and Games (2).
Groceries.

Confectionery.
Patent Medicines (all kind-).
Bicycles.
Lumber.
House Furnishings.
Furniture.
Sole Leather.
Food Products.
Jewelry.
Paper.
Toilet Articles.
Upper and Fancy Leather.

STRAITS SETTLEMENTS.

Lard in Tins.
Cotton Duck for Shoes.

Leather.
Shirting and Drills.

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

If You want Information, Ask for It.

Address, THE CANADIAN MANUFACTURER, Toronto, Canada.

The Canadian Manufacturers' Association has decided to issue an edition of a "Canadian Trade Index," including a classified directory of its members, intended to be distributed free of cost to enquiring buyers, to all delegates at the Fourth Congress of British Chambers of Commerce which meets in London next month, and at the Paris Exhibition. It will contain an alphabetical index of members and the articles manufactured by them; a classified list of articles manufactured and the names of the makers of each, and displayed business cards of those who may desire to have them.

The Boston Herald's view of the situation might lead Canada to hope for more equitable trade relations with the United States, if more of the large centers of population in the Republic were situated as Boston is. A more general feeling of anxiety to obtain our trade would prevail in the United States if it were not for the density of popular ignorance with regard to the immense amount of goods we purchase. Canada's trade is worth more to the United States, as proven by statistics, than the whole trade of Latin America, the West India Islands and the Philippines thrown in. Yet Uncle Sam has spent millions of dollars in acquiring possession of Cuba, Porto Rico, and the Philippines—for the latter adding twenty millions of dollars as a cash payment to Spain. Canadians who understand the situation naturally marvel that all the millions of money and these thousands of lives should be spent for the capture of business which is but a small fraction of Canada's trade with the United States. While fighting with the bitterness of hereditary enemies its next neighbor, which is such a good customer and is willing to deal with the United States on any sort of an equitable basis, to keep us from selling them our goods, even while buying so much from them, yet it fought Spain to get business—it is idle to put the late war on a merely humanitarian basis. Moreover, the United States has more Consuls and Vice-Consuls and agents in Canada to facilitate trade than it has in all Latin America and the newly-acquired islands combined. If somebody could only take a sledgehammer and pound these facts into the heads of our neighbors, who are not as well posted as the Boston Herald, we might hope some day to see a different policy pursued at Washington. However, as the Boston Herald admits, Canada has found great markets elsewhere, and we are not in the slightest degree dependent upon those who, with a few exceptions, are continually belittling this country and showing

more spite towards us than they do to rotten little South American republics that give them less than a million dollars a year, while we give them ninety millions.—Toronto Saturday Night.

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.

229. A Scotch firm desire to be placed in touch with the best buyers in Canada of iron and steel plates, bars, angles, etc., for shipbuilding and engineering purposes; also with users of firebricks and fireclay.

230. A firm doing a large business in cattle bones, hoofs, oils, hair and other animal products, are open to buy further supplies from Canada, and desire to be placed in communication with exporters.

231. A timber house who are buyers of large quantities of mouldings and ready made sashes and frames, which might be worked from white pine, red pine or bass wood, desire to correspond with large makers in Canada.

232. A north of England firm manufacturers of sheet lead, water and gas pipes, enquire for large producers of Canadian pig lead.

233. A Canadian firm manufacturing vehicle wheels, desire to correspond with a responsible firm of brokers handling carriages and wagon wheels.

234. A correspondent in Toronto desires to obtain information concerning a new metal called "Albradium" and would like to correspond with the manufacturers.

235. A gentleman having a mica property and who is also interested in an extensive deposit of the oxide of iron in the same district, desires to correspond with parties interested in these minerals as well as molybdenite.

236. A Midland firm manufacturing hampers and baskets in all varieties, is prepared to appoint as Canadian resident agents a first-class house possessing a good connection.

237. A Manchester house dealing largely in organs would like to hear from Canadian manufacturers not already represented in the United Kingdom.

238. A correspondent in Malta asks for names of Canadian makers of good quality jams, for which he considers there is a good opening locally.

239. A firm of importers open to purchase 8,000 to 10,000 fathoms Canadian pulp wood (poplar and spruce) wishes to hear from Canadian shippers who can fill orders.

Transfer Ornaments,

AMERICAN MADE.

Guaranteed Quality.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

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

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

THE MEYERCORD CO., Inc., 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 on these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

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

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

Thos. Down & Co., of Toronto, have patented and put on the market an improved chemical fire engine, which is attracting considerable attention. Hamilton has already bought one. Port Arthur is figuring on one, and several other cities in Canada are considering the question of adding chemicals to their present apparatus.

The Buffalo Forge Co. have sent out a circular having reference to "A False Rumor," which explains itself as follows: To our customers and the trade in general, we desire to say that the statements and reports that the Buffalo Forge Co. is owned and controlled by competitors in Boston, Detroit and elsewhere, who have consolidated their interests, is incorrect. The Buffalo Forge Co. is not interested in any combine, and is owned and controlled solely by William F. Wendt and Henry W. Wendt, doing business under the firm name of the Buffalo Forge Co., at Buffalo, Chicago and New York City. Neither member of the concern owns or controls any stock in any other company manufacturing fan system heating, ventilating and drying apparatus, engines, blowers, etc.

The acquisition of the St. Lawrence foundry plant and buildings in Toronto by the Canada Foundry Co., has created considerable discussion in railway and commercial circles, as the formation of the company has been taken to mean that the interests of the several large corporations, all connected with the iron industry, are to be pooled. The foundries as they will be reconstructed by the new company will form an important addition to the city's industries, for, in ad-

dition to the business which has been carried on by the St. Lawrence foundry, the members of the company contemplate manufacturing railway castings and supplies, as well as water works supplies and architectural and ornamental iron work. Plans are now being prepared for a plant for the production of lead pipe, and this alone is expected to employ a large number of men. Mr. H. S. Holt, the president of the Montreal Gas Co., is on the directorate of the Canada Foundry Co. The representatives of companies which are largest users of iron products are also prominent in the list of directors, among them being Sir William C. Vanhorne, Mr. William Hendry, of Hamilton, the president of the Hamilton Bridge Co.; Mr. E. B. Osler, M.P., and Mr. W. D. Matthews.

The Electrical Construction Co., London, Ont., has received an order from the Erie Iron Works Co., St. Thomas, Ont., for a twelve h.p. motor.

At the present time the new felt mills department of the Perth Woolen Mills Co., at Perth, Ont., are full of orders on tailors' padding felt, shoe linings, padding for refrigerator cars, etc. The lines of goods produced in these mills embrace all grades and qualities of the article.

The Electrical Construction Co., London, Ont., has supplied the Record Printing Co., Windsor, Ont., with a forty-light multipolar dynamo.

The Raney Specialty Mfg. Co., Kingston, Ont., has ordered three motors from the Electrical Construction Co., London, Ont.

The Farnham Brewing Co., Farnham, Que., has applied for incorporation with a capital stock of \$15,000, to acquire the business now carried on by the Farnham Brewing Co. The applicants include J. E. Mullen, Montreal; H. C. Wilson, Farnham, Que., and I. B. Bishop, Newport, Vt.

The Windsor Electric Co., Windsor Mills, Que., has applied for incorporation with a capital stock of \$24,000, to erect manufacturing factories to generate electricity, etc. The applicants include J. A. E. McCabe, J. A. Begin, both of Windsor Mills, Que., and H. A. Meagher, Montreal.

A fire occurred in the works of the Laurentide Pulp and Paper Mills at Grand Mere, Que., on May 6th, which did not extend beyond the mechanical pulp-grinding mill and some smaller structures, the total loss aggregating about \$80,000. The new and very expensive works of the company were not injured. The entire works were expected to be again in operation by May 19th.

The Cling-Surface Mfg. Co., Buffalo, N.Y., are in receipt of a letter from the superintendent and engineer of the John Hancock Building, Boston, Mass., having reference to Cling-Surface, in which they say: We have been using Cling-Surface for seven months, and are now running our dynamo and other belts slack. We take pleasure in saying that Cling-Surface is giving the best of satisfaction.

The Canada Asphalt Paving Co., Montreal, has been incorporated with a capital stock of \$50,000. The incorporators include R. L. Dillon and A. P. Dillon, of Montreal, and J. A. Pearson and J. H. Denton, of Toronto.

Messrs. D. McLean and E. Gunderson are erecting a 250-barrel flour mill at Moose Jaw, N.W.T. They will receive a cash bonus of \$6,000.

The boiler in the flour mill of James McQuibban, at Harriston, Ont., exploded April 7, wrecking the engine room and seriously damaging the mill.

The Canada Envelope Co., Montreal, has been incorporated to manufacture envelope, tag and ruling machinery. The officers are: G. C. Wilcocks, president, R. W. Elliot, vice-president; L. Wilcocks, secretary treasurer, all of Montreal.

Messrs. Dunlop Bros., Kintore, Ont., are erecting an addition to their saw mill, which they will use for the manufacture of cheese boxes.

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.C.

RAT PORTAGE, ONT.

HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Dowd Milling Co., Quyon, Que., has been incorporated with a capital stock of \$1,000,000, to build flour, oatmeal mills, etc. The charter members include H. S. Dowd, Quyon, Que.; J. A. Cameron, Dominionville, Que., and Henry Sayer, Aylmer, Que.

The North River Lumber & Pulp Co., Montreal, has been incorporated with a capital stock of \$50,000, to manufacture pulp, paper, etc. The incorporators include C. R. Burleigh, Whitehall, N.Y.; W. J. Henderson and G. W. Macdougall, both of Montreal.

A number of members of the Spanish River Pulp & Paper Co., whose concession of pulp lands was recently ratified by the Legislature, were in Toronto recently, including Messrs. Angus Macleod, Bracco-bridge; Chas. McCoolle, Geneva Lake; and M. J. Dodge, New York. Mr. Macleod, in speaking of the company's intentions, said it was proposed to begin work at once on the company's lands near Webbwood. Whether or not the pulp mill would be located at Webbwood or at the falls, some four miles up the Spanish River from Webbwood, was a matter still under consideration. Engineers had recently been on the ground making surveys and water-power calculations. It is understood that a fall of sixty feet will be secured, which will develop 20,000 h.p. As rapidly as possible the work will be proceeded with during the summer and fall, and it is expected that at least a portion of the mill will be ready for operation in a year from now, when the spring "drives" of logs commences.

The Pacific Coast Lumber Co., New Westminster, B.C., has received a grant of land from the Canadian Pacific Railway at Vancouver, on which it will erect a very large lumber mill plant. It will be on the water front and easily accessible to the largest ocean-going vessels.

The Canadian Rubber Co., Montreal, is in receipt of a letter from the Riordan Paper Mills, Merriton, Ont., in which they say: We have used considerable of your 'Para' brand rubber belting and found the quality very satisfactory.

The Sanford Mfg. Co., Hamilton, Ont., are at work upon an order for 30,000 khaki uniforms for the Imperial troops now fighting in South Africa. The contract calls for delivery of the uniforms in four months, in lots of 2,000 per week. While the uniforms are to be shipped direct to the Imperial authorities, the business of the contract is

being done through the Dominion Government.

Messrs. Ker & Harcourt, spool and bobbin manufacturers of Parry Sound, Ont., have leased a saw-mill at the mouth of the Sheshokong River, on the north shore of the Georgian Bay, as their own is insufficient to furnish them with stock. They have also greatly increased their staff of workmen, and are putting in more machinery to meet the large increase of business.

The Yukon Plumbing, Heating and Engineering Co., Dawson, N.W.T., has been incorporated with a capital stock of \$24,000. The incorporators include F. F. Burns, S. A. Wye and Alfred Greenhalgh, of Victoria, B.C.

The Letang Hardware Co., Montreal, has been incorporated with a capital stock of \$99,900, to manufacture paper bags, etc. The charter members include T. C. Couillard, J. A. Champigny and J. F. Robillard, all of Montreal.

The capital stock of the Lake of the Woods Milling Co., Winnipeg, Man., has increased its capital stock from \$500,000 to \$1,500,000.

The Jones & Moore Electric Co., Toronto, have recently placed complete warehouse private telephone systems for G. R. Renfrew & Co., Watson & Co., Wyld, Grassett & Darling, and Monetary Times, all of Toronto.

A planing mill is being erected by G. Murray, at Winnipeg, Man.

The indications are that the E. B. Eddy Co. will rebuild their works at Hull, Que. This is borne out by the action of Mr. Eddy in awarding a contract to erect a new machine shop, which will be located on the site of the old drying kiln. The new building will be 180 by 50 feet, two storeys high, of brick. It is thought that the new machine shop is wanted to make good the large quantities of valuable machinery damaged by the fire.

The works of the Dominion Brussels Carpet Co., at Sherbrooke, Que., are to be enlarged. English capitalists have been interested in the scheme. Adjoining property and water-power is to be acquired and the manufacture of tapestry and velvet carpets engaged in. At present about seventy hands are employed in the manufacture of Brussels carpets.

A flour mill will be erected at Salcoats, N.W.T., by J. Benson, Esq.

The Georgian Bay Portland Cement Co., Owen Sound, Ont., will increase their capital stock from \$95,000 to \$250,000, and put in \$30,000 worth of new machinery, increasing their output to double the present capacity.

T. H. & A. H. Dryden have made a special machine for the Diamond Glass Co., of Toronto, to grind and even the ends of lantern globes, fruit cans, jam and jelly jars, etc. Such work has usually been done with an emery wheel. This machine does the work of twelve or fourteen boys, and turns out more perfect work than can be done by hand.

L. P. Bouier, Esq., of Toronto, shipped two of his special envelope machines to England this month and has orders for three more to follow.

The Imperial Varnish Co., Toronto, have recently filled an order for ten barrels of varnish for shipment to England.

The Volta Electric Storage Battery Co., Hamilton, Ont., have moved into their new factory, built especially for them, where they will be able to build storage batteries fast enough to supply the home demand and care for their foreign orders also.

The Stave Lake Power Co., Vancouver, B.C., has been incorporated with a capital of \$1,000,000. The company has acquired a waterfall on Stave River, and propose to generate and transmit power to Vancouver. C. A. Stoess is hydraulic engineer; G. C. Hinton, electrical engineer.

While the City Council and the Board of Trade, of Ottawa, are actively engaged in settling the lumber piling question, the lumber interest is working out a solution for itself. A great number of lumber piles are large sections of the burned area of the city. There are a hundred big piles of lumber spread over the burned area, and the number is being doubled as rapidly as a long procession of lumber rigs between Booth's mills and the piling grounds can operate. Booth's big mill has been started up, the company using the old piling ground.

D. Conboy, manufacturer of carriages, 487 King st. west, Toronto, will build a three storey brick and stone addition to his factory, at a cost of about \$7,000.

A company has been formed at Winnipeg, Man., with Mr. Vanderstine, of the Northern Pacific, as president, to manufacture cement.

JOHN HANCOCK BLDG., BOSTON, November 6, 1899.

N. ENG. BRANCH CLING-SURFACE MFG. CO.

We have been using Cling-Surface for seven months and are now running our dynamo and other belts slack. We take pleasure in saying that Cling-Surface is giving the best satisfaction. JAMES STACKHOUSE, SUPR.

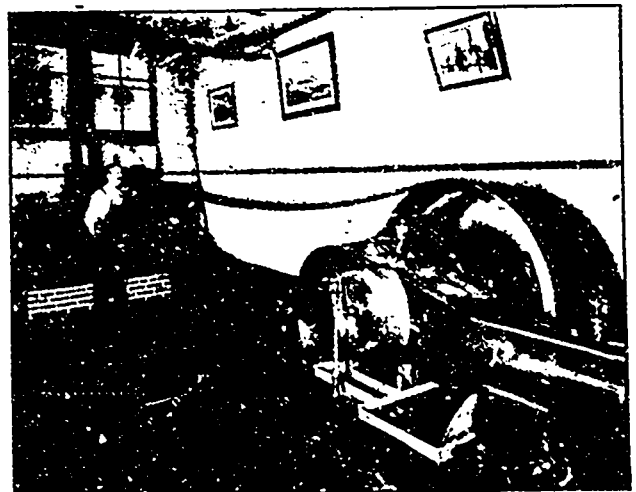
Cling-Surface Does These Four Things :

- 1.—STOPS SLIPPING.
- 2.—INCREASES POWER.
- 3.—RELIEVES INITIAL TENSION.
- 4.—PRESERVES THE BELT.

If it fails to do these you Pay Us' Nothing.

CLING-SURFACE MFG. CO.

N. Eng. and E. Can. Branch: 120-126 Virginia Street,
170 Summer St., Boston. BUFFALO, N.Y.
New York Branch: Chicago Branch:
253 Broadway. 225 Dearborn St.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Stratford Rack Co., Stratford, Ont., have applied for incorporation with a capital stock of \$5,000. The provisional directors include Thomas Holliday, jr., J. C. Makins and P. J. Kelly, all of Stratford, Ont.

The Dominion Artificial Fuel Co., Montreal, will apply for incorporation with a capital stock of \$50,000, to manufacture artificial fuel. The provisional directors include J. L. Lafontaine, Roxton Falls, Que., J. D. Obligny, St. Henri, Que., and Michel Auger, Toronto.

The Pattinson Dental Mfg. Co., Montreal, will apply for incorporation with a capital stock of \$30,000, to manufacture dental supplies. The provisional directors include O. W. Rondeau, G. A. Pattinson, both of Montreal, and Ira Bower, Ottawa.

The planing mills of Brown & Rutherford at Winnipeg, Man., which were recently destroyed by fire, are being rebuilt.

The Hanbury Mfg. Co., Brandon, Man., are employing 150 men to get the season's cut of logs down the Assiniboine river.

The Nepigon Pulp, Paper & Mfg. Co., Port Arthur, Ont., has been incorporated with a capital stock of \$250,000, to manufacture wood-pulp, paper, etc. The provisional directors include Paul Weidner, Detroit, Mich., F. S. Wiley, Port Arthur, Ont., and J. G. Shaw, Toronto.

Orders for machinery for six new roller flour mills have been sent from New Brunswick points within a few weeks past. The mills will have a capacity of fifty barrels daily each, and will be located at Andover, Lakeville, Bristol, Controville, Canterbury and Killam's Mill, and it is said that another mill may be built at Moncton. When these new mills are built and running, there will be eighteen mills in operation in New

Brunswick, and it is expected that the combined capacity of the mills of that Province will soon reach 1,000 barrels a day.

The Calgary Malting & Brewing Co. have erected a grain elevator at Calgary, N.W.T.

The Farmers' Milling Co. have their new mill at Fort Saskatchewan, N. W. T., in operation.

The Farmers' Flour Mill at Portage la Prairie, Man., has been purchased by Alex. Brown & Co.

The Electrical Construction Co., London, Ont., has received an order for two new motors from the W. J. Gage Co., Toronto.

The London Cold Storage & Warehousing Co., London, Ont., has placed an order for a thirty k. w. direct connected generator and engine for 250 volt service to supply the lights of the building, and two motors of ten and fifteen h.p. respectively, with the Electrical Construction Co., London, Ont.

The Hamilton Cotton Co., Hamilton, Ont., will erect an additional mill at a cost of \$7,000.

The Raymond Mfg. Co., Guelph, Ont., will erect another factory 220x40 feet.

The Peckham saw mill at Vandecar, Ont., was recently destroyed by fire. Loss about \$3,000.

Messrs. Hamel & Asselin's boot and shoe factory, Quebec city, was recently destroyed by fire. Loss about \$12,000.

Among the new industries for Cape Breton the papers have failed to note a most important one, so far as coal mining is concerned. Experiments are shortly to be made in England with a new explosive composed of a substance known as liquid oxygen. A competent man from Cape Breton will probably be sent to take note of the tests.

I. these prove successful, as anticipated, a factory for the making of the explosive will be established in Cape Breton.—Halifax Mining Rec. 1.

The Canada Biscuit Co., Toronto, has been incorporated with a capital stock of \$100,000, to manufacture bread, biscuits, etc. The provisional directors include J. C. McKeggie, H. C. Fortier and E. S. Reade, all of Toronto.

The Capital Power Co., Ottawa, has been incorporated with a capital stock of \$300,000, to produce water-power, electrical and pneumatic power, etc. The provisional directors include W. J. Conroy, Aylmer, Ont., John McBain and R. J. Devlin, of Ottawa.

The Electric Light Co., Brantford, Ont., will install an additional steam plant and 600 h.p. water-wheel.

A new electric light plant is being established at Hull, Que., to replace the one destroyed in the recent fire.


The Royal Electric Co., Montreal, has received the contract for lighting the town of St. Louis, Que., for the next five years. The agreement calls for forty-two lamps at \$115 each per year.

The Kirkton Milling Co., Kirkton, Ont., has been incorporated with a capital stock of \$3,000, to manufacture flour, etc. The provisional directors include J. Walkom, Wm. Brown and W. H. Marshall, all of Kirkton.

The Automatic Steam Cooker Co., Toronto, has been incorporated with a capital stock of \$50,000, to manufacture automatic steam cookers, etc. The provisional directors include W. H. Kauffman, W. N. McEachron and Alex. Davidson, all of Toronto.

W. A. FLEMING & CO.

MILL SUPPLIES **CAMEL BRAND BELTING**
HOSE of all kinds
DRIVING ROPE
BELTING of all kinds



771 CRAIG STREET, MONTREAL.

The Stratford Mill Building Co.,

STRATFORD, - - - - - ONTARIO.

STEEL BOILERS—all Sizes,

THE BROWN AUTOMATIC ENGINE,

FLOUR MILL MACHINERY, CORN MILL MACHINERY,
 GRAIN CHOPPERS OF ALL KINDS.

Manufacturers
 of . . .

We keep a Full Stock of Chain, Leather and Cotton Belting, Sprockets,
 Pulleys and Iron Work of all kinds.

We have one of the Most Complete Boiler Plant in Canada.

Write for
 Prices.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

What We Have Done

FOR OTHERS

We Can Do for You.

If you are considering the re-design of your power plant, the extension of your lighting system, or the electrical equipment of a new property, and will give us an opportunity

WE
WILL

1. Consider your problem.
2. Work out a solution.
3. Submit to you a proposition covering the entire equipment.
4. Take the contract and guarantee the OPERATION and ECONOMY of the complete installation.

We are not connected with any manufacturing company, and, therefore, are free to use any approved make of apparatus desired by the purchaser.

R. A. L. GRAY,
**ELECTRICAL
CONTRACTOR,**

83 York Street, - - - TORONTO.

THE UNITED ELECTRIC CO.

The United Electric Co., Toronto, inform us that they are working their factory day and night to enable them to keep abreast with their orders. Some of their recent sales are as follows:

Ottawa.—R. Anderson, one 30 h.p., three 6 h.p., two twelve h.p. and one 2 h.p. motors; A. Trudeau one 5 h.p. motor.

Montreal.—Charles Morton, three 2 h.p. motors; R. E. F. Pringle, one 3 h.p. and one 8 h.p. motors; Miller Bros. & Toms, four 5 h.p. and one 10 h.p. motor, and one direct connected elevator motor; Dominion Bridge Co., one 60 k.w. generator; Fred. Thompson & Co., two 5 h.p. motors; Canada Electric Co., one 9 k.w. generator; Darling Bros., five elevator motors.

Toronto.—John Turner & Son, one 10 h.p. motor; S. F. McKinnon Co., one 15 h.p. motor; Wm. McGill & Co., one 10 h.p. motor; Truth Publishing Co., one 300 light dynamo; C. S. Crabtree, one 5 h.p. motor; P. W. Ellis & Co., one 3 h.p. motor.

Halifax, N.S.—Maritime Electric Co., one 10 k.w. direct connected generator.

Callender, Ont.—McBurney & Sons, one 20 light arc dynamo and lamps.

West Lorne, Ont.—West Lorne Electric Light Co., one complete plant, both arc and incandescent, for lighting the town.

Ingersoll, Ont.—Scott Bros., one 10 h.p. motor; R. Elliott, one 4 h.p. motor; P. Stuart & Co., one 4 h.p. motor.

Paris, Ont.—Paris Wincey Mills Co., one 500 light dynamo.

St. Stephens, N.B.—C. N. Vroom, one 6 h.p. 500 volt motor.

Stratford, Ont.—White Packing Co., one 400 light dynamo and one 15 h.p. motor; Perth Flax and Cordage Co., one 100 light dynamo; Hodd-Cullen Mfg. Co., one 50 light dynamo.

Waterloo, Ont.—A. Bauer & Co., one 35 light dynamo.

Winnipeg, Man.—C. W. Huffman, one 6 h.p. motor.

Kaslo, B. C.—Kootenay Railway & Navigation Co., one 10 k.w. direct connected generator.

Kingston, Ont.—Rideau Lake & Navigation Co., one 250 light generator.

Berlin, Ont.—Lippert & Co., one 100 light generator.

Alma, Ont.—John McGovern & Co., one 60 light dynamo.

Preston, Ont.—James Fenwick, one 70 light arc dynamo.

Hamilton, Ont.—Hamilton Steamboat Co., one 150 light dynamo.

One of the large contracts which the United Electric Co. have in hand for com-

Shafting—Hangers—Pulleys

FRICITION 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.

plotion in the near future is for Messrs. Lovor Bros'. Sunlight Soap Works, now being constructed in Toronto. This contract includes a 200 h. p. generator and some fifteen specially designed cast steel, iron-clad, dust-proof motors, necessary to meet the requirements of the manufacture of their products.

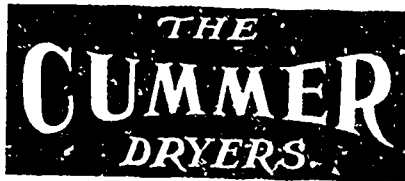
Louis Simpson, Esq., late general manager of the Montreal Cotton Co., has had confer-

ences with the Ottawa Board of Trade and city council, with the view of establishing a new cotton mill at Ottawa. An ample supply of French-Canadian labor can be had, and cheap electric power used for running the machinery. The Ottawa people are favorably disposed to its establishment.

Messrs. Wood, Skinner & Co., Newcastle-on-Tyne, England, are building two new vessels to be called the "Strathcona" and the "Winona," for the Quebec, Hamilton

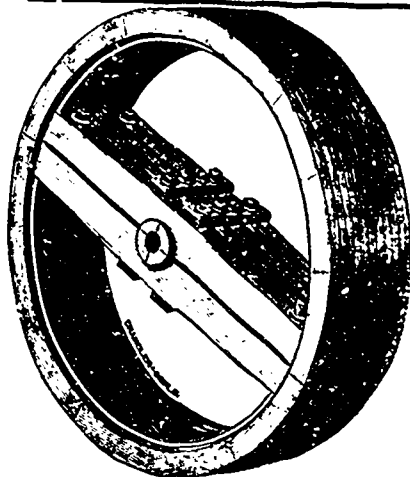
and Fort William Navigation Co. They will be 255 feet long, forty-two feet six inches beam, and have a depth of twenty-three feet eight inches. Their carrying capacity will be about 110,000 bushels each.

The Canada Flour Mills Co., Halifax, N.S., has applied for incorporation with a capital stock of \$650,000, to manufacture flour, etc. The provisional directors include H. McC. Hart, R. E. Harris and E. P. Allison, all of Halifax, N.S.



FOR **Mechanically Drying Everything**

THE F. D. CUMMER & SON CO.,
HUNDREDS IN OPERATION. CLEVELAND, OHIO.



"THE REEVES"

A HIGH-GRADE WOOD SPLIT PULLEY

BUILT HONESTLY : IT DOES THE WORK
... AND... : NO TROUBLE!
BUILT RIGHT : NO WORRY!
SEND FOR CATALOGUE.

Reeves Pulley Manufacturing Co. Limited,
14 PEARL STREET, TORONTO, ONT.

John R. Barber, President.

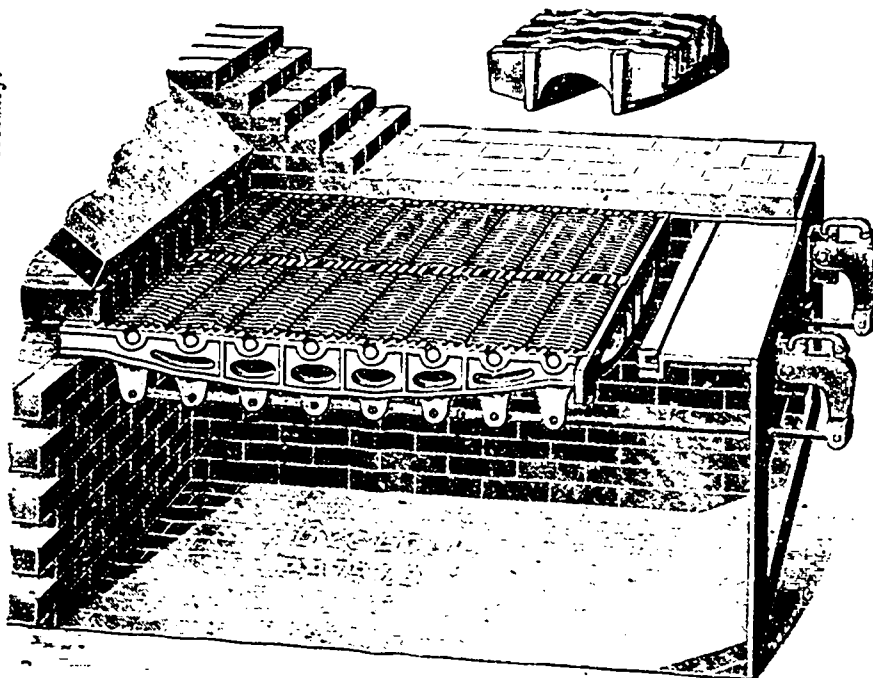
Geo. E. Challos, Sec.-Treas.

Henry Truodoll, Bus. Man.

THE **CYCLONE GRATE BAR**

Economy of Fuel and Increased Boiler Efficiency Guaranteed.

Cut shows construction of the Grate
No alteration of Plant necessary.



**Simplicity,
Durability,
Economy.**

Burns the Cheapest Fuel with the Best Results.

A BOY CAN OPERATE IT.

Send for Descriptive Circulars and Testimonials.

COPY OF TESTIMONIALS.

TORONTO, Jan. 3, 1900.

THE CYCLONE GRATE BAR Co. (Limited), Toronto.

DEAR SIRS.—We deem it only fair to you to express the appreciation and satisfaction which we have in using your Grate Bar.

As a fuel saver we think it is the only Grate with any merits in this respect, and for operating it is perfect.

Wishing your Company every success.

We are, yours truly,

"SEAMAN, KENT & Co.

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.

ARTIFICIAL STONE.

An artificial stone from Belgium has recently been introduced into the French market, which is said to have four times the force of resistance of French free stone and which has nearly all the properties of Cobestang granite. It has been tried in the Malines arsenal and is found to be insensible to the action of cold, absorbs only six to seven per cent. of water, even after a long dry spell, and cannot be crushed under a

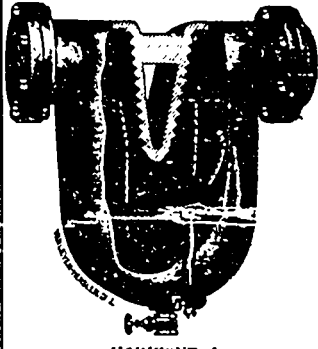
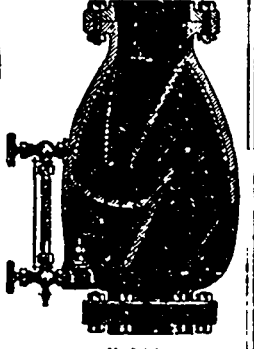
pressure of forty kilograms (81.184 pounds) to the square centimetre. This artificial stone is manufactured at Ucclos, near Brussels, in the following manner: Eighty parts of extremely clean and dry coarse sand are mixed with twenty parts of hydraulic lime reduced to a fine, dry dust; this mixture is put into an iron box, which is plunged into a boiler of water, and this is hermetically closed. During seventy-two hours the cooking goes on under a pressure of six atmospheres, the temperature being

maintained at 165 degrees. At the end of this time the iron box contains a perfect homogenous mass of stone, which rapidly hardens upon exposure to the air. The most varied colors are given to this stone, and its manufacture costs only two cents per cubic foot.—U. S. Consul at Roubaix.

A new 1,500,000-bushel elevator is being erected at Depot Harbor, Ont., by the Canada Atlantic Railway Co.

FINE CRUSHING and GRINDING MACHINERY
STURTEVANT MILL CO.,
 Send for Circular. **104 Clayton St., Boston, Mass.**

BELTING ENGINEERING
LEATHER BELTING,
Lancashire Hair,
English
Card Clothing,
D. K. McLAREN
 Head Office and Factory—
MONTREAL
GOAK ENGINEERING
 ESTERN TRADE—TORONTO STOCK DEPOT,
 'Phone 374 **88 BAY STREET.**

HORIZONTAL. VERTICAL.

EVER KNOW AN ENGINE HAS LUNGS?

The cylinder of an engine corresponds with lung action, and in some ways is afflicted with lung trouble. For instance, too much moisture in the steam cylinder will cause more trouble than a damp atmosphere to a consumptive.

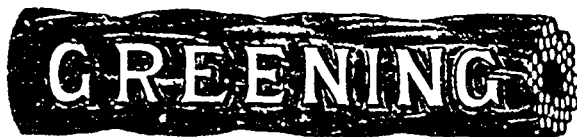
AUSTIN SEPARATORS

Are the proper medicine. They eliminate all moisture, and ensure the greatest efficiency to the engine. Send for our new catalogue.

AUSTIN SEPARATOR CO.
 38-40 Woodbridge St. DETROIT, MICH., U.S.A.

An advertisement in this space would cost at the rate of **\$1.50** per issue.

The B. GREENING WIRE CO., Limited



MANUFACTURERS OF



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

WIRE ROPE

of every description and for all purposes
HAMILTON, ONT. and MONTREAL, QUE.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

LIMITS TO THE USE OF FORCED DRAFT FOR MARINE BOILERS.

As showing the tremendous increase in boiler power due to forced draft, we may mention that the boilers of the U. S. S. Trenton, built in 1876, gave five h.p. per ton of boilers and water, while the Minneapolis and Oregon, built in 1891, as well as the Prince George, of the British navy, in 1896, gave more than seventeen h.p. per ton of boiler. The value of forced draft, combined with the express type of water-tube boilers, is shown by the data for the torpedo boats and destroyers, which, in some cases, have given results of more than eighty h.p. per ton of boiler and water.

As already stated, it was in naval vessels that the great benefits to be derived from forced draft showed themselves in a most marked way, from the fact that in their case maximum power is wanted usually for a short time only, so that questions of the economical production of steam had very little weight. The only case in recent times in which forced draft was used under the conditions where it was expected to prove of most value, demonstrated this point of its short duration. The fight off Santiago lasted from the time forced draft was turned on until the Colon had surrendered—in all four hours.

Inasmuch as the economy of steam production was of so little weight, the question of limitation in using forced draft has attracted attention from the injurious effects of high rates of combustion in boilers on trial trips, where every effort was made to get the highest power from the boiler. In the United States navy there was practically no trouble at all on this score, for the reason that Admiral Melville, who along with his

intense spirit of progress has always exercised a wise conservatism, had insisted on providing an adequate amount of heating surface. The case where the greatest trouble was found was in certain English vessels, where the amount of heating surface per horse power had been greatly reduced, and in some cases was little more than one and one half square feet per horse power. In the American navy the allowance was always at least two square feet. — Mr. Walter M. McFarland, in the Engineering Magazine for April.

AERATION IN THE WELL.

Water derived from deep wells frequently contains a considerable proportion of soluble oxide of iron, which renders it unserviceable in paper mills. The best method for purifying water thus impregnated has hitherto been the aerating process. The water is pumped up on a high platform, from which it drops in the form of rain, and in this contact with the oxygen of air the iron separates into an insoluble substance. Water is also freed from iron by chemical treatment and additional filtering. These two methods are applied above the ground.

A remarkable method of purifying water under ground, so perfectly that it may be pumped from iron holding strata to the surface in a pure state, has been discovered. The invention has been made by a master mechanic of the city bathing institution in Berlin, who had trouble with water pumped from a pipe well 40 feet deep. Owing to the large proportion of iron the water was unfit even for bathing purposes. He conceived the idea of aerating the water under ground, and one evening he directed a small current of water, free from iron but con-

taining air, into his pipe well. He applied 200 gallons of rain for purifying 6,000 gallons, the amount required for his swimming bath. On the following morning the pump delivered 6,000 gallons of ironless water of a clear greenish shade.

The explanation is as follows: Owing to the pressure sent into the pipe well it was forced into the earth strata, and becoming well mixed with the well water, the descending water formed a carrier of oxygen and air, and the purifying action took place the same as if the water had been brought into contact with atmospheric air on the surface of the earth.

This new process has proved to be very successful in many cases. The city of Charlottenburg uses large quantities thus purified. This process is naturally limited. An uninterrupted outflow must not be expected, as a well requires some time for recuperation and purification under the influx of aerated water. The depth of the well in which this process is applicable depends upon the capacity of the pumping device. The operation has been found quite practicable in wells about 100 feet deep. The economic advantages of this process are evident, as it saves scaffolding, aerating and filtering plants, and also mechanical power.

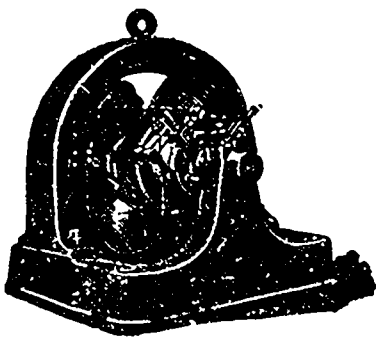
Regarding the length of time during which the strata containing iron will admit the purification, we have no positive knowledge, as the experience with the process is of short duration, but we can state that several wells during the past eighteen months have supplied water purified in this manner. The plain chemical action of turning the soluble iron into an insoluble state makes it appear plausible that there will be no decreasing of the quality of water. — Taegl. Rundschau, in the Papier Zeitung.

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.

Toronto and Hamilton
ELECTRIC CO.

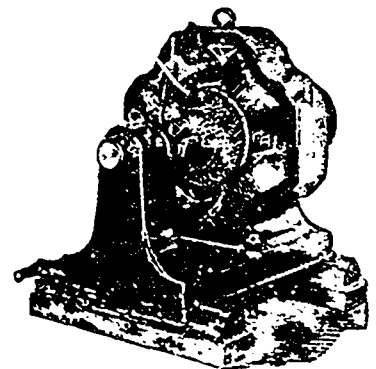


Motors and Dynamos
COMMUTATORS REFILLED.
99-103 McRab St. N., Hamilton
Phone 958.

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**

THE Electrical Construction Co. of London, Limited.



MULTIPOLAR MOTORS & DYNAMOS
And Direct Connected Plants for Isolated Lighting.
Repair Work a Specialty.
HEAD OFFICE AND FACTORY:
No. 90 YORK STREET, London, Canada.
769 Main St., Winnipeg.
12 York St., Toronto. 131 Granville St., Halifax

THE CLERQUE STEAMERS.

The Cleveland, Ohio, Marine Review publishes diagrams of the Lake and Atlantic service steamers which show the type of steam vessel which Mr. F. H. Clergue, of Sault Ste. Marie, Ont., is bringing to the lakes from England for the purpose of moving iron ore from mineral lands which he is opening up at Michipicoton, just above the Sault. The plans are those of the steamer Gargantua, one of four vessels of like dimensions which are expected to pass up the Canadian canals to the lakes within the next month or six weeks. These steamers are

each of about 2,500 tons capacity on seventeen feet draught. Mr. Clergue says he has made arrangements to bring over from England next season four more vessels that will each carry about 3,200 tons on eighteen foot draught. The Gargantua is 243 feet long between perpendiculars, thirty-six feet beam and nineteen feet five and a half inches moulded depth. She has triple expansion engines of nineteen, thirty and forty-six inches cylinder diameters, and thirty-six inches stroke. Her gross tonnage is 1,578, and her cellular bottom has capacity for 350 tons of water ballast.

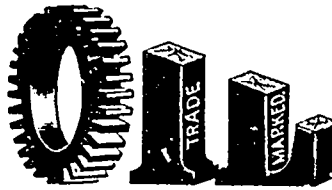
It will thus be seen that while ship build-

ers and ship owners in the United States are figuring on the construction of a large number of vessels suited to both lake and Atlantic service, Canadian interests are also alive to the advantages of this kind of ship. As already noted in these columns, R. O. A. A. B. McKay, of Hamilton, Ont., also have two such vessels under construction in England, and they will reach the lakes within the next few weeks. Mr. Clergue, who is well-known as the leading spirit in extensive water power developments on both the Canadian and American sides of the Sault, says that when his vessels are through carrying ore in the fall he will send them to the Atlantic, very probably loaded with pulp from the large mills which he is operating by water power. They will be engaged in salt water service during the winter, and return to the lakes again in the spring. The principal markets for pulp made at the Sault are in foreign countries.

A railroad to the iron mines near Michipicoton is about completed—the distance to water is only twelve miles—and Mr. Clergue says he will ship 500,000 to 700,000 tons of the ore before the present season is at an end. He bought the four steamers now coming over from England when he found the lake fleet was so generally under contract that vessels for immediate service could not be secured. Although none of the ore has been used in a furnace as yet, it is said to be a high-grade hard Bessemer hematite, readily available in great quantities, as it has simply to be blasted from a hillside and crushed by machinery that is already on the ground.

"Capitol" Cylinder

**"RENOUN"
ENGINE
"ATLANTIC" RED**



RELIABLE WELL-KNOWN BRANDS.

ALL ORDERS PROMPTLY FILLED

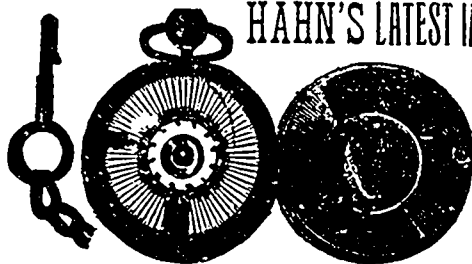
THE...

QUEEN CITY OIL CO.

SAMUEL ROGERS, President.

LIMITED

TORONTO, CANADA.



HAIN'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. HANZ & CO., Room No. 45, Graham Building, 127 Duane St. NEW YORK

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



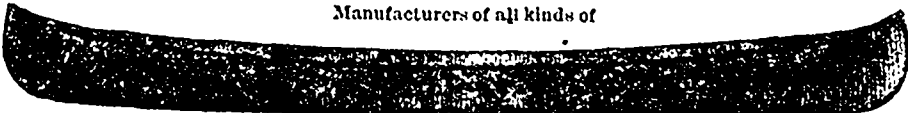
SEND FOR CATALOGUE AND PRICE LIST

The Diamond Machine & Screw Co.
Manufacturers of TORONTO. Limited.

MACHINE SCREWS and BICYCLE PARTS OF EVERY DESCRIPTION

The Canadian Canoe Co., Limited, P.O. BOX 107, PETERBOROUGH, ONT.

Manufacturers of all kinds of



CANOE AND SKIFFS Canoe for Paddling, Sailing, Rowing and Prospecting. Skiffs for Rowing and Sailing.

A FULL STOCK OF PADDLES, OARS, FITTINGS, ETC.

Write for Catalogue J.

Correspondence Solicited

.. HIGH.. INSULATORS CURRENT



WILL
STAND
ANY
TEST.

Patent sustained by United States Patent Offices.

AGENTS WANTED IN CANADA.

Write for Samples and Particulars.

F. M. LOCKE, VICTOR, N.Y.

WE GUARANTEE OUR PRICES TO BE AS LOW AS OFFERED BY ANY MAKERS—FOR EQUAL QUALITY.



ORDERS ADDRESSED TO OUR MONTREAL OR TORONTO FACTORY WILL HAVE PROMPT CARE.

CENTRAL CANADA CHAMBER OF MINES.

The Central Canada Chamber of Mines has been established, with headquarters at Winnipeg, Man. The patrons of the association are the Right Hon. the Earl of Minto, Lord Strathcona, Sir Wilfrid Laurier, the Hon. J. C. Patterson, Hon. Geo. A. Cox and Sir Oliver Mowat. The Hon. Hugh John Macdonald, Hon. H. Aylmer and Hon. G. W. Ross are honorary presidents. F. W. Stobart, president of Winnipeg Board of Trade, is president. D. W. Bole, Winnipeg, Mayor C. W. Chadwick, Rat Portage, and Lieut.-Gen. Sir Henry Wilkinson, vice-presidents, and F. H. Malcolm, secretary.

The objects of the chamber are to advance, promote and protect the mining interests of Central Canada, and to disseminate absolutely reliable information concerning them. Mr. F. H. Malcolm, the secretary, late of Johannesburg, South Africa, is the organizer of the association. In his address at the inaugural meeting, after quoting figures as to South Africa ores, Mr. Malcolm went on to say:—

Transvaal ores are low grade, averaging only 6½ dwts. to the ton, over the plates, in value slightly under \$6 per ton. The mines

are deep, averaging 2,500 feet, some exceeding 4,000 feet before the reef is reached. Water is also scarce.

The cost of constructing the immense dams necessary averages about \$500,000 and the sinking and equipping a shaft to that depth about \$250,000, or \$750,000 in all has to be spent before they are on the same basis as a Canadian outcrop mine, when the first pick is put into the ground.

The Transvaal reefs average ten feet six inches in thickness. In Canada a far average reef is four feet, but many run in Ontario up to fifteen feet. An average return from mines now working would give about \$14 to the ton, some giving much higher results. Large outcrop dykes returning \$5 per ton upwards are common in Ontario, which might be worked as quarries. The cost of mining and milling the latter with modern appliances (as on the Rand) should not exceed \$1.50 per ton.

Transvaal mines are highly capitalized, but not more than twenty per cent. of nominal capital has been provided in cash as working capital; yet, notwithstanding this, the dividends are large. The dividends are paid also upon the vendors' shares, which equal about eighty per cent. of the whole nominal capitalization.

Both Transvaal and Central Canadian ores are free milling, and these remarks apply to over-plate yields only (in both cases) for the reason that few Canadian mines are equipped with modern cyanide or other process for extraction of residue from tailings, slimes, etc., which would probably increase yields about 35 per cent., as in the Transvaal.

The mill batteries in Canada have mostly light stamps (in Africa the average weight of stamps is 1,250 pounds, against nine hundred pounds in Canada) and other appliances compared with the Transvaal are of most primitive description (the advantage of heavy stamps being that they double the capacity at only ten per cent. increase of power).

The Johannesburg main reef is about fifty miles long by seven miles wide. In Western Canada the Rainy River gold district alone is about 350 miles long by about 150 miles wide. Then there are many other promising gold areas, such as on the shores of Lakes Manitoba and Winnipeg, Port Arthur, etc., and taking all these facts into consideration and comparing the conditions with those obtaining elsewhere, there is no reason whatever, with adequate appliances and machinery, why the Central Canadian gold mines should not soon be included among the most productive in the world.

THE BEST IS NONE TOO GOOD

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

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

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

We can furnish you with numbers of testimonials.

**SYRACUSE
BABBITT**

**BEATS
THEM
ALL**

Importers and Dealers in

PIG TIN
ANTIMONY
INGOT COPPER
ALUMINUM

NICKEL
BISMUTH
IRON AND STEEL
SCRAP



Manufacturers of

BABBITT METALS
SOLDER
TYPE METALS

COLUMBIA
PHOSPHOR TIN
AND ALL OTHER
WHITE METALS

SYRACUSE SMELTING WORKS,

WILLIAM and ST. THOMAS STREETS,

MONTREAL

Nicholson PATENT Flanged Face Compression Shaft Coupling

Is easily and quickly attached to or detached from shafting.

Will adjust to a shaft either larger or smaller than standard size shaft.

Has DOUBLE the grip of other COMPRESSION COUPLINGS and is the most perfect fitting coupling made.



Saves cost of key-seating shafts, fitting keys, and refacing couplings after being keyed on shaft.

Holds the shafts in accurate alignment with each other, the jaws being full length of coupling and extending over both shafts.

Has a very powerful grip equally exerted from both sides (not on two sides as with the majority of couplings).

PRICE LIST AND DISCOUNT ON APPLICATION.

Our New Supply Catalogue (Desk or Pocket Size), will be mailed free to anyone on application.

WE CARRY WOOD SPLIT PULLEYS, STEEL SHAFTING, LEATHER AND RUBBER BELTING, COUPLINGS AND SAFETY COLLARS IN STOCK

THE FAIRBANKS COMPANY, 749 CRAIG STREET, MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

COMMERCIAL ELECTRICITY.

Recently the Council of the Toronto Board of Trade appointed a special committee to consider the question of electric power, and Mr. W. E. H. Massey, the chairman, has made a report, which we have pleasure in presenting to the readers of THE CANADIAN MANUFACTURER. The report is as follows:—

In considering the question of electric power, your Committee have found it desirable and necessary to take under consideration the question of power generally, and our report will cover the following:—

1. Kinds of power most largely in use.
2. Power conditions as they now exist in Toronto.

3. Power facility as a factor in attracting new industries.

4. Desirability and probability of cheaper electric power for Toronto.

Under the first head we find there are five motive powers, which are now in practical common use in large cities and manufacturing centres. They are as follows:—

(a) Water Power. Cities and villages located close to a water-fall, or conditions admitting of forming a water head of sufficient fall, can make direct application of such power. As a primary power, however, it may be used at a considerable distance from the community deriving benefit from it in generating and transmitting electric current, as is well known.

In cities and towns where the water supply is abundant, and cheap, and where there is good pressure, small water-motors are quite commonly used.

In many lines of manufacture hydraulic machinery can be used to great advantage. For manufacturing purposes generally cheap water is a most essential feature, if not water-power.

(b) Steam Power.—The introduction of

rival powers has by no means driven the steam engine—man's greatest helper—from the field. On the contrary, steam engineers have so constantly brought out improved devices for the economical production of steam power, that even in centres where electric power is produced to good advantage, steam pretty well holds its own, more especially in plants requiring from, say 75 h.p. upwards. In comparatively large plants, requiring from 50 h.p. and upwards, where steam is required for heating or other purposes, it can pretty well hold its own against electric power under average conditions.

Where steam is also used for industrial purposes in the same business, there seems to be no question but that, generally speaking, steam power is still the most economical for the manufacturer. It may also be said that steam engines and boilers have been so perfected and brought to such a standard of excellence, that the depreciation in value, due to the use of such apparatus, amounts now to much less than it did a comparatively few years ago.

The use of steam apparatus is so generally understood that intelligent labor for its attendance is readily obtainable. Steam is undoubtedly the most important power factor, notwithstanding the great advances made by electricity; indeed, in most instances the electric current itself is dependent on the steam engine.

(c) Gas and Gasoline.—Gas as a power producer is again being revived in many busy centres, and such developments have recently been made in both gas and gasoline engines, that we have felt it desirable to mention this power in our report.

We have become accustomed to think of the gas engine as a small machine, suitable for light service, but these engines are now commonly sold for 50, 75 and 100 h.p., and single engines developing 650 h.p. are now

in actual operation. A 30,000 h.p. gas engine electric station, where the gas engines are directly connected to the dynamos as primary powers, is now in course of construction in Pittsburg, Pa. It is claimed that the consumption of gas in these engines has been reduced to thirteen feet per h.p. per hour.

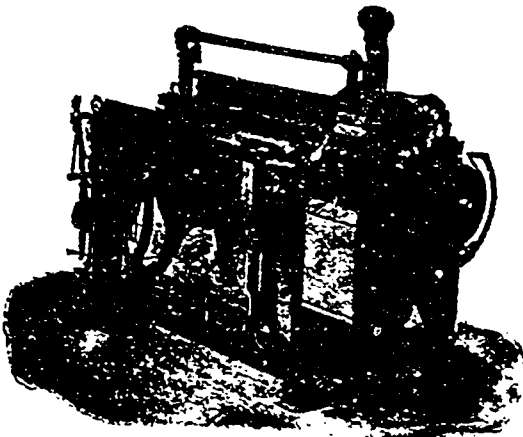
The power value of gas is determined by the number of heat units it contains. Natural gas has about 940 heat units; illuminating gas has only 650 heat units, consequently it takes a somewhat greater number of feet per h.p. per hour to produce the same amount of power.

As for gasoline engines, splendid results are being obtained by the latest machines, the makers guaranteeing that a wine gallon of gasoline will produce a h.p. for ten hours.

(d) Electric Power.—Electricity may be said to be a secondary force, a handmaid or servant of steam or some other primary power. It has its special sphere of usefulness, in which it undoubtedly excels.

Electricity, however, has its limitations, which are seldom realized or understood, resulting in many false suppositions as to its universal utility by its too ardent advocates.

In the field of power, for facility of distribution, even when distance is taken into account, electricity has no rival. Hence for the supply of small scattered powers in a community there is nothing to be compared with it. The ease of distribution of electric current has also led some large manufacturers to install most elaborate, direct-connected, steam-driven electric plants, with a view to distributing electric power to the various departments of their works, connecting the motors directly to the main-line shafts of the several rooms, and in some instances connecting individual motors to the several machines in a single department, thus making a splendid equipment, and dis-



THE NORTHROP LOOM.

There is only one Profitable Plan—**BUY NORTHROP LOOMS**

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

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

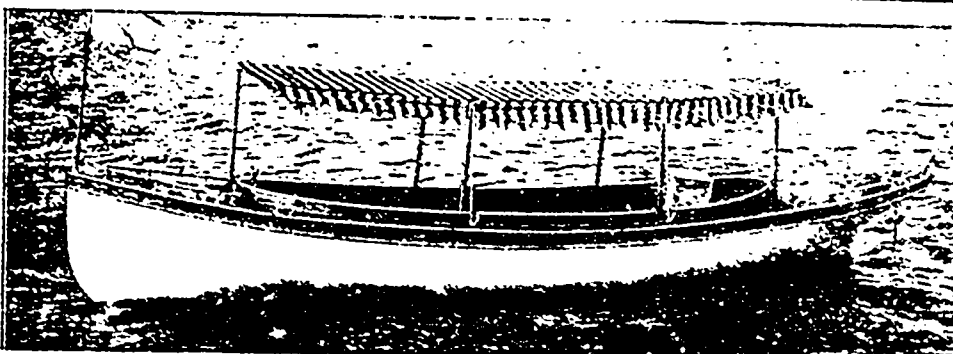
“The Mills that refuse their opportunities will find their future utility serving as picturesque ruins in the landscape.”

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

Write for particulars and quotations. Address

The NORTHROP LOOM CO. OF CANADA, Ltd.

VALLEYFIELD, P.Q.



**Gasoline and Steam
Launches**

The latest styles. Ask for prices.

Dean's Canoes

are known the world over.

SEND FOR CATALOGUE.

WALTER DEAN, - Toronto.

poning with long lines of shafting and much belting. Such perfect distribution of power requires a very elaborate and expensive installation, but it gives the advantage of operating certain departments, or, for that matter, individual machines, irrespective of any other department, and, when intermittent service is required, effects some saving.

It is only reasonable to suppose, however, that electrical apparatus will have to be very considerably cheapened and simplified before this ideal method of application can come into general use, which will take time.

Electricity, in addition to its advantages for power and lighting, is also capable of adaptation in certain industrial and metallurgical uses, which could not otherwise be economically and practically carried on.

(c) Compressed Air.—This has been styled "the century's new power." Like electricity, it is a secondary force to be developed and distributed by steam or some other primary power. Compressed air has been in use for many years, but the extent of its possibilities and its wide usefulness are only recently beginning to be understood. To say nothing of the many kinds of pneumatic machinery and air-driven tools now largely used, compressed air motors are in successful operation in several large cities. Paris (France) is said to be one of the largest users of compressed air. There, it is said, there are now many miles of mains serving customers with air through pipes with meters, as gas is distributed, and operating machinery, large and small, in all lines of industry.

2. POWER CONDITIONS AS THEY NOW EXIST IN TORONTO.

(a) Water Power.—Toronto, of course, can boast of no water power for direct application. The nearest large power of importance is that of Niagara Falls, which, we believe,

is close enough to us to lead us to hope that at some time in the not too distant future it will supply us with electric energy.

Beyond its use for hydraulic elevators, water can scarcely be said to be used as a power in Toronto, because of the limited supply and cost. It is claimed by one engineer who made a report on the subject that in the matter of hydraulic power for elevators, if the bill for such use is \$18 per month, it will pay to change to electric power, even under the present rates charged by the Toronto Electric Light Co.

(b) Steam Power.—The total quantity of power of all kinds in use in the City of Toronto will be found to be surprisingly small to any one who has not carefully looked into the subject. Your Committee have had reports from several engineers and persons competent to make an estimate and form an opinion on such matters. It is probable, omitting the Toronto Railway Co. and the Toronto Electric Light Co., that in the neighborhood of from ten to twelve thousand h.p. will be the maximum present consumption in the City of Toronto. From the best information obtainable it is likely that from five to six thousand h.p. of this amount is used by people requiring under 50 h.p.

About two years ago an effort was made to gain statistics as to the quantity of steam power alone used in the city, and it was estimated to be in the neighborhood of 17,000 h.p., which includes the plants of the Toronto Railway Company and the Toronto Electric Light Company, those alone aggregating 10,000 h.p., which makes about 7,000 h.p. in use in other industries. This amount has doubtless somewhat increased since then.

The basis of the cost of steam power is, of course, the price of coal. We have received several estimates from competent engineers as to the cost of producing power from the

average steam plant. These estimates were found to vary considerably. The conditions under which steam is generated vary greatly in different industries. It is probable, however, that a well-equipped plant, developing, say, 100 h.p., can produce power at from \$20 to \$25 per h.p. per annum for ten hours per day, 300 working days. Plants developing a greater amount of power, with most modern appliances, can probably reduce this cost somewhat. The duty now charged on steam coal is fifty-three cents per ton, and is an important item in the power problem.

(c) Electric Power.—Where electric power can be most profitably used is for scattered motors, where the use of a steam plant or gas engine would not be large enough to pay for a man's time to look after it; and it is especially desirable when the power is intermittent and is only paid for when it is used.

SAVE THE DROPS


The Power House of the U. S. Machinery Exhibit at the Paris Exposition is perfectly equipped as modern skill can make it.

CROSS OIL FILTERS

have been selected for use in this plant. Every manufacturer should have one.

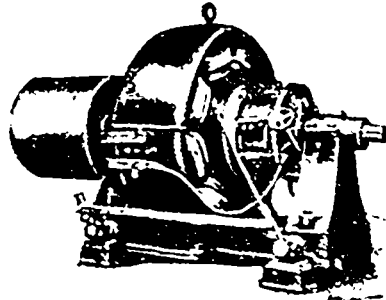
They save over 50 per cent. of oil bills. Catalogue 26 tells how.

THE BURT MFG. CO.,
Akron, Ohio, U.S.A.
Largest Mfrs. of Oil Filters
in the world.



The Jones & Moore Electric Co.
ELECTRICAL CONTRACTORS.

Dynamos
Telephones
Slow Speed
Motors
Motors



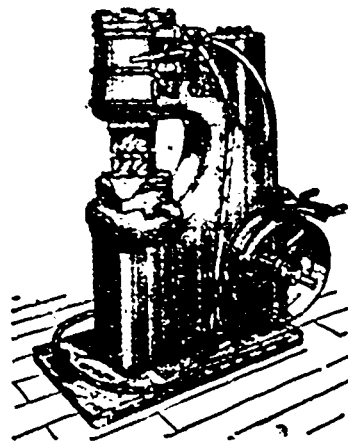
Supplies
Direct Connected
Dynamos
We manufacture Direct Current Machinery in all sizes and for any purpose.
20 and 22
Adelaide W., Toronto.

The Yeakley Vacuum Hammer.

Canadian Patent November 9, 1897.

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

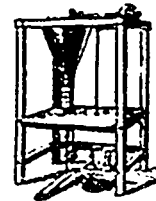
George Brush
EAGLE FOUNDRY,
MONTREAL.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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

Dominion Oil Cloth Co.

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. Catharine and Parthenais Sts
MONTREAL, Que.

There are at present probably from three to five thousand h.p. in motor capacity installed for such use in our city, generating in the neighborhood of 1,500 to 2,000 h.p. actually consumed on an average. There are but few electric isolated plants in the city where electric current is generated by the producer for his own power purposes. The Toronto Electric Light Co. are practically the only source whence electric current can be purchased in Toronto at the present time. Their charges average from 2½ to 3 cents per h.p. per hour, and they do not care to furnish a greater amount to any one customer than 25 h.p. Their price to large customers, where conditions are favorable, has been as low as two cents per h.p. per hour, whereas for other very small powers at a great distance from their mains they charge even higher than three cents. Two cents per h.p. for ten hours per day, 300 days in the year, amounts to \$60 per annum per h.p.

In comparing steam and electric power a number of conditions have to be taken into consideration. Undoubtedly consumers of less than 25 h.p., where steam is not largely used for other purposes, could use electric power to great advantage, even at the price charged by the Toronto Electric Light Co. Consumers of from 25 to 50 h.p., where steam is not used for other purposes, could profitably use electric power if the price were in the neighborhood of \$25 per h.p. per annum. The Hamilton Electric Light & Cataract Power Co. are supplying electric current at \$20 per h.p. per annum to consumers of 50 h.p. and upwards. This is the lowest bona fide price we have known to have been made for electric current. The Hamilton Company, however, hamper this with varying conditions. We have been informed of an alleged offer made by them of \$15 per h.p. to a very large prospective consumer, but do not learn that this can be confirmed. Notwithstanding the apparently very low price of \$20, we know of one manufacturing plant close to the Hamilton Power Co.'s transforming station, who considered it to their advantage to put in a steam plant, because of the saving in using the exhaust steam for heating.

It may also be said that the Hamilton power has thus far been largely taken by corporations and industries in which the people exploiting the power are more or less interested.

At Niagara Falls, N.Y., where electric energy should be, and doubtless is, produced as economically as any place in the world, both the Cataract Power Co. and the power company operating the old canal, charge at the rate of \$15 per h.p. per annum for power in limited quantities. There are, however, no restrictions, and the power can be used twenty-four hours a day if desired. Where larger quantities of power are taken, concessions are made, but these concessions are conditional upon matters of location, purposes for which the power is supplied, term of lease, and so forth, and special inducements are generally made to parties locating on the lands of the power companies, both of whom are seeking to develop the properties acquired by them.

In comparing steam and electric powers for manufacturers using greater quantities than 50 h.p. per annum, several conditions must be taken into consideration. Manufacturers having steam plants installed are, as a rule, well satisfied with them, and probably would not care to change, as, at best, the saving would be so trifling, if any. Fur-

thermore, the installation of electric apparatus, if done in the most improved manner, and so as to secure the greatest amount of efficiency, would involve a very considerable outlay, quite the equivalent of the cost of the steam plant, and perhaps more. On

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.

- Toronto Office, - Cor. Jordan and Melinda Sts.
- Hamilton " - 39 James Street South.
- London " - 365 Richmond Street.
- Winnipeg Office, - 398 Main Street.
- Vancouver " - Cor. Hastings and Hamilton Sts.
- Victoria " - Board of Trade Building.

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

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, T. RONTO, ONT.

VANDUZEN'S STEAM-JET PUMPS

Fully guaranteed. Especially serviceable for elevating or forcing sandy or muddy water from Mines, Quarries, Wells, Excavations, etc. Simple, portable, cheap. Requires no skill or attention. Sizes ranging from \$7 to \$75. Send for Catalogue No. 67.

E. W. VANDUZEN Co., Cincinnati, O.

THE SMART-EBY MACHINE CO.,

Steam and Gas Engines, Pumping Machinery, General Machinery.

193 BARTON STREET EAST HAMILTON, ONT.

CITY AGENTS WANTED.

WRITE US BEFORE PLACING YOUR ORDER.

ONTARIO GOLD MINING DISTRICT :

- Sultana Mine.
- Foley Mine.
- Mikado Mine.
- Olive Gold Mine.
- Cameron Island Mine.
- Hammond Reef Mine.

A Few Mines



WHO USE

DRILLS
COMPRESSORS

BRITISH COLUMBIA :

- Le Roi Mine.
- War Eagle Mine.
- Old Ironsides Mine.
- Centre Star Mine.
- Crown Point Mine.
- Knob Hill Mine.

CANADIAN RAND DRILL COMPANY, Montreal

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

the other hand, the depreciation of a modern steam plant, because of the excellence to which steam engineering has attained, is comparatively light, probably not exceeding ten per cent., whereas even in the best known types of electric generators and motors they are constantly being improved, and the present rate of depreciation cannot be considered as much less than twenty per cent. Then the question of utilization of steam power for other purposes in most manufacturing plants is an important consideration, the steam boiler being in most instances a necessity, even if electric power were utilized, for such purposes as heating, drying and other industrial uses.

Quite a large number of manufacturers also use refuse as a part of their fuel, which reduces the cost of steam production. As an illustration, one of our largest manufacturing concerns, which uses about 1,000 h.p. from steam boilers, produces it at a cost of about \$4 per h.p. per annum, most of the fuel being waste material, shavings, sawdust and blocks.

Then again in business enterprises, where the possibility of a cessation of power would be a serious loss, they cannot afford to take the chance of an occasional stoppage by a breakdown on a long transmission line, which, under present conditions, is not an altogether remote possibility.

Add to all this the fact that in manufacturing plants of any considerable size the percentage of the cost of power is such a small percentage of the cost of the output and the annual expense, and we believe the majority of our leading factories would not readily change to the electric power, even under quite favorable circumstances as to price.

(d) Gas and Gasoline Power.—Gas engines were used to a considerable extent for small powers in Toronto prior to the introduction of the electric motor. It is estimated by one engineer that the gas engine does not now figure as prominently in the city as it might do, especially since the engines of this type for both gas and gasoline have been so largely improved. Neither the gas nor gasoline engine can, of course, displace any of the present electric motor power, but they might be used to advantage, with economical results, in the place of many of the small steam plants now installed generating from, say, 25 to 75 h.p. The heat units of the gas supplied by the Consumers Gas Co. are said to be 650, and from this it is computed that from seventeen to twenty feet of gas would supply a h.p. for one hour, with the latest improved engine. Putting it at twenty feet per hour—the present price of gas being ninety cents—would mean \$54 per h.p. per annum of 300 ten-hour days.

With the latest type of gasoline engine, if, as guaranteed, a wine gallon will give a h.p. for ten hours, at the present price of gasoline (fourteen cents per wine gallon, or 17½ cents per imperial gallon) the price would be about 1 2.5 cents per h.p. per hour. The gas or gasoline engine could not, of course, compete against electric current at Hamilton or Niagara prices.

(e) Compressed Air.—So far this new power has not come into any considerable use in Toronto. There are, however, several large isolated plants utilizing this wonderful force to a considerable extent. In one of our chief factories an air-compressor plant was recently installed, involving an outlay of nearly \$10,000 for the purpose of delivering through the works both low and high pressure air for atomizing fuel oil in oil furnaces, and also for air lifts, pneumatic machines and air tools of various kinds. It would seem that the air motor, if proved a success elsewhere, would, in course of time, get into use here also, which would, no doubt, result in a public service of compressed air being provided in our city.

3. POWER FACILITY AS A FACTOR IN ATTRACTING NEW INDUSTRIES.

The name of "cheap electric power," accompanied, as it generally is, with so many false suppositions regarding its cheap, inevitable, and universal application to industrial

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.

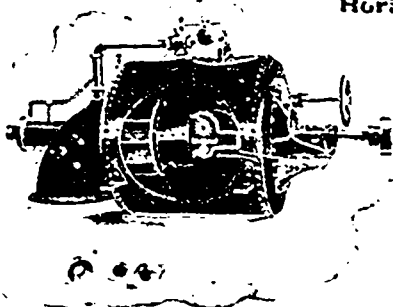
AND AGENCIES EVERYWHERE ABROAD.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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 POWER examined and
Reports made Estimates
submitted for Complete Equip-
ments. - - -

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

purposes, has made cities, having large quantities of electrical power to offer, appear formidable competitors of cities less favored. The idea that power transmitted by electricity is all that is needed to start up immense manufacturing industries is very largely a matter of imagination. We are sure that the promoters of the great Cataract Power Co., of Niagara Falls (N.Y.) were sorely disappointed when their lands were so slowly taken up, and their anticipated rapid developments for the consumption of their power failed to materialize. Cheap power is by no means the all-important feature in attracting new industries. As evidence, there are outlying towns in this province, such as Trenton, which are in a position to offer free site and free electric power to manufacturers, and yet, for the most part, they have achieved very indifferent results. There are other matters, which it is not in the province of this Committee to report upon, which are important to the manufacturer seeking a site, such as facility for transportation, facility for publicity, close association with other industrial enterprises, ease of obtaining contented employees with suitable residences for their accommodation, reasonable arrangement as to site, taxation, water privileges, etc.; indeed, if Toronto ratepayers generally were as much interested in promoting industrial enterprises and getting them to locate in Toronto, as are the citizens of our rival municipalities, we would see Toronto's manufacturing interests develop more rapidly. Something should undoubtedly be done to promote and awaken an interest along this line in Toronto.

4. PROBABILITY AND DESIRABILITY OF CHEAP ELECTRIC POWER FOR TORONTO.

While electric power is not the all-important inducement in procuring new industries that is generally supposed, your Committee believe that cheap electric power would be a great boon to our city, especially to the smaller manufacturers, and that reasonable measures should be taken to procure power connection with one of the companies operating at Niagara Falls. It might be well for the Board of Trade to appoint a committee who would assist in bringing about and encouraging such an enterprise.

We can scarcely anticipate that electric power being furnished under present conditions in our city (it being developed from coal) can be produced at a much cheaper rate. Our hope for cheaper power is to bring the current from one of the great Niagara generating plants. We take it that there is no probability of obtaining power from the same source as the Hamilton Electric Light & Cataract Power Co., since they are not likely to generate more power than Hamilton can conveniently consume, even though, otherwise, arrangements could be effected. Neither is it probable that we can obtain connection with either of the great power companies on the United States side of Niagara Falls. There are two

companies organized for developing and operating plants at Niagara on the Canadian side. One of these, the Canadian Niagara Falls Power Co., is in reality an off-shoot of the Cataract Power Co., of Niagara Falls, (N.Y.) It is only now getting under way with its plant. A new organization recently completed is the Ontario Power Co., of Niagara Falls, Ont. This company is about to begin operations, and alleges its intention of delivering power to Toronto. The question of long-distance transmission of electric current has by no means been satisfactorily solved. The loss is very considerable, to say nothing of the heavy cost of the installation of the lines and the expense of their maintenance. The nearest

McLachlan Electric & Gasoline Motor Co., LIMITED.
MAKE Gas or Gasoline Engines from 1 h.p. to 6 h.p.
 Stationary or Marine and Electric Motors from 1/2 h.p. up.
 Motor Carriages for Pleasure or Business.

94 ADELAIDE T. WEST. TORONTO

One cent spent for a postal will bring you any information you wish.

DAYLIGHT DISCOUNTED.

ACETYLENE GAS

Does it when made by the

"SAFETY"

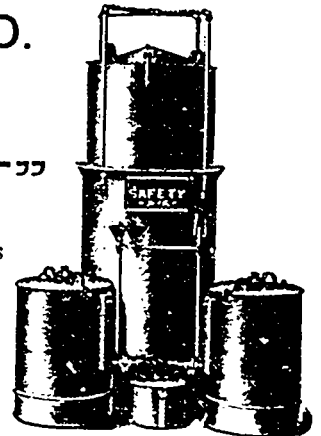
220 MACHINES IN OPERATION AND NO ACCIDENTS SPEAKS VOLUMES.

SIMPLICITY - SAFETY ECONOMY the Leading Features.

Manufactured by

THE SAFETY LIGHT AND HEAT CO.,
 DUNDAS, ONT.

Send for Booklet.



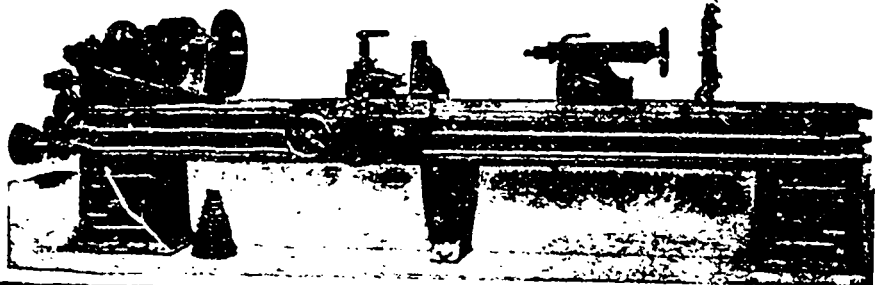
The London Machine Tool Co., LONDON, ONT.

LATHES,
 PLANERS,
 DRILLS,
 SHAPERS,

MANUFACTURERS OF

General Machinery

HAMMERS,
 BULL DOZERS
 PUNCHES,
 PRESSES.



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

THE GARTSHORE-THOMSON PIPE & FOUNDRY CO.

Limited

CAST IRON PIPE

3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers

Special Castings and all kinds of

FLEXIBLE AND FLANGE PIPE.

WATER WORKS SUPPLIES

HAMILTON, ONT.

**THE CANADIAN
 COLORED COTTON
 MILLS COMPANY.**

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

Only Wholesale Trade Supplied.

D. MORRICE, SONS & CO.

AGENTS

MONTREAL and TORONTO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

route by land, around by Burlington Beach, would be some seventy one miles from the power station of the Ontario Power Co. to Toronto. If a cable is found practicable, the total distance from the power station, coming across the lake, would be some forty one miles, thirty six of which would be under water. It is said that this is not an impracticable route. Meantime we take it that it will be at least one to two years before Toronto can be supplied with current from Niagara. The Toronto Electric Light Co. have signified their intention of bringing power from Niagara, and the question arises whether or not Toronto, as a city, should control this proposed Niagara power connection. This is a matter for consideration, and one on which your Committee are not prepared to report at the present time, not having sufficient data at hand.

We are pleased to be able to add that, because rival municipalities have sought to make a strong point of cheap electric power when endeavoring to secure new industries, the Toronto Electric Light Co. have, through their manager, signified their willingness to assist the city authorities in meeting this competition until the power connection with the Falls is established, which would doubtless involve a loss to them.

All of which is respectfully submitted.
 W. E. H. MASSEY,
 Toronto, April 25, 1900. Chairman.

APPLIED ARTS EXHIBITION.

An exhibition of applied arts was opened in the gallery of the Ontario Society of Artists, Toronto, last week, the object of the promoters being to give illustrations of

interest showing how art is utilized by manufactures in the designing and ornamentation of their goods. With the exception of Miss Marion Living, of Ottawa, all the exhibitors were from Toronto. Miss Living sent a number of designs for carpets and also for laces. A large number of architectural sketches were in evidence, among them a design for the Union Bank from Bond & Smith, and other important designs from Messrs. Langton, Paul Weekson & Eden Smith. There were samples of tasty book-covers and book-plates from Brown Bros., The Grip Co., George, N. Morang & Co., and Rev. William Briggs. W. N. McCormack & Co. showed a fine selection of wood-carving and ornamental panels. Some excellent work in leather embossing was contributed by Mr. Gustavo Hahn, the work of Mrs. Hahn. Embossed leather

JOHN J. KELLER & CO.

104 and 106 MURRAY ST.
 NEW YORK

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

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

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

MANUFACTURED BY
JOHN R. GEIGY & CO.
 BASLE, SWITZERLAND

**LIGHT YOUR
 FACTORY WITH**

LUXFER PRISMS



The latest device for

LIGHTING

dark rooms and
 offices

By Daylight

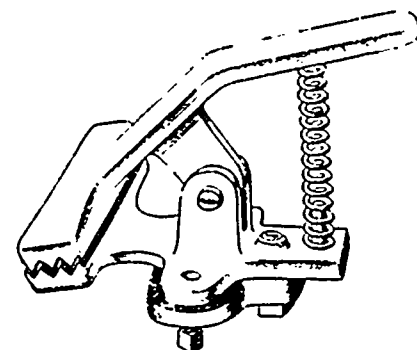
For catalogue
 and estimates
 write to

**Luxfer Prism
 Co'y, Limited.**

98 King Street West, TORONTO

**Hardware Manufacturers
 and Capitalists**

ATTENTION!



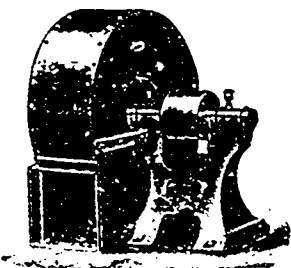
The Canadian patent, No. 62,417, Bed Clothes
 Clamp, for sale, or will place on Royalty.

I MEAN BUSINESS

Awarded first prize at National Export Ex-
 position, Philadelphia, 1899.

For full particulars address at once

**L. M. Lownes,
 Norristown, Penn.**



**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

HAEMOTOL

For Wool

Dyed over a Chrome and Tartar
 Mordant produces a black on
 wool equal to Alizarine
 Black for fastness,
 but at a much
 lower cost.

Solo Manufacturers

F. E. ATTEAUX & CO.

53 Colborne St. 13 Lamolne St.
 TORONTO, ONT. MONTREAL

Main Office and Works:

BOSTON, MASS., U.S.A.

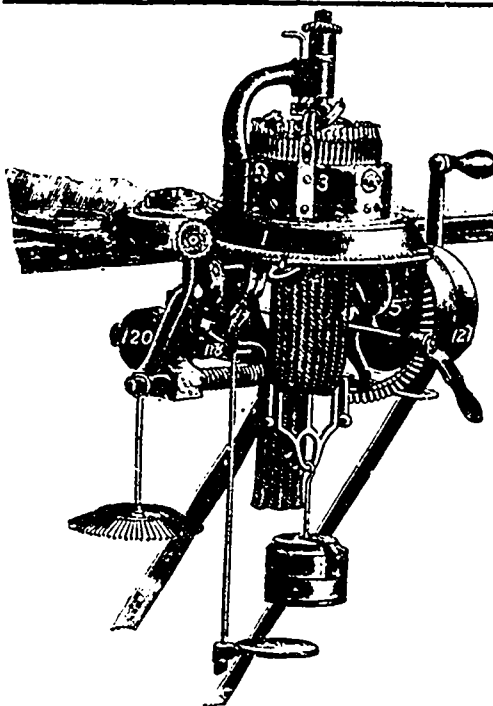
lacquered was shown by Miss Boreford Tully. Special interest attached to the design for a grand piano made by the Reid Mfg. Co., the case and decorations by Mr. G. A. Reid. There was also a mantel decorated by Mr. Reid, designed by Bond & Smith, and manufactured by Rogers, Sons & Co., a very original piece of work. An assortment of samples of olive green carpets was shown by the Toronto Carpet Mfg. Co. Mr. Reid exhibited some designs for mural decorations. Three startling posters for advertising purposes come from J. D. Kelly. Designs in relief, staff and plaster were shown by Bailey & Obon, and W. J. Hynes. There were numerous other articles, all having some distinctive interest.

DOMINION EXHIBITION.

A meeting of the Industrial Exhibition Board was held in the offices of the Association this week to consider a report on the estimates required for new buildings for the proposed Dominion Exhibition next year. The estimates provided for an expenditure of nearly \$200,000 on permanent buildings, of which \$113,000 was recommended and asked for last year, but held over in view of the proposed Dominion Exhibition of 1901. The estimates are made up as follows:— Main building, \$105,000; dairy building, \$12,500; art gallery, \$11,500; stove building, \$9,500; horticultural building, \$15,500; agricultural building, \$8,000; police, fire department and hospital, \$6,500; administration building, \$6,000; repairs to implement building, \$1,500; lavatories, \$3,000; addition to poultry building, \$1,500; fittings for new buildings, \$2,500; natural history

building, \$7,000. The report, which was unanimously adopted, urged upon the Board and the city the importance of letting the contracts as soon as possible, not alone to have the buildings ready in time, but also because both labor and material were advancing in price. It was pointed out that whether the Dominion Exhibition was held

or not, upwards of \$100,000 would have to be expended forthwith on buildings. Dr. Smith, the president; Mr. Robert Davies, vice-president, and Mr. W. J. McWilliams, the solicitor, were appointed a committee to visit Ottawa and urge the Government to give a speedy reply to the application for assistance towards the Dominion Exhibition.



**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.

AN IMMENSE CANADIAN BRIDGE.

The Phoenix Bridge Co., of Phoenixville, Pa., has received the contract to build the great St. Lawrence River bridge at Quebec. The contract is said to be the largest ever given to a single concern for the erection of a bridge, the contract price of which will aggregate \$4,500,000. The bridge will be one of the largest in the world and it will require 27,000 tons of steel to build it. It will be 150 feet above the river, so that ships with the tallest masts can pass under it.

The bridge will be seventy-six feet wide and will be built in three spans, two of 600 feet each and the centre span will be 1,800 feet. The middle span will be a cantilever and will be the largest in the world, surpassing the great span of the Tay bridge in Scotland by several hundred feet. The bridge will contain four railway tracks, driveway and walks on each side.

It will take the Phoenix Bridge Co. three years to turn out the structural material and erect the bridge, and in order to do the work much new machinery will have to be secured, and some of the shops will have to be enlarged and equipped for the work. In order to ship the structural material from Phoenixville to Quebec, cars will have to be made, as no cars now in existence would hold the massive beams and girders that will be used in the construction of this great bridge.

The engineers are now busy working on the plans of the bridge, and as soon as they are complete work on the structural material will be begun. The greatest skill will have to be used in building the great cantilever span, as it will be several hundred feet longer than any other like span ever built. To haul the structural material from Phoenixville to Quebec it will require a train of 900 cars.

W. S. Hutton, in his "Steam Boiler Construction," states that "the economy that may be obtained by combustion with forced draft in a steam boiler is due to the increased rate of combustion and increased efficiency of the heating surfaces produced by it, resulting in increased boiler power. The increase of power obtained depends principally upon the quantity of air brought into intimate contact with the fuel in a given time, but the power of the boiler may generally be increased from forty to 100 per cent. by the application of well arranged forced draft."

WARM
WEATHER
FANS

DUST PROOF ELECTRIC MOTORS
CARRIED IN STOCK
READY FOR OPERATION

B. F. STURTEVANT CO., Boston

New York Philadelphia Chicago London

BEAN MILLS IN CHINA.

In my report for 1896 I mentioned the erection of a bean-mill with foreign machinery manufactured in Hong-Kong, and I stated that if it proved a success, there was every reason to believe that rival mills would be started. Such has proved the case, and a larger mill of the same type is now in course of construction, and is already turning out bean-cakes and bean-oil in limited quantities. The estimate of 4,000 cakes a day for the older mill has proved somewhat high, and I understand that 3,000 cakes are nearer the actual out-turn. This mill has been fitted with a windmill supplied by the Aermotor Co., and utilized for pumping water from the river. Both mills have likewise been fitted with the electric light.—British Consul at Newchwang.

McLACHLAN GASOLINE MOTOR.

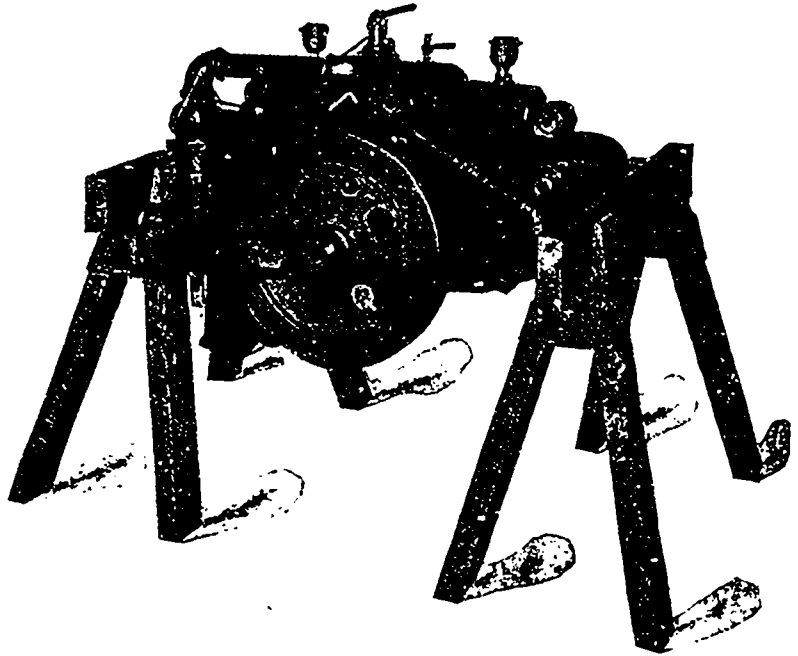
The accompanying illustration is of a gasoline motor being manufactured by the McLachlan Electric & Gasoline Motor Co., 94 Adelaide Street West, Toronto. It is a photographic reproduction of the engine as it stood in the Company's shops when put in motion and run at full speed without being bolted down to a bed. Patents covering the peculiarities of the engine, have been applied for. The dimensions are: length, two feet 9½ inches; width, twenty-two inches; height from bottom of fly wheel to highest point, twenty-two inches; from bottom of fly wheel to centre of shaft, eight inches; weight, 300 pounds; capacity, 5 h.p.

The engine can be run from 100 to 1,000 revolutions per minute, with no other foundation than as represented in the illustration, and without any fastening to the floor or otherwise. It is built for special adaptation for propelling boats, horseless carriages, etc., where freedom from jar or vibration is to be desired. In fact, the builders guarantee that, when in motion, there is as little vibration as there is in an electric motor. The expense of running this engine is very small, requiring only about one pint of gasoline per hour per horse power, or about one gal-

lon of gasoline for a fifty mile run on a fairly good road. It is simple in construction, exceedingly durable, and requires but little attention.

It is made in different sizes and styles according to the service to be required of it. The Company are prepared, not only to sup-

ply the engines, but also the boats, yachts, launches, etc., or wheeled vehicles required to be driven. The Company are building up a very encouraging trade in this engine. They have recently sold two of them to go to Parry Harbor, Ont.; two for pleasure yachts being built in Toronto; one for similar purposes at Belleville, Ont.; one for the Anderson Fish Co., at Victoria Harbor, Ont.; one to Schouburg, Ont.; one to Midland, Ont.; two to River Carlo, N. B.; one to Campbellton, N. B.; two to Kingston, Ont.; and



ply the engines, but also the boats, yachts, launches, etc., or wheeled vehicles required to be driven.

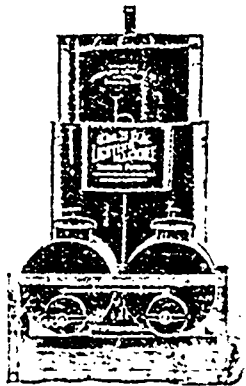
The Company are building up a very encouraging trade in this engine. They have recently sold two of them to go to Parry

one to Victoria, B. C. They are also in receipt of enquiries from Bubna, New York City, Buffalo, Indianapolis, England and Scotland.

For further information apply to the Company at above address.

Sun Lighting Machine.

ACETYLENE GAS.



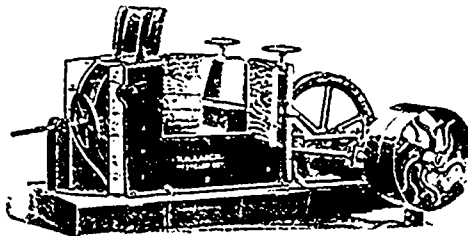
*The
Acme
of
Perfection
in
Lighting.*

At the Minimum of Cost.

Suitable for any place where Artificial Light is required. Dwellings, Stores, Churches, Factories, Hotels, Street Lighting, etc.

Write for Catalogue.

THE
Acetylene Lighting Co.
(LIMITED).
LONDON, ONTARIO.



H. W. KARCH

HESPELER, ONT.

IRON FOUNDER and MACHINIST

Manufacturer of

WOOLEN MACHINERY,

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

The Packard Electric Co., Limited.

MAKERS OF

**Lamps and
Transformers**

Sole Agents for SCHEEFFER RECORDING WATT METERS
ST. CATHARINES, ONT.



TENDERS FOR COAL, 1900.

Sealed tenders, addressed to the Provincial Secretary, Province of Ontario, Parliament Buildings, Toronto, and marked "Tenders for Coal," will be received up to noon on **MONDAY, MAY 28th, 1900**, for the delivery of coal in the sheds of the institutions named below, on or before the 15th day of July next, except as regards the coal for London, Hamilton and Brockville Asylums and Central Prison, as noted:

Asylum for Insane, Toronto.

Hard coal—1,100 tons large egg size, 150 tons stove size, 150 tons nut size. Soft coal—450 tons lump, 150 tons soft screenings.

Asylum for Insane, London.

Hard coal—2,500 tons small egg size, 200 tons egg size, 205 tons stove size, 50 tons chestnut size. Soft coal—40 tons for grates. Of the 2,500 tons, 700 may not be required till January, 1901, also 50 tons egg size.

Asylum for Insane, Kingston.

Hard coal—1,700 tons large egg size, 275 tons small egg size, 25 tons chestnut size, 500 tons hard screenings, 500 tons soft screenings, 20 tons stove size (hard).

Asylum for Insane, Hamilton.

Hard coal—2,350 tons small egg size, 245 tons stove size, 121 tons chestnut size, coal for grates, 41 tons; for pump house, 200 tons imported slack, 75 tons imported screenings. Of the above quantity, 2,128 tons may not be required until January and February, 1901.

Asylum for Insane, Mimico.

Hard coal—1,750 tons large egg size, 120 tons stove size, 10 tons coal for grates, 30 tons nut coal, 100 tons soft screenings, 50 cords green hard wood.

Asylum for Idiots, Orillia.

Soft coal screenings or run of mine lump, 1,500 tons; 80 tons hard coal, stove size.

Asylum for Insane, Brockville.

Hard coal—1,100 tons large egg size, 150 tons stove size, 50 tons small egg. Of the above quantity 1,050 tons may not be required until January and March, 1901.

Central Prison, Toronto.

Hard coal—25 tons nut size, 100 tons small egg size. Soft coal—2,200 tons soft coal screenings or run of mine lump. The soft coal to be delivered in lots of 100 tons monthly.

Institution for Deaf and Dumb, Belleville.

Hard coal—700 tons large egg size, 90 tons small egg size, 12 tons stove size, 14 tons No. 4 size; soft coal for grates, 1 tons.

Institution for Blind, Brantford.

Hard coal—400 tons egg size, 175 tons stove size, 25 tons chestnut size.

Reformatory for Boys, Penotang.

Forty tons egg size 61 tons stove size, 15 tons nut size, 500 tons soft coal screenings. Delivered at institution dock.

Mercer Reformatory, Toronto.

Soft coal screenings, 500 tons; stove coal, 120 tons.

Tenders are to specify the mine or mines from which the coal will be supplied, and the quality of same, and must also furnish satisfactory evidence that the coal delivered is true to name, fresh mined, and in every respect equal in quality to the standard grades of coal known to the trade.

Delivery is to be effected in a manner satisfactory to the Inspectors of Prisons and Public Charities.

Tenders will be received for the whole quantity as specified or for the quantities required in each Institution. An accepted cheque for \$500, payable to the order of the Hon. the Provincial Secretary, must be furnished by each tenderer as a guarantee of his bona fides, and two sufficient sureties will be required for the due fulfillment of each contract. Specifications and forms and conditions of tenders may be obtained from the Inspectors of Prisons and Public Charities, Parliament Buildings, Toronto. The lowest or any tender not necessarily accepted. Newspapers inserting this advertisement without authority from the Department, will not be paid for it.

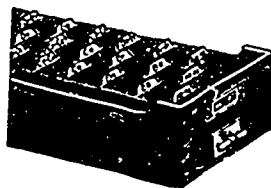
J. R. STRATTON, Provincial Secretary,
Parliament Buildings, Toronto.
May 7, 1900.

CHEAP ELECTRIC POWER.

Toronto is almost the only important manufacturing centre in Canada which still does its work with steam-produced electric power. Quebec, Montreal, Ottawa, Hamilton, almost all of Toronto's competitors, have magnificent water-powers near by that have been harnessed to the wheels of industry. Now we have a definite promise from the Ontario Power Co., backed by a substantial deposit, that the power of Niagara will be brought to this city so soon as the necessary work of development can be done, and sold at prices not greater than those charged in Buffalo. The transmission of electric power for long distances has been so much improved of late that there is no longer doubt as to the commercial practicability of the venture, and the large users of electric power will probably follow the example set in Montreal and, abandoning their steam plants, utilize the water-produced electricity.

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

Know Your Customers



Their addresses, buyers' names, ratings and references, how they pay, what they deal in, etc. No man can afford to clutter up his mind with the details of his business which could easily be preserved in a permanent form, which you can obtain by using one of Archibald's special outfits.

\$2.25

Shipped on approval. If not satisfactory, return it at our expense.

Consisting of 1 quarter-sawed oak desk drawer box, 9 inches long; 400 Record Cards, ruled; 1 set of Alphabetical Index Cards; 1 set of Daily Guides; 2 extra Dividers; Customers' and Blank Cards.

New 1900 Catalogue for the Asking.

The Canadian Typewriter Exchange
45 Adelaide St. East, TORONTO.

According to The Globe, the economic effect of the impending revolution will be very great. At the present time Toronto uses about 17,000 horse-power for all purposes of lighting, mechanical haulage and factory work. The power is all imported from the United States in the form of steam coal, and of course the citizens and those to whom the products of the city's factories are sold have to pay for the coal, plus the duty collected by the Government. When Niagara power comes, this importation of coal will cease, and a large part of the money

GALVANIZING

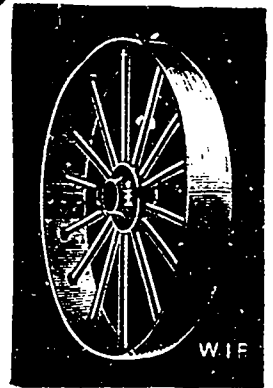
We are prepared to attend to all orders **Promptly and Economically.**
WINDMILLS, PUMPS, TANKS, Etc.
ONTARIO WIND ENGINE and PUMP CO.
LIMITED,
95 ATLANTIC AVE., TORONTO.

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



THE UNBREAKABLE PULLEY
AND MILL GEARING CO., Limited.
HUNTERS LANE, WEST CORTON, MANCHESTER, ENGLAND.

Agents Wanted.



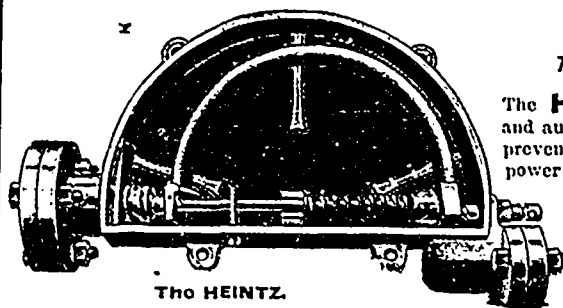
PULLEYS . .
BEARINGS . .
SHAFTING . .
Gas Engines.

Don't waste your Steam—It Costs Money!
IT takes Fuel to make Steam!

THE LESS USED
THE SMALLER THE COAL BILLS.

The **HEINTZ** saver will economically and automatically control all steam outlets, preventing waste—increasing productive power at a less cost for fuel.

A line by mail will bring descriptive booklet B., proving interesting to all steam users.



The HEINTZ.

The James Morrison Brass Manufacturing Co., Limited, - TORONTO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

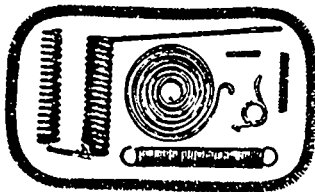
A. C. NEFF
CHARTERED ACCOUNTANT
 Room 600 McKinnon Bldg.,
 Tel. 1330. — TORONTO.
 Audits and Investigations a Specialty.

THE ...
Toronto Paper Manufacturing Co.,
Cornwall, Ont.

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

KIRVAN & BARNARD,
ELECTRICAL ENGINEERS and CONTRACTORS, Purchasing Agents,
 Complete Electric Light Plants,
 Wiring, Dynamo and Motor Repairing,
 Residential and Factory Work, Telephones,
 Bells, and all Electric Fixings. Specifications,
 Plans, Tests and Consultations. Estimates
 furnished free, and all work promptly executed.
 112 Church St., Toronto. Phone 8363.

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



ST. JOHNS SPRING CO.
 St. Johns, Mich.

Manufacturers of

**OIL TEMPERED,
 TORSION,
 EXTENSION,
 COMPRESSION SPRINGS.**

All Shapes and Sizes.

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

C. B. THISTLETHWAYTE,
 Manufacturers' Agent,
 (Canadian Lanes)

31 VICTORIA CHAMBERS
 76 PITT STREET, SYDNEY, N. S. W.

Will be pleased to communicate with Manufacturers seeking the extension of their trade to Australia.

CANADIAN OFFICE & SCHOOL FURNITURE CO. LIMITED
 PRESTON, ONT.
 FINE BANK OFFICE, COURT HOUSE & DRUG STORE FITTINGS
 OFFICE SCHOOL, CHURCH & COLLEGE FURNITURE
 SEND FOR CATALOGUE

now paid for it will remain in the pockets of the citizens who use light, who hold stock in the street car company-- because in that case, unfortunately, the fares are fixed, and the saving will be in the cost of operation-- or who now pay high prices for steam-produced power for manufacturing purposes. The cost of goods into which power enters largely will be greatly reduced, and the opportunities of competition correspondingly increased.

It is to be presumed that the street railway and the other big institutions like the Massey Co. and the Island Ferry Co. who have at present their own electric plants, will buy directly from the producers at the Falls. The city, which has now an annual coal bill for waterworks purposes of \$70,000, would be a large customer, because not only this sum but the chief part of the \$75,000 spent for electric street lighting is really paid for coal, and the water produced electricity would be very much cheaper. The Electric Lighting Co. will, of course, find its plant for producing electricity by steam on its hands, but it will be otherwise in a very advantageous position for distributing cheap power and light to the smaller consumers, because its mains and feed wires thoroughly cover the city and render the installation of a new distributing plant unnecessary, unless the company decides to fight water-produced power with coal produced power, which we fancy none of its advisers will counsel. The probability is rather that it will adapt itself to the new conditions and become a distributing agency of the Niagara power.

The changes outlined will take probably three years in the accomplishment, but they will place Toronto in as good a position as its rivals in the race for industrial supremacy. To have Niagara behind us will be the next best thing to the discovery of perpetual motion. There will also be a very comfortable feeling in the knowledge that the gentlemen who sit in their parlor in New York and fix the price of bituminous coal for all of eastern North America will take less toll of the people of Toronto.

A BLOW AT THE SWEATING SYSTEM.

A bill introduced by Hon. Mr. Latchford, into the recent Ontario Legislature, to amend the shops regulation act, would, had it been enacted into a law, have been a severe blow to the existence of the "sweating system" in the province. The bill provides that every person contracting for the manufacture, improvement or alteration of clothing, or parts of clothing, shall keep a written register, prominently posted, of the names and addresses of all persons to whom such work is given out to be made, and each article so made shall bear upon a label the name and address or number of the person making it. Such articles shall not be exposed for sale without a permit from the inspector, showing that the place of manufacture is in a thoroughly clean and sanitary condition. When such an article of clothing is found to have been made under unclean or unhealthy conditions it shall be seized and impounded, and a label "insanitary" placed on it, after which it shall be disinfected by the Board of Health at the owner's expense. The Board of Health, if they see fit, may destroy articles of clothing which they find were made in a work shop, tenement or dwelling, where the inspector finds evidence of unclean or unhealthy conditions, or infections or contagious diseases.

FOR SALE

- Two Complete Flour and Grist Mills.
- Two 18" Lefel Water Wheels.
- One 10" " " "
- Two Run 5" Stone.
- One Run 18" Stone.
- One Trick Scale.
- One Barrel Scale.
- One Wheat Scourer and Smutter.
- One Half chest of Reels, 18" x 30".
- One Huntley, Holamb & Hene Purifier.
- One Reel, 18" x 30".
- One Wheat Scourer.

ADDRESS

THE BRANTFORD ELECTRIC & OPERATING CO., Limited,
 BRANTFORD, ONT.

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

H. FAWCETT HARTLAND,
 207 St. James Street, Montreal.
 Correspondence Solicited.

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

Also at GLASGOW. LEITH.
 Advances on Consignments.

Paris Electro Plating Co.
 PARIS STATION, 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 Discount

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.**

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

GEO. PATTINSON & CO.

PRESTON, - ONTARIO.

Manufacturers of

FINE AND MEDIUM **TWEEDS**

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.

JOHN HALLAM

TORONTO.

WHOLESALE DEALER IN

DOMESTIC and FOREIGN **WOOLS**

Sumac, Japonica, etc.

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

Manufacturers of..... FINE GLOVES AND MITTS

In every variety and style. Moccasins.

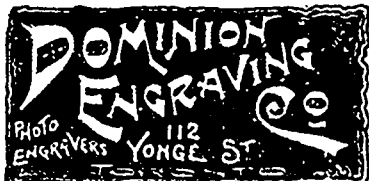
WM. BARBER & BROS.

Georgetown, Ont.

Manufacturers of.....

Book and Fine Papers.

Reproductions Made for Eight
Cents per Square Inch.



Half Tones Made Direct from
Photos.

WOOL.

A. T. PATERSON & CO.,

...Merchants...

*London and Lancashire Life
Insurance Buildings,*

Represented by 164 ST. JAMES STREET,
MR. DAVID GUTHRIE. MONTREAL.

**BELL
PIANOS and ORGANS**

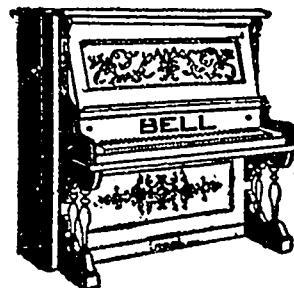
BUILT TO LAST A LIFETIME
AND USED THE WORLD OVER

Send for Catalogue No. 47 to

THE BELL ORGAN AND PIANO CO., LIMITED

QUELPH. - - 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 Sar-
gent's Electrical Attachment; Crosby Improved Steam
Gages, Recording Gages and Patent Gage Testers.
Original Single Bell Chime Whistles.

BRANDEN PATENT PUMP VALVES

CLARK'S LINEN FIRE HOSE AND ADJUSTABLE COUPLINGS

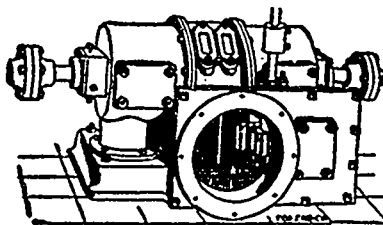
All Kinds of Pressure and Vacuum Gages used in the Various Arts

Gold Medal Paris Exposition, 1889

Ten Highest Awards Columbian Exposition, 1893

Main Office and Works..... **BOSTON, MASS, U.S.A.**
Branch Offices at New York, Chicago, and London, Eng.

Underwriter



Horizontal Type.

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

Correspondence Solicited.

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

ROLLED THREAD MACHINE SCREWS

Equal
to OUT
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.

**"LITTLE GIANT"
TURBINE**

....FOR ALL PURPOSES....

HORIZONTAL AND VERTICAL
BUILT IN 44 SIZES.

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

FIRSTBROOK BROS.

Dovetail and Packing Boxes

Top-Pins, Side Blocks and Cross Arms. Wood
Printers, Etc.

Cigar Boxes. Shipping Cases.

TORONTO, ONTARIO

Write for Prices.

CARBONIZER

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

UNITED STATES
and FOREIGN...

PATENTS

TRADE MARKS
and COPYRIGHTS

CONSULTING

ENGINEERS
and
EXPERTS.

Marion & Marion
MONTREAL & WASHINGTON

**McARTHUR,
CORNEILLE & CO.,**

OFFICES:
310 to 316 St. Paul Street.

WAREHOUSES .
147 to 151 Commissioners Street.

...MONTREAL...

AGENTS FOR . . .

- Berlin Aniline Co.,
Aniline Colors and other Coal Tar
Products.
- Stamford Manufacturing Co.,
Dyewoods and Extracts.
- Coez, Langlois & Co.,
French Extracts.
- Miller Extract Co., Hemlock Extracts
- British Alizarine Co., Alizarine.
- J. H. Heald & Co., Extracts Oak, etc.



**The Ontario . . .
Malleable Iron Co.**

(Limited)

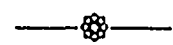
...Manufacturers of...

MALLEABLE IRON Castings to
Order for all kinds
of

**AGRICULTURAL
IMPLEMENTS .**

....AND....

**Miscellaneous
Purposes**



OSHAWA, - - ONT.

THE UNITED ELECTRIC CO. 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.**

THE CANADA SWITCH & SPRING CO., LIMITED.

Manufacturers of
..... SPECIALTIES FOR.....

**Steam and
Electric Railways.**

**SPRINGS, STEEL CASTINGS,
FROGS, FORGINGS,
TRUCKS FOR ELECTRIC RAILWAYS, ETC.**

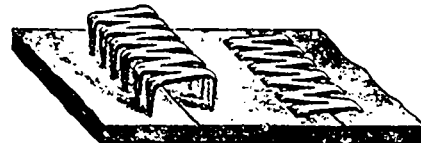
**INTERLOCKING SWITCH
and SIGNAL PLANTS,**

(Under patents of Messrs. Saxby & Farmer,
Limited, of London, Eng.)

**CANAL BANK, POINT ST. CHARLES,
MONTREAL.**

BRISTOL'S PATENT STEEL BELT LACING

— ONE HUNDRED SIZES —



Greatest Strength with Least Material

EASILY APPLIED and LOW IN PRICE

Saves Time, Saves Belts, Saves Money
SAMPLES SENT FREE



THE **BRISTOL CO.**
WATERBURY, CONN.

SMITH'S FALLS

**Malleable
Iron
Works . .**

00000

CAPACITY 2,000 TONS.

00000

WILLIAM H. FROST

PROPRIETOR,

SMITH'S FALLS,

ONTARIO, CANADA.

CARRIER, LAINE & CO. | Dredges.

SAW MILL
MACHINERY

Montreal Branch....
147 St. James St

TRADE MARKS
REGISTERED
FOR
PROTECTION
OF
PRICES.
DEVELOPMENT