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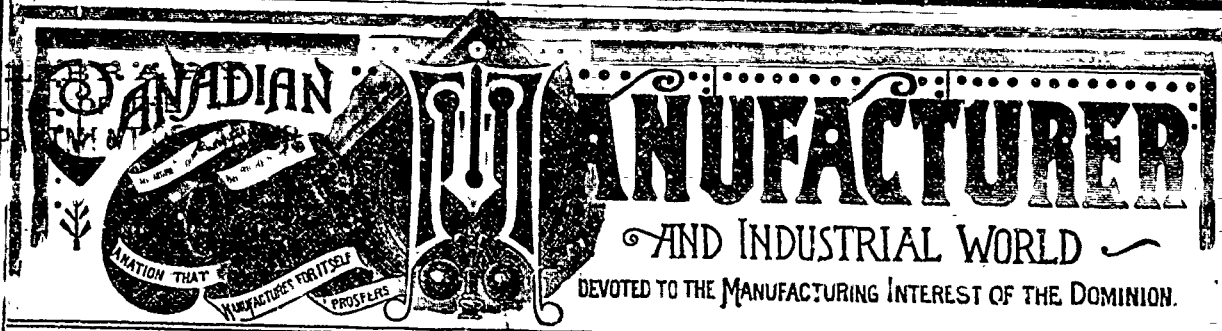
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VOL 47. TORONTO, OCTOBER 2, 1903. No. 7

**STEAM BOILERS**  
 FOR ALL PURPOSES  
**ECONOMY DURABILITY SAFETY**  
 HEATERS, SUPERHEATERS, ECONOMIZERS AND STEAM ACCESSORIES  
**BABCOCK & WILCOX LIMITED**  
 NEW YORK LIFE BLDG., PLACE D'ARMES MONTREAL  
 Toronto Office—114 King St. West

**"REDSTONE"**  
**HIGH PRESSURE Sheet Packing**  
 MAKES PERFECT JOINTS.  
 Does not blow out and requires no following up.  
 Try a sample lot and be convinced of its merits.  
 MANUFACTURED SOLELY BY  
**The Gutta Percha & Rubber Mfg. Co. of TORONTO, LIMITED**  
 Head Office and Warerooms:  
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 XC Plate or Tinned CASTINGS also made to order.  
**McKinnon Dash & Metal Works Co., Limited**  
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**ELECTRIC LIGHT AND POWER CABLES**  
 FOR UNDERGROUND INSTALLATIONS  
**The Wire & Cable Company, - - Montreal**

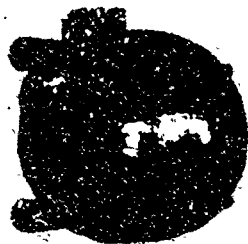
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**OTIS ELEVATORS**  
**CANADIAN OTIS ELEVATOR COMPANY, LIMITED**  
 OFFICES  
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 AND ALL PRINCIPAL CITIES

THE...  
**Walkerville Malleable Iron Co., (Limited)**  
 Manufacturers of...  
**REFINED AIR FURNACE Malleable Castings**  
 ALSO LIGHT IRON CASTINGS.  
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# Floor Space is Valuable!



For Attaching to Wall

## Type 1 B Direct Current MOTORS



For Suspension from Ceiling

### FOR POWER PURPOSES

Substantial, Compact, Practical and Efficient

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

Our Motors are the Standard of the World.

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LIMITED.

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## STEEL RAILS

We are now offering Highest Quality

**BESSEMER STEEL RAILS**

made by the

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of SAULT STE. MARIE, ONT.

**DRUMMOND, McCALL & CO.,**

GENERAL SALES AGENTS

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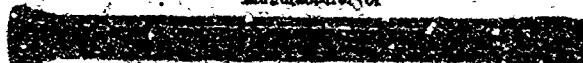
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SUCCESSORS TO (Limited)

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Manufacturers of (Limited)



"Specials," Hydrants, Valves, Etc.

Offices: - - - Canada Life Building,  
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**WHEEL CO., LIMITED**  
(Formerly HART EMERY WHEEL CO.)  
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OUR SPECIALTY:—

Craig Mine Crystal Corundum  
Wheels.

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

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

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LIMITED  
GALT, Ont., Canada.

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For all power purposes.

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

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

**Boilers** for all powers and purposes. **Heaters, Pumps.**  
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Oakey's Flexible Twilled Emery Cloth.

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

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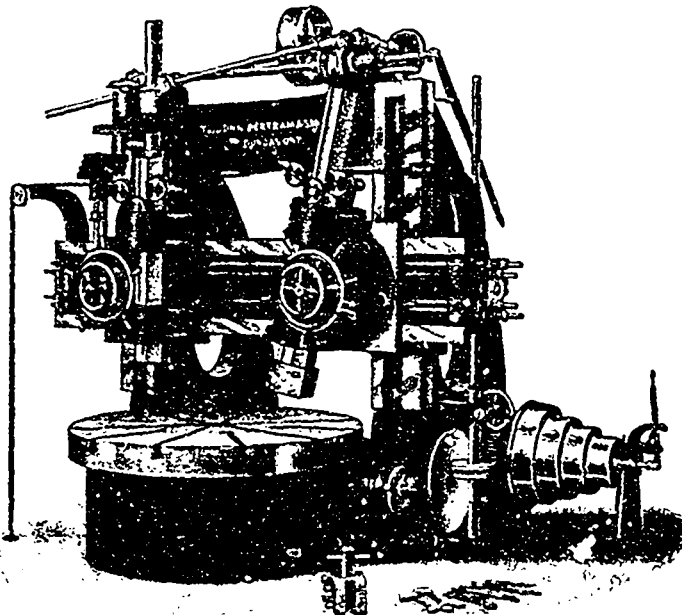
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**JOHN FORMAN,** - 650 Craig St., MONTREAL

**ALL THE BEST  
SHOPS ARE  
INSTALLING OUR**

## BORING and TURNING MILLS



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

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

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

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

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DUNDAS, - ONTARIO

# CAMMELL STEEL RAILS ALL SECTIONS and WEIGHTS

LIGHT RAILS—12, 18, 25 lbs.—in Stock

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

LARGE STOCK of Wheelbarrows, Scrapers, Picks

Shovels, Hammers, Track Tools,

**BARRETT JACKS**

**JAMES COOPER, - - - - Montreal.**

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MANUFACTURERS OF

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## BRIGHT COMPRESSED STEEL SHAFTING

FROM  $\frac{1}{2}$  TO 6 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN  $\frac{1}{32}$  OF AN INCH.

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

**RAILWAY AND ELECTRIC RAILWAY CAR AXLES**

**FISH PLATES, SPIKES AND TRACK BOLTS**

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

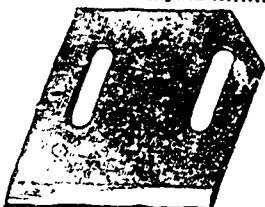
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**GALT, ONT.**

Manufacturers of Every Description of.....

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



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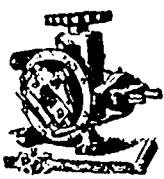


Shear Blades,  
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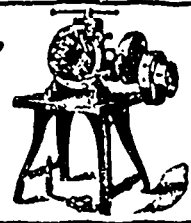


Quality Guaranteed. Special Knives Made to Order. Send for Price List

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**ARMSTRONG'S PIPE THREADING AND CUTTING OFF MACHINES,**  
*For Hand or Power.*  
 Save Time and Labor. Capacity from 1/4 to 6 inches.  
**Armstrong's Genuine Stocks and Dies,** THE BEST WATER, GAS, AND STEAM  
ARE MANUFACTURED BY FITTERS' TOOLS  
**THE ARMSTRONG MFG. CO., - BRIDGEPORT, CONN.**  
 New York Office- 139 Centre St. Catalogue on Request.



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ENGLISH HOUSE—SAMUEL, SONS & BENJAMIN, LONDON, E.C.

## CANADA IRON FURNACE CO., Limited

Manufacturers of the well-known

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### "C.I.F." THREE RIVERS CHARCOAL PIG IRON

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

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

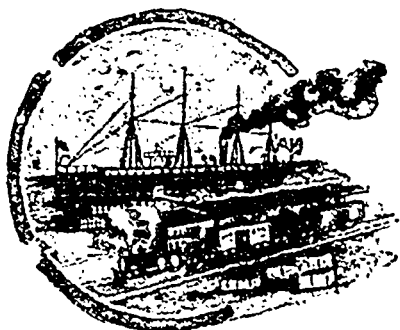
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WHOLESALE DEALERS IN  
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 Best Grades of BLACKSMITHS' COALS.  
 Best Grades of FOUNDRY COKES.  
 Shipments made direct from Mines to any point in Canada. Write for quotations.

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<p><b>WE-FU-GO</b>  <b>SCAIFE</b> Water Softening and Purifying Systems                  FOR STEAM BOILERS AND ALL INDUSTRIAL USES.</p>	<p><b>SCAIFE SAND AND CHARCOAL FILTERS...</b>                  FOR DOMESTIC AND INDUSTRIAL PURPOSES.                  Filters and Filtering Systems of any Size and Capacity.</p>
<p><b>WM. B. SCAIFE &amp; SONS CO., (FOUNDED 1802), PITTSBURG, PA.</b></p>	



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"Absolutely safe and reliable. Ask your friends."

## A SPRINKLER SYSTEM

is a waste of money unless there is a water supply sufficient to make it effective.

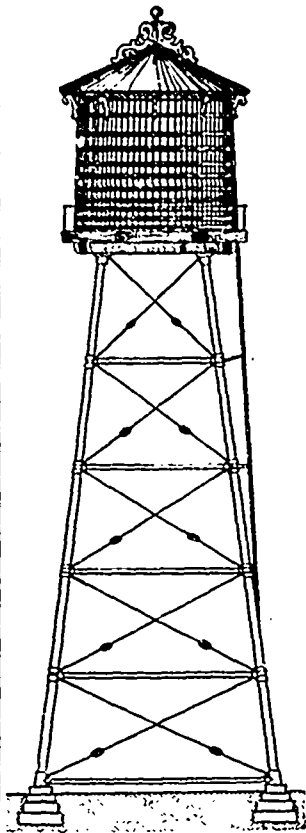
### A Caldwell Tank on a Caldwell Tower

will give at small cost a supply of water at a uniform pressure for both the daily needs and

#### Fire Protection.

Can you afford to be without it? Let us send our catalogue and price list.

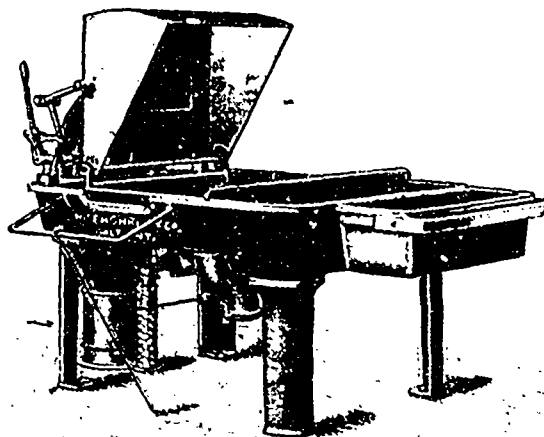
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# Down Draft FORGES

— FOR —

**BLACKSMITH and CARRIAGE  
SHOPS . . .**



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

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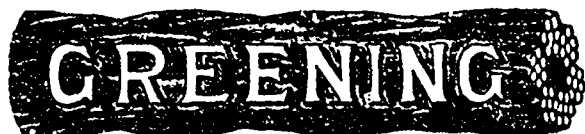
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## WIRE ROPE

ALL KINDS AND SIZES  
and for all purposes.

Standard and Lang's  
Patent Lay.

Prices Right



PROMPT  
SHIPMENTS



**The B. GREENING WIRE CO., Limited,** HAMILTON, ONT.  
MONTREAL, QUE.

## THE DAY OF JUDGMENT IS COME AFTER ALL

And the jury have unanimously agreed that all the manufacturers in Canada who are looking out for their interests, are duty bound to protect themselves by using "SYRACUSE BABBITT METAL" only, the manufacturers to decide what grade of babbitt they want to purchase.

For high speed and heavy pressure machinery they may choose such as Aluminum Genuine, Government Genuine, Hard Genuine and Dynamo; for medium speed Special, Manganese, Car Box and Extra: for slow speed No. 1, 2, 3, and 4.

The Syracuse Smelting Works shall have their name on every bar as a guarantee for the quality. Price is to be the lowest in Canada. Also every plumber or manufacturer who has any use whatever for any kind of solder must use the Syracuse Smelting Works' for their own protection.

### THE VERDICT.

Everybody who is not using "Syracuse" Babbitt Metal or Solder, in fact any metals they manufacture, is working against their own interests. A word to the wise is sufficient.

## SYRACUSE SMELTING WORKS

MONTREAL, CAN.

NEW YORK, U.S.A.

SEATTLE, WASH.

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MANUFACTURE "RATHBUN'S STAR" BRAND

## THE LEADING CANADIAN PORTLAND CEMENT

Capacity of Works—500,000 Barrels per Year

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

SALES  
AGENTS

ST. LAWRENCE PORTLAND CEMENT CO.,  
101-102 Board of Trade Building,  
MONTREAL, QUE.

## PORTLAND CEMENT

*Samson Brand. Magnet Brand.*

Made at SHALLOW LAKE, ONT.

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

### THE OWEN SOUND PORTLAND CEMENT CO., Limited

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

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

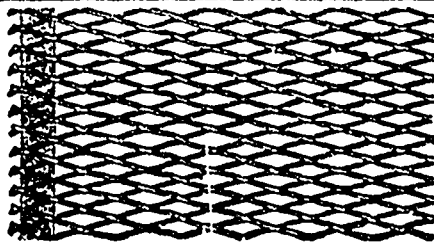
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MANUFACTURERS OF THE WELL-KNOWN

"Hammer Brand" **Calcined Plaster** AND **PATENT ROCK WALL PLASTER.**

HILLSBOROUGH, N.B., CANADA.



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

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

## "SCIOTO" FIRE BRICKS

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

Manufactured and Sold Direct by

LET US TELL YOU ABOUT THEM.

WE HAVE NO MIDDLE MEN.

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

## "Beech Creek" FIRE BRICK

STRICTLY HIGH GRADE

MADE ONLY BY

**PENNSYLVANIA FIRE BRICK CO.,**  
LOCK HAVEN, PA., U.S.A.

Special Mixtures for use in Rolling Mills,  
Malleable Iron Works, Steel Works, Blast  
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*Difficult Shapes a Specialty.*

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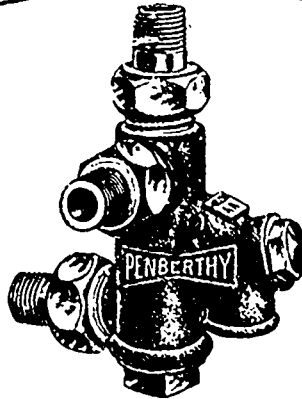
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LOW PRESSURE INJECTOR**

FOR WATER PRESSURE.

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

MADE IN CANADA

**"PENBERTHY"  
HIGH PRESSURE INJECTOR**

THE "AUTOPOSITIVE"

WORKS HIGH AT 200 LBS.  
WORKS LOW AT 18 LBS.

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## AUTOMATIC INJECTORS

RANGE 22 to 150 LBS., GUARANTEED.

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

MADE IN CANADA

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Already many of the largest contracts for incandescent lamps during the coming heavy lighting season have been awarded this company.

Of course there is a reason for it and that is -the superiority of the lamps.

Tests from open market stocks always result in favor of Packard Lamps as embodying the factors of long life-sustained candle power-small current consumption.

The *ultimate* economy of Packard Lamps should commend them to every user.

Let us send you a sample barrel.

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MONTREAL-QUE.

ST. CATHARINES, ONT.

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our Type "G" state its own case.

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(American Branch of Leopold Cassella & Co.)

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Manufacturers of

Aniline Colors, Aniline Oil and Salt, Archil Extracts  
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A Complete Assorted Stock of the above always on hand.

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SUCCESSORS TO JOHN J. KELLER & CO., Inc.

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**BLEACH<sup>g</sup> PWD.**

35% to 37% (Hardwood Casks)

**CAUSTIC SODA**

60% to 77%



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Lump and Crushed. Brls. and Bags.

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**BICARBONATE SODA**

ABSOLUTELY PURE

Also for Mineral Water Manufacturers.

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

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Solo Agents for the SOCIETY OF CHEMICAL  
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**FAST COLORS FOR WOOL and COTTON**

ALSO FULL LINE OF DIRECT COTTON COLORS

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## YOU MAY NOT NEED A LATHE OR PLANER NOW

But in the near future a machine, as above, with all modern improvements, will be required. On request we will furnish you full particulars of points of merit which you will demand on next tools you buy. \* \* \*

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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 tannery oils, fuel gas, machinery, cylinder oils, &c. And solicit opportunity to compete against any oil on the market. Write for prices and samples.

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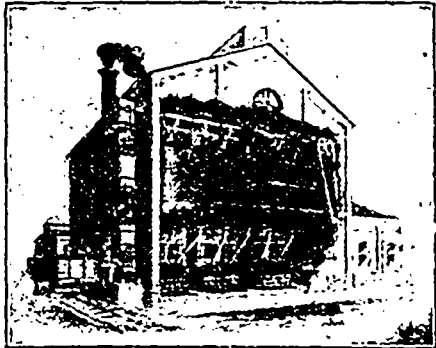
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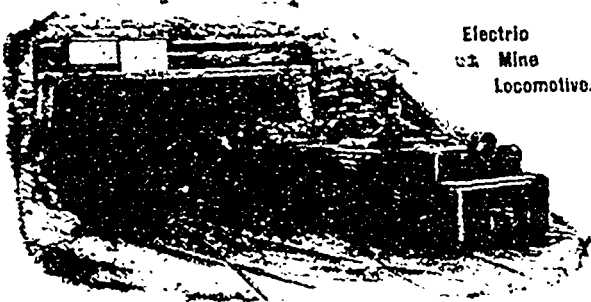
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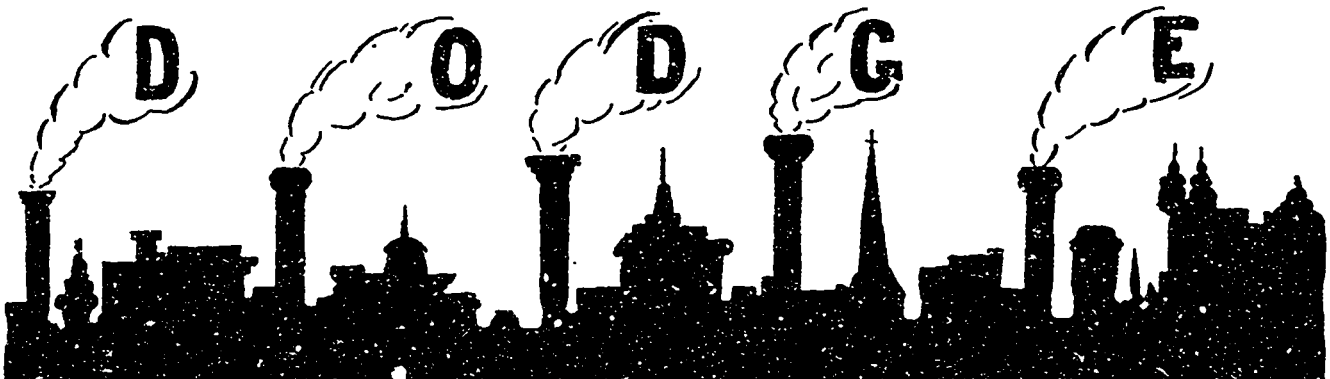
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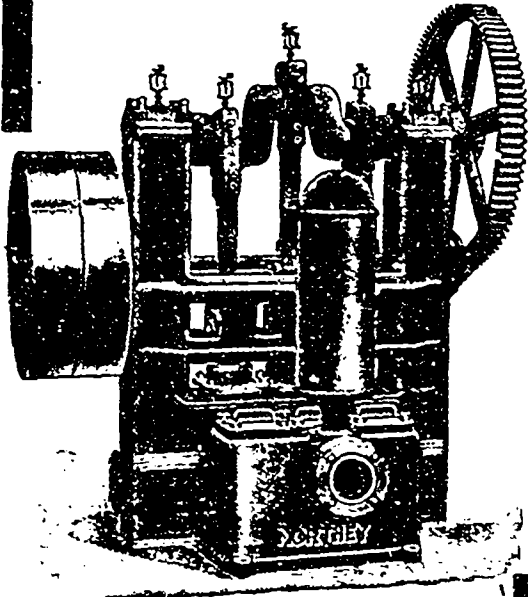
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ESTABLISHED IN 1890.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

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J. J. CASSIDY, Editor and Manager.

**THE CANADIAN MANUFACTURER**

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

**OUR TARIFF EDITION.**

THE CANADIAN MANUFACTURER of September 4 contained the full and exact texts of the tariffs of Canada, United States, Great Britain, the Commonwealth of Australia and of British South Africa, the five great English speaking countries of the world, all compiled from official sources. The publication is unique in that no trade journal, or newspaper, in any country had ever before undertaken such an enterprise, and in these days of commercial expansion, when manufacturers and producers are seeking new outlets for their products, and accurate knowledge of the fiscal conditions of the countries with which they desire to transact business is absolutely essential to success, such a publication as that just issued by us cannot but be a great convenience. That it is so regarded is evident in the expressions contained in letters we have received from captains of industry and other students of commercial matters, extracts from some of which are here given :

George Johnson, Esq., Dominion Statistician, Ottawa : I am much pleased with the tariff edition of THE CANADIAN MANUFACTURER. Only those who have to dig and delve among such documents know how very much labor such a collection of tariffs saves them. It ought to be in every mercantile office.

W. G. Parmelee, Esq., Deputy Minister Trade and Commerce, Ottawa : I have no doubt that the tariff edition of THE CANADIAN MANUFACTURER will "fill the bill," giving as it does the full tariffs of the countries referred to.

The Jenckes Machine Co., Sherbrooke, Que. : We take great pleasure in saying that we think that this edition of THE CANADIAN MANUFACTURER is far superior to any similar work so far published, giving as it does so large an amount of valuable information in a compact form. It will be of great value to us as a work of reference.

The Imperial Oil Co., New York City (W. R. King, treasurer) : We find the tariff edition of THE CANADIAN MANUFACTURER an excellent book of reference.

The Canada Corundum Co., Toronto : We must congratulate you upon combining in one publication so much information of value to business men. As our business is very largely an export one, we are quite sure we shall derive much benefit from it. We confidently expect to obtain good results from our advertisement in it.

McCullough-Dalzell Crucible Co., Pittsburg, Pa. : We wish to compliment you on the tariff edition of THE CANADIAN MANUFACTURER. It is a great enterprise, well printed and first-class in every respect. No manufacturer should be without it. We are glad to be numbered among your advertisers.

Penberthy Injector Co., Windsor, Ont. : It is an excellent publication and will be very useful.

Cowan & Co., Galt, Ont. : We are very much pleased with the tariff edition of THE CANADIAN MANUFACTURER, as we find it an exceedingly useful reference book in our office.

William R. Perrin & Co., Chicago : We congratulate you on the way the tariff edition of THE CANADIAN MANUFACTURER is gotten out ; and thank you especially for the attractive advertisement you have given us.

A. S. Cameron, Steam Pump Works, New York City : It is a meritorious work.

The R. McDougall Co., Galt, Ont. : We beg to say that the tariff edition of THE CANADIAN MANUFACTURER will prove to be a very useful book of reference, and you certainly deserve the thanks of the manufacturing and commercial public for the pains shown in producing it.

Rockwell Engineering Co., New York City : The information contained in it will be very useful to us, and we thank you for it.

Auld Mucilage Co., Montreal : An exceedingly useful publication and very creditable to the publishers.

Thom Cement Co., Buffalo, N.Y. : It will no doubt be long preserved in the offices of those who possess it.

A. C. Leslie & Co., Montreal : It is compiled very carefully, and, judging from our experience with previous editions, will, no doubt, be used very frequently for reference. We commend your enterprise.

Studebaker Bros. Mfg. Co., South Bend, Ind. : We find the tariff information up-to-date and serviceable.

Welland Vale Mfg. Co., St. Catharines, Ont. : We congratulate you upon the excellence of the useful tariff edition you have published. It will be long preserved in our office, and have no doubt we will find it exceedingly useful.

Montreal Steel Works, Montreal : We consider it a very useful publication.

Norton Emery Wheel Co., Worcester, Mass. : It will be preserved as a valuable acquisition in our office.

The B. Greening Wire Co., Hamilton, Ont. : We appreciate its value, and it will be preserved for reference.

J. H. Herring, Hamilton, Ont. : One of the most useful publications I have met with in promoting trade between the countries alluded to. It constitutes the best aggregation of tariffs that has been published.

Barnes Tool Co., New Haven, Conn. : We compliment you both on the appearance of the journal and the enterprise shown in getting it out.

The Vokes Hardware Co., Toronto : Permit us to express our appreciation of the publication, which is splendidly gotten up and easy to understand to those interested in foreign trade and having to do with customs matters. Great credit is due to you for the comprehensive manner in which it is produced.

The Whitman & Barnes Mfg. Co., St. Catharines, Ont. : The tariff edition of THE CANADIAN MANUFACTURER is something we have been looking for for a long time. It certainly reflects great credit upon the publishers.

David Maxwell & Sons, St. Mary's, Ont. : We have for

years been using the tariff editions of THE CANADIAN MANUFACTURER for the information they contain regarding foreign tariffs. The present edition will be of great use to manufacturers and others interested in foreign trade.

E. F. Dartnell, manufacturers' agent, Montreal: The tariff edition of THE CANADIAN MANUFACTURER is well arranged, the indexes are a great convenience, and the fact that the several tariffs it contains are in the one volume renders it particularly desirable.

Pratt & Letchworth Co., Brantford, Ont.: It is gotten up in first-class style and is exceedingly useful.

The New England Reciprocity League, Boston, Mass. (W. E. Brigham, secretary): Please accept our heartiest commendation for your enterprise in presenting the tariff edition of THE CANADIAN MANUFACTURER. The battles of the future are to be fought with tariffs, or, to put it more pleasantly, the peace of the future must be guaranteed by commercial concessions. Everything that contributes to give the people a clear understanding of the conditions under which business is conducted is a public benefit.

The American Protection Tariff League, New York (W. F. Wakeman, general secretary): The tariff edition of THE CANADIAN MANUFACTURER is certainly a very remarkable production.

United States Consular Agent A. C. Hardy, at Brantford, Ont.: Containing as it does these five most important tariffs, it cannot fail to be a great help to those who are interested. The publication is a great credit to you.

United States Consul William Jarvis, at Niagara Falls, Ont.: It is a most valuable publication, and should be in the office of every business man. It is invaluable as a book of reference in this office.

United States Consul Charles Dire, at St. John's, Que.: It is a fine production, and a copy of it should be in the office of every person interested in both exporting and importing; in fact every one interested in business progress and development.

(Others chapters of this interesting story will be published in our next issue.)

#### THE ANNUAL MEETING.

The annual meeting of the Canadian Manufacturers' Association, held in Toronto, brought its three days' session to a close September 18.

Mr. R. J. Younge, the secretary, stated that the roster of the Association showed 1,272 names.

An amendment to the constitution was adopted which changed the former regulation of "one firm one vote" by making two or more members of any firm or corporation eligible for membership. Heretofore as many members of firms or corporations as desired to be considered members of the Association could be counted as such upon the payment of the usual fee.

Another amendment which was adopted reads as follows:

The annual membership fee in this Association shall be, for members employing under one hundred employes, \$10; for members employing one hundred or more employes, \$25; for each additional member after the first, from any firm, \$10. The first payment shall become due on the election of a member, and each subsequent payment twelve months thereafter.

(The tariff resolutions which were adopted by the Association were published in full in the September 18 issue of this journal.)

A resolution relating to the British preference was as follows:

Whereas, foreign manufacturing firms, especially in European countries, are continually taking advantage of the preference granted to British goods entering the Dominion of Canada;

And, whereas, this abuse of the preference is detrimental, not only to Canadian manufacturers, but to British manufacturers as well, and is thus defeating the very purpose of preferential legislation;

Be it resolved, that this Association would respectfully urge upon the Dominion Government the desirability of amending the present preferential regulations as applying to British goods, so as to increase the required percentage of British labor from twenty-five to fifty per cent. of the value of the goods; and, further, that the Government be urged to consider the appointment of a capable customs agent in London, England, who shall study the whole question and devise means to prevent the frauds referred to.

The next resolution adopted was as follows:

Whereas, the present want of uniformity in the application of the provisions of the Canadian Customs tariff at the various ports of entry in Canada is a source of great disadvantage to Canadian manufacturers in competing for the trade of the home market;

Therefore, be it resolved, that in order to secure uniformity and insure, as far as possible, equal opportunities to all, this Association respectfully suggests to the Dominion Government the appointment of three expert Dominion appraisers to supervise the interpretation and actual operation of the tariff at the various ports of entry.

The following resolution was adopted without discussion:

Whereas it being understood that the law enacted by the Government of South Africa grants preference in its Customs tariff to parts of the Empire not including Canada;

And understanding that the Dominion Government is in correspondence in reference to this important question; And feeling that the matter is of very great importance to the manufacturers of Canada, be it resolved,

That the Canadian Manufacturers' Association in annual convention assembled, regret to learn that the South African Government has not included Canada in the preference given in its Customs tariffs, and herewith request the Canadian Government to bring this serious condition before the proper bodies in the earnest hope that the law may be altered to admit Canada to the benefit of said preference.

The following resolution was adopted relating to the circulation of foreign silver coin:

That as it is in the interests of Canada both from financial and patriotic reasons, that the coinage in use shall be Canadian; this Association requests the co-operation of the Canadian people, banks and Government, to secure the removal from circulation in Canada, and the exportation of all foreign silver coinage, and its replacement by Canadian silver coins.

Regarding Canadian copyright the adopted resolution reads:

That the Canadian Manufacturers' Association, in annual meeting assembled, respectfully but strongly urge the Premier of the Dominion and his colleagues to take up the question of copyright with the proper authorities in England, and press for recognition of the right of Canada to make her own laws on the subject of copyright, without which her rights as a self-governing colony, are incomplete.

The report of the special committee appointed at the last annual meeting of the Association to inquire into the question of labor organizations and their effects upon manufacturing industries contained important recommendations. The matter was fully discussed and most of the recommendations adopted. The report, which is quite lengthy, will receive further and fuller notice in another issue of this journal.

#### HOW THE PREFERENCE WORKS.

The Canadian Associated Press cables an encouraging message from London to the effect that the Scotch woolen manufacturers are of the opinion that Canada's tariff preference has increased and will still further increase their trade with the Dominion. This means that the purses of Scotch manufacturers of woolen goods are being filled with good Canadian money, and that the wants of Scotch operatives are

met by the activity in Scotch mills while the Canadian operatives in Canadian mills are being thrown out of employment and are facing the distresses of the approaching winter with but little hope of relief as a consequence of our foolish and insane preferential tariff.

Mr. Bennett Rosamond, M.P., president of the Rosamond Woolen Co., of Almonte, Ont., states that the condition of some branches of the Canadian woolen industry has become quite serious. His own mills are being operated only five days in the week, while the mills of the Canadian Woolen Co., at Carleton Place have been closed. He believes that most of the other mills in Ontario will have to be worked on short time or be shut down. This depression applies particularly to tweeds and worsteds, which Mr. Rosamond says, has suffered seriously from the British competition. The Auburn Woolen Co., of Peterborough, Ont., of which Mr. James Kendry, M.P., is president, whose mills have been in active operation for twenty-five years, are experiencing the same depression, and will, we are told, suspend operations at an early day; and this condition exists also at the Hawthorne and the Gillies mills; and the Excelsior Woolen Mills, at Montreal, will, it is stated, close down in a short time.

Mr. George Davidson, secretary of the Canada Woolen Mills Co., says that the company's two mills at Hespeler and Waterloo may follow suit. He understands that other mills are running short time. He thinks the Government should take prompt action to nurse the industry back into shape again. The closing of the mills may bring the Government to its senses in this matter. The preference to the British manufacturer must cease if the woolen trade is to be saved from serious loss. Mr. Davidson can see no other remedy for the depression but the raising of the preferential barrier.

The outlook is gloomy. Canadian manufacturers are menaced by conditions that make it profitable for British woolen manufacturers to dump their goods on Canada at prices which the home industries simply cannot meet. Canada is being used as a slaughter market. The result may be satisfactory to British manufacturers who find a diminished demand in their own market, but it will be ruinous to Canadian industries. The Canadian woolen industry is fighting for its life, and the battle is already more than half lost.

#### CONTROLS THE SITUATION.

Canada seems to be in control of the grain exporting business of North America. It would seem that some of the United States Atlantic seaports, especially Philadelphia, are becoming more than ever alarmed at the diversion of the grain shipments to the Canadian lake and canal route for export. The following circular has been issued to shippers at Philadelphia:

Rate from Chicago f.o.b. north Atlantic ports, seven cents per bushel.

Rate from Chicago f.o.b. ocean steamer Montreal, four cents per bushel.

Difference in favor of shipments through Canadian ports three cents per bushel.

Here is a fine exhibit. The grain which was formerly handled by the North Atlantic ports, and shipped through Duluth, Chicago and various lake ports, is now being taken out of the United States by Canadian routes, shipped through Canada and put on ocean steamers at Montreal at three cents per bushel less than it can be done through New York or Philadelphia. Grain exporters and parties engaged in this business are very glad to handle it at one-quarter cent per bushel margin. So far as the export grain business is concerned, the north Atlantic ports of the United States might as well be wiped off the map. The ocean freight from Montreal

to the United Kingdom and continental ports is practically the same as it is from New York or Philadelphia. Thus it will be seen that the grain shipped from Montreal can be laid down in Europe at three cents a bushel less than it can when shipped through United States ports.

The remedy lies with the railway companies. The present basis of five cents per bushel on grain at and east of Buffalo is prohibitive and farcical. But a few years ago railways were glad to handle this business at two and one-half cents a bushel, and when they got three cents they thought they were making big money. The all-rail rate on grain for export from the Mississippi River to the seaboard is sixteen cents per hundred. It is but a little while since an export rate of ten cents and twelve cents was in operation, and the Atlantic seaboard had a fighting chance for business from west of the Mississippi.

How long is this state of affairs to continue? The merchants doing business from the north Atlantic ports have worked for a number of years to build up the commerce of their respective ports and to sustain the ocean steamship lines, which are now running at considerable loss. Quite a number of steamers have been taken off, and unless something is speedily done to compete with those Montreal shipments there will be but few steamers running from the north Atlantic ports of the United States. Some of the lines will have to go out of business entirely.

The number of sea-going vessels arriving at Montreal up to September 1 was 511 vessels, having a tonnage of 1,196,219 tons, as compared with 485 vessels, with 962,217 tonnage last year. The number of inland vessels arriving during the same period was 6,560, with a tonnage of 1,144,720 tons.

#### THE HARD TIME COMING.

Mr. Eugene N. Foss, of Boston, Mass., one of the largest manufacturers in New England, was in Minneapolis Minn., a few days ago promoting the movement for commercial reciprocity between the United States and Canada. Mr. Foss is a prominent leader of the movement, and is deeply interested in an effort now being made by the Minnesota Branch of the National Reciprocity League to secure a compact organization of the states interested in reciprocity with Canada, and it is expected that before long Wisconsin, Indiana and Illinois, in addition to New England and Minnesota, will be organized.

"I have never been so sanguine over the outlook for the realization of reciprocity with Canada as at present," says Mr. Foss. "I think we are within striking distance of the goal. I have seen many manufacturers between here and Boston on this trip, and they are all in favor of reciprocity, in fact I have never talked with a manufacturer on this subject who was not in favor of it. Even men, who, through force of habit, are contributing to the American Protective League and the Boston Home Market Club, who by their publications are spending all their energy at present in attacking reciprocity, are personally in favor of it. Politically, reciprocity should be a cardinal doctrine of the Republican party, as it is the corollary of protection and its safety valve."

"Our manufacturers have been too busy to give much effort or thought to this subject, but from now on for a period, times will not be quite so flush. There will be less business and more time for thought. There will be fewer orders and more efforts to get them. This will turn attention to reciprocity, which promises to open foreign markets."

"I regard reciprocity with Canada as the most important field for negotiation. Its realization is essential to the highest prosperity of both countries. It is inevitable."

Mr. Foss is an optimist who looks only through the glasses of his own desires, and does not seem to consider that it requires two to make a bargain. He does not take Canada into the account at all, and considers that when those who may be



of his way of thinking, and obtain control of the political power of the United States, and are prepared to offer terms to Canada, that Canada will accept them of course. He says that in his missionary journeyings along the border states he had not encountered any American manufacturer who was not in favor of reciprocity. Of course they are in favor of it. Having control of their home market they desire to sell their surplus products abroad, and what country is there which presents such a favorable market for American manufactures as Canada? Canada is a generous purchaser of American goods; but Mr. Foss should remember, and no doubt does, that Canada is also a manufacturer of such goods, and that Canadians desire to build up and maintain their own manufacturing industries. Canadian manufacturers have become a power in this land; but Mr. Foss does not seem to realize that before any measure of reciprocity that his party could offer would be accepted by Canada, the views of the Canadian people would have to undergo a great change. He should carefully read the addresses and speeches of Mr. Drummond, president of the Canadian Manufacturers' Association, and the other manufacturers, delivered at the recent meeting of the Association, wherein he will discover that the sentiments of the members are strongly averse to anything that savors of reciprocity; and without doubt these expressions accord with the sentiments of a large majority of the people of Canada.

It may be well that the propaganda for reciprocity should be pushed with the greatest vigor in the United States, not because it would result in the lowering of the Canadian tariff in favor of American goods, but rather to discourage the raising of it to a parity with the American tariff, which would be in accord with the sentiments of Canadian manufacturers.

#### EDITORIAL NOTES.

Reciprocity is the corollary of protection, and its safety valve.—E. N. Foss.

American manufacturers have been too busy to give much effort or thought to this subject (reciprocity), but from now on times will not be quite so flush. There will be less business. There will be fewer orders and more efforts to get them.—E. N. Foss.

I regard reciprocity with Canada as the most important field for negotiation. Its realization is essential to the highest prosperity of both countries.—E. N. Foss.

'Tis the constant drop of water  
Wears a hole in solid stone;  
'Tis the constant knaw of Towser  
Masticates the hardest bone;  
'Tis the constant wooing lover  
Carries off the cooing maid;  
And the constant advertiser  
Is the man who gets the trade.

The Canadian Associated Press cables the important news from London that a Canadian correspondent of an English newspaper reports from Niagara Falls, Ont., referring to the rapid growth of industries there, that all that is needed for an even more rapid growth is a more rapid influx of capital. This of itself is a remarkable conclusion, and shows the value of the news sent out by the Canadian Associated Press. The correspondent also says that "English capital is borrowed by Americans at a low rate of interest to be invested in Canada to produce handsome profits," which shows the stupidity of British capitalists in not investing their money in Canada themselves.

A Canadian Associated Press cable from London announces the astounding fact that "One large manufacturer in Devonshire thinks of establishing a cider factory in Canada." It is this sort of "news" that produces that tired feeling. Just to think of it—one "large" British manufacturer and capitalist "thinks" of investing a hundred pounds of his good money in a cider mill in Canada. We are breathlessly awaiting the advent of the man from Devonshire.

At a recent lunch-eating contest which was a daily entertainment given by the directors of the Dominion Exhibition, Hon. George E. Foster expressed the opinion that it would be well to give more than 33½ per cent. preference on British imports coming into Canada. At the time of that deliverance, and now, the preference that Canada shows to Great Britain had resulted in the greatest hardship to at least one most important Canadian manufacturing enterprise—the woolen industry. Mills are being run on short time, some of them are about being shut down, Canadian capital rendered unproductive and Canadian labor thrown into idleness. While at the same time the country is being flooded with British woolens and also German woolens imported through British ports. Mr. Foster seems to be very much of a free trader himself, judging by his remarks.

Alluding to the outcome of the negotiations now going on over the Alaska boundary question, Reuter's Canadian agent informs the readers of London newspapers that a well-informed Canadian source says that Canadians knew that Great Britain, actuated by the best of intentions, perhaps, had more than once sacrificed Canadian interests; that Canadians will be irritated beyond measure if a similar policy is followed in the Alaskan case, and serious alienation from the Mother Country may result. No doubt a decision unfavorable to Canada would be followed by a reversion of feeling here that would not tighten the bonds that bind us to the Mother Country. Such a decision would bode no good to Imperialism and British connection.

Mr. P. R. Ball, Canada's commercial agent at Birmingham, England, reports to the Department of Trade and Commerce that he is in communication with several English manufacturers who are seeking information as to sites, facilities and terms for the establishment of branches of their industries in Canada. It is to be hoped that British manufacturers and capitalists are waking up to the opportunities offered by Canada for the establishment of industrial enterprises. The development of manufacturing industries in Canada the last few years has been unprecedented, and in nearly every branch the factories are loaded down with orders and working night and day. There is room and plenty of it for manufacturing expansion and the employment of millions of capital in the production of manufactured metals now brought in from the United States, which, with proper plants and facilities, could be turned out in Canada, saving carriage and duty. British and German manufacturers do not supply many classes of products in iron, steel, brass, copper and other metals largely used in Canada, and in almost every line the United States products are better adapted for Canadian use. The Dominion consequently offers a field which British capitalists at last appear desirous of occupying.

The American Protective Tariff League, publishers of *The American Economist*, are sending out a return card to their members, subscribers and friends, requesting them to write in the name, address, etc., of

one person who will cast his first presidential vote in 1904, the wish being to forward to him literature on the subject of tariff protection to American industries. This is a part of the system practised by the League in teaching the importance of protection particularly to young men, and in influencing them to cast their ballots where votes count. Is the Canadian Manufacturers' Association pursuing similar tactics? Under the old regime it did so, and with most excellent effect. Train up the boys to be protectionists, and when they are old enough to vote they will cast their ballots where they will do the most good.

Despite David Harum's pronouncement that there is no such thing as horse sense, it is natural to feel that the application of some of this popularly supposed grade of intelligence would have averted the fiasco of a concern capitalized at over a hundred million dollars being turned over to people who had loaned it a paltry five million dollars for a few months.

Dr. Eugene Haanel, Superintendent of Mines for Canada, denies the accuracy of a recent dispatch from New York, stating that as a result of a report prepared by him on the electrolytic process of treating ore at Lockport, N.Y., the steel trust were prepared to embark on a somewhat similar enterprise in Ontario. Dr. Haanel states that he visited Lockport, but has published no report on the examination made there, and that he had not visited the Chippewa plant at all. He is not yet prepared to express an opinion on the commercial practicability of the process, since the investigation cannot be regarded as complete.

Lord Strathcona has contributed \$5,000 towards Capt. Bernier's proposed polar expedition. The captain is encouraged by this recognition, and now only awaits the action of the Government, which, he hopes, will enable him to leave before the end of the year.

There are at the present time eleven establishments in Germany engaged in the production of slag cement, and the yearly output is estimated at one and three-quarter million barrels of 170 kilogrammes each (374 pounds), and the capital invested in the industry is about £625,000. The principal characteristics of slag cement appear to lie in its slow setting and in its freedom from changes of volume. The time required for attaining full resistance is decidedly greater than for Portland cement, but it is claimed that after the expiration of twenty-eight days the slag cement gives a higher resistance than the Portland cement, while the maximum strength is not attained for several months.

It often occurs that the organization of a new company in a town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." THE CANADIAN MANUFACTURER promptly reports the organization of all companies in Canada, and our readers, in seeking to get in communication with them, should be very careful how to address them; and it is often advisable to add the names of one or more of the incorporators whose names are usually given, as an aid to the postmaster in delivering mails.

Mr. James D. Allan, a prominent Toronto manufacturer has, according to an interview published in a city paper, just returned from his annual trip to Europe, in which he traveled 13,000 miles, visiting among other countries, England, Scotland, Germany, Russia, Belgium and Sweden. In an interview Mr. Allan stated that what impressed him most was the

remarkable industrial and commercial development of Russia. This was endangering Canada's trade with Great Britain. Russian butter, he said, had become superior to Canadian, and supplied 25 per cent. of the total consumption of Great Britain, where ten years ago not a pound of it was imported. His trip through Siberia had been a revelation to him. In two provinces alone 72,000,000 cattle were grazing. Russia's cattle business was fifty years ahead of that of Canada, and the farmers got 35 per cent. more profit out of their cattle. The fact of the matter was, Mr. Allan said, that Canada was too lethargic in pushing her trade. Great Britain would not prefer her products if she could do better in Russia or other countries. While I believe Canadians are as clever a people as any that exist, he said, and Canada as fine a country as there is, I hold that egotistical pride in their own greatness has blinded Canadians to the opportunities they are letting slip every day.

Mr. G. E. Drummond, president of the Canadian Manufacturer's Association, at the recent meeting of the Association, in moving a vote of thanks to Mr. C. A. Birge, the retiring president, referring to Mr. Birge's statement of the position in which Canadian manufacturers now find themselves in the matter of our tariff as against that of the United States, said that we had been Americanized in the goods we used. This was one of the difficulties that Englishmen found in getting a portion of our trade, to-day, this condition resulting from the tariffs of the past. To-day we might be called a nation of fools to continue the present tariff. Our money was pouring over the border to purchase American goods and our men were following it. Speaking to a manufacturer in Detroit recently, Mr. Drummond said the latter was prepared to invest money in Canada if the tariff was revised, but until it was revised he would continue to supply Canada with goods from the other side. As manufacturers they welcomed that kind of competition. We must, Mr. Drummond insisted, revise the tariff, and the manufacturers would continue to fight along that line till they got the tariff where it ought to be. In regard to the preference, Mr. Drummond considered that Canada should have a tariff against the world and then give Great Britain a fair preference, always remembering that in Canada they had to pay American wages or our labor would go to the United States.

The British Chambers of Commerce delegates are unanimous in their favorable reports of the Canadian West. Major-General Laurie, speaking of the recent British political developments, said that the match that ignited Hon. Joseph Chamberlain's powder was the last budget speech of Hon. Mr. Fielding, Minister of Finance. He says the surtax on German goods and the announcement that if the preference to British goods was not recognized steps would have to be taken to develop trade elsewhere, forced Mr. Chamberlain's hand and compelled him to take the action which he did.

Mr. W. McInnes, of the Dominion Geological Survey has returned from a successful exploration of the Winisk River from its sources to the Hudson's Bay shore. The southern part of the country he explored is covered with good spruce, but further north the large trees are confined to the river bank, where the drainage is good. In traveling to the bay the party passed the northern limit of the best timber, and reached the region of black spruce, tamarack, and rough bark poplar. Mr. McInnes says there is nothing in the climate of that section to prevent the growing of good vegetables.

## CAPTAINS OF INDUSTRY.

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

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

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, bolting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescence 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.

Plans for the Nurses' Home at London, Ont., have been altered, and new tenders are being invited. The cost to be about \$25,000.

The Electrical Construction Co., London, Ont., have secured the contract for wiring the new factory for Messrs. D. S. Perrin & Co. in that city. In addition to the wiring, they are supplying two additional motors—a 26 h.p. and a 5 h.p. They had previously installed a 60 k.w. generator and 15 h.p. motor for the same firm.

A by-law has been voted favorably at Guelph, Ont., for the taking over the Guelph Radial Railway by that city at a cost of \$78,000.

The gun carriage building at the barracks at Kingston, Ont., was destroyed by fire September 23. Loss about \$8,000.

The Ogilvie Milling Co., Montreal, will erect a large mill and grain elevator at Fort William, Ont. The elevator will have a capacity of 500,000 bushels, while the mill will turn out 4,000 barrels per day.

A company represented by E. W. Backus, of Minneapolis, have entered into an agreement with Fort Francis, Ont., to develop water power at that place.

Mr. W. E. H. Carter, of the Ontario Bureau of Mines, writing from Rat Portage, where he is on a tour of inspection, states that a big find of molybdenite ore has been found in the vicinity of Lac Seul, in the Rainy River district. The find, according to report, promises to be more valuable than any of the other Ontario bodies of this ore.

The Chatham Oil Co., Chatham, Ont., have struck another flowing well at Raleigh, Ont., which is 350 feet deep. The company now have eight producing wells.

The Farmers' Co-operative Harvesters' Co. are considering the establishment of a large factory at Niagara Falls, Ont.

The Board of Education, Sarnia, Ont., are considering the erection of a new school building.

A brick school building will be erected at Hintonburg, Ont.

Work on the Havelock, Ont., Electric Light & Power Co's plant at Burnt Dam

commenced recently, and a gang of men, under the supervision of Manager Wm. Mathieson, are busily engaged in erecting a flume 240 feet in length and seven feet in diameter. The 250 h.p. water wheel will be placed in position in the course of a few days as will also a 150 k.w. dynamo.

The Montreal Transportation Co's saw-mill and machine shops, and A. C. Knapp's boat shop at Kingston, Ont., were destroyed by fire September 20. Loss about \$12,000.

The ratepayers of Barrie, Ont., have voted favorably on a proposition to loan the sum of \$20,000 to the Barrie Carriage Co., to encourage that industry.

Three thousand dollars are to be expended for improvements to the fire hall and for the installation of an electric fire alarm system at Barrie, Ont.

The Raven Lake Portland Cement Co., of which Mr. Thos. McLaughlin of Toronto is secretary-treasurer, has just issued its first annual report which shows that the affairs of the company are in first-class shape. The property of the company includes 474 acres at Raven Lake, Ont., consisting of the lake of marl, 354 acres; building site, 20 acres; and 100 acres village site. Also 120 acres at Elliot's Falls where the company is installing a modern power plant, 150 acres at Norland where there is another fine water power and dam, and 7 acres of clay lands at Beaverton, in all 751 acres. Under the direction of the R. F. Wentz Engineering Co., Toronto, rapid progress is being made on the plant which will be put in operation early next year.

The project for the erection of an up-to-date hotel in London, Ont., has taken definite shape. Stock books in connection with the enterprise are about ready, and the prospectus and plans will be issued in a few days, when a charter will be applied for. The company will be capitalized at \$250,000. It is proposed to model the building to some extent after the King Edward in Toronto. It will have 200 rooms, 50 bath-rooms, a first-class restaurant, and travellers' sample rooms, with stores on the ground floor.

It is stated on good authority that the Grand Trunk Railway have definitely decided on the erection of big shops at

Allandale, near Barrie, Ont., at an early date, to employ a large number of men. The land has been purchased for largely increase yard accommodation and for the erection of coal chutes of great capacity.

A by-law granting a bonus of \$5,000 to the Dominion Linen Mills Co., at Orillia, Ont., has been passed. The company is capitalized at \$50,000, and will at once commence the erection of a factory on the site given by the town. One hundred operatives will be employed. J. H. Pauley, Halifax, N.S., is president of the company.

The Brantford Carriage Co., Brantford, Ont., will erect an addition to their factory 125x50 feet, three-stories high.

Messrs. Wm. & J. G. Greey, mill furnishers, Toronto, who are erecting a large addition to their works on Church Street, are setting apart a large room, to be used for religious services for the men every noon hour.

Tenders are being asked by the Dominion Government for the building of a new post-office at Alexandria, Ont. The building is to be a three-story and basement structure, of brick with stone facings. It will be 50x34 feet, and the plans call for an up-to-date structure in every respect.

The Berlin Robe & Clothing Co., Berlin, Ont., have been incorporated with a capital of \$100,000, to manufacture imitation fur robes, knitted goods, etc. The provisional directors include W. J. McMurtry, Galt, Ont.; G. Moore, Waterloo, Ont.; and W. T. Barrie, Milwaukee, Wis.

The Acetylene Construction Co., a Dominion incorporation, have been licensed to do business in Ontario, and have appointed C. H. Connor, St. Catharines, Ont., to be their attorney.

The Massey-Harris Co., Brantford, Ont., will erect a two-storey brick addition to their works at a cost of \$9,000.

A company has been formed at London, Ont., for the manufacture of glue. They will erect new buildings at a cost of \$9,000.

The Sovereign Mitt, Glove & Robe Co., Delhi, Ont., have changed their name to The Sovereign Mitt, Glove & Robe Co., Limited.

The governors of the Kingston, Ont., General Hospital, will erect a suitable building on the hospital grounds for the treatment of consumptives. The building will be fashioned after those used at the Gravenhurst Sanitarium.

It is reported that the Hamilton Tack Co., Hamilton, Ont., whose plant was recently burned, are considering the matter of removing to London, Ontario.

Mr. J. Bissett Stewart, of the firm of Andrew Mitchell & Co., Dundee, Scotland, was recently in Toronto for the purpose of establishing a jute factory.

The Metropolitan Soap Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture soaps, oils and greases. The provisional directors include F. T. Weir, Jas. Watt, jr., and F. W. Little, Toronto.

The Park Commissioner of Toronto has recommended the erection of a pavilion in Allen Gardens at a cost of \$50,000.

The Eugene F. Phillips Electrical Works, Montreal, which recently opened a Toronto office, in charge of Mr. Jas. P. Thompson, have received license to do business in Ontario with a capital of \$30,000.

The Hamilton Oak Tanning Co., Hamilton, Ont., have increased their capital from \$65,000 to \$125,000.

The Globe Casket Factory at London, Ont., was partially destroyed by fire September 25. Loss about \$3,000.

The power house, waiting-room and Brock and Yonge Street wharves, of the Toronto Ferry Co. at Hanlan's Point, Ont., were destroyed by fire September 26. Loss about \$80,000.

The Queen's University trustees at Kingston, Ont., are inviting tenders for the erection of Grant Convocation Hall.

The Canadian Cordage & Mfg. Co., Peterboro, Ont., will enlarge their works. Tenders are being invited for the construction of two large additions and a picking house building, the dimensions of which will be 75x35 feet. An addition to the storehouse will be 30x50 feet, and to the preparation room an addition of 73x70 feet.

The Ontario Linseed Oil Co., Owen Sound, Ont., have received three carloads of machinery from The Chas. F. Elmes Engineering Works, Chicago, Ill., to be installed in their new linseed oil works, which will be in operation shortly.

The Dominion Wrought Iron Wheel Co's new factory at Orillia, Ont., is 200x48 feet, two stories high, and gives employment to about 20 hands. The company manufacture wrought iron, wagon, cart, wheel-barrow, traction engine, truck and other wheels. J. B. Tudhope, M.P.P., is president of the company.

The Fox Bros. Packing Co., Toronto, have purchased the buildings and plant of the Brantford Packing Co., Brantford, Ont., and will commence operations immediately.

The Stevens Hotel at Belleville, Ont., was destroyed by fire September 16.

Mr. Wm. Algie, Alton, Ont., has recently installed new machinery in his woolen mill, supplied by the J. W. Cray Laundry Machinery Co., of Norwalk, Conn.

The Cornwall Furniture Co's factory at Cornwall, Ont., was damaged by a hurricane on September 27. Loss about \$1,000.

Messrs. Chas. Pedwell & Co's sawmill at Lion's Head, Ont., was destroyed by fire September 26. Loss about \$7,000.

Wm. Spicer's sawmill at Newboro, Ont., was destroyed by fire September 22. Loss about \$2,000.

D. Graham, Sons & Co., proprietors of the Riverdale woolen mills, Inglewood, Ont., manufacturers of shirts and drawers, visited Philadelphia, Pa., a few days ago, to purchase additional machinery for their plant.

Work on the electric railway between Paris, and Blue Lake, Ont., is being pushed. The line will be finished in a few weeks to the works of the Ontario Portland Cement Co., whose plant is just being completed and is expected to be in operation this month. The electric railway will run on to St. George and Galt, connecting those two places with Blue Lake, Paris and Brantford, Ont.

The Geo. Matthews Co., Peterborough, Ont., have purchased a site near Peterborough Wharf and adjoining their present establishment, upon which they will erect a cold storage plant.

The congregation of the Yonge Street Methodist Church, Toronto, will erect a new church building at a cost of about \$40,000.

The kiln and machinery house of The Carborundum Co's Works at Niagara Falls, Ont., were destroyed by fire September 26. Loss about \$3,500.

A shipment of Canadian clay was recently made from Toronto to England to determine its suitability for the manufacture of pottery. The experiments made with brown clay by experts in the pottery district in England are said to have demonstrated its peculiar value for sanitary ware, owing to the extreme closeness of the grain and its non-absorbent qualities. From another variety of clay vitrified bricks were produced of a durability superior to those made from English clay.

The Prescott Terminal Co., Prescott, Ont., have been incorporated with a capital of \$100,000, to carry on a grain elevating and forwarding business. The provisional directors include B. McLennan, G. M. Kinghorn and J. A. Cuttle, Montreal.

Mr. Geo. C. Haines' carriage works at Bowmanville, Ont., were destroyed by fire September 26.

Messrs. Woodside Bros.' foundry at Port Arthur, Ont., was destroyed by fire September 26. Loss about \$20,000.

The steamer Neebing, built in Newcastle-on-Tyne, England, for Marks Bros., Port Arthur, Ont., has reached Montreal from Antwerp with a cargo of steel rails. The Neebing is 256 feet over all, 42 feet beam, and 25 feet depth. She is fitted with triple-expansion engines and will carry 3,000 tons dead weight. She is intended for the grain trade between Port Arthur and Kingston, and will carry 100,000 bushels on a 13 feet 6 inch draught.

George and James Kelly, Rat Portage, Ont., are the contractors for the Ontario Government bridge to be erected over the Winnipeg river near Rat Portage.

The Ontario Mattress & Bed Co., London, Ont., have purchased George H. Clark's brass and iron bedstead business, and the plant of the latter concern will be moved to the premises of the Ontario Mattress Co.

The Ontario Mining & Smelting Co., incorporated under the laws of the State of Maine, have been granted an Ontario charter with a capital of \$20,000. The company have appointed H. F. Gamm, Bannockburn, Ont., to be their attorney.

The Kreiner Furniture Co., Berlin, Ont., will erect a large three-story addition to their present factory.

The Reardon Broom Co., Ottawa, incorporated under the laws of the Dominion, have been granted an Ontario charter.

The Dowd Milling Co., Pakenham, Ont., incorporated under the laws of the Dominion, have been granted an Ontario charter.

The Ottawa Stationery & Office Supply Co., Ottawa, incorporated under the laws of the Dominion, have been granted a license to do business in Ontario.

The Crown Mfg. Co., Toronto, will increase their capital from \$20,000 to \$100,000.

The London Rolling Mills Co., which have been operating their new plant in South London, Ont., for some time, are now turning out 30 tons of bar iron daily, and will increase their output at once owing to the heavy demand for their products. At an early date the company will equip a department for the manufacture of horseshoes capable of turning out 20,000 kegs annually.

The Canadian Pacific Railway have placed an order for almost a million dollars' worth of passenger equipment with the superintendent of rolling stock at their Hochelaga, Que., shops. The order includes 5 modern dining cars, 15 sleeping cars, 25 first-class passenger coaches, 25 tourist cars and 6 suburban cars.

La Compagnie, J. A. & M. Cote, St. Hyacinthe, Que., have been incorporated with a capital of \$40,000, to manufacture shoes, etc. The provisional directors include L. P. Morin, M. Cote and J. A. Cote, St. Hyacinthe.

The Isle Verte Mattress Mfg. Co., Saint Jean Baptiste de Isle Verte, Que., have been incorporated with a capital of \$10,000, to manufacture mattresses, etc. The charter members include A. J. Roy, C. G. Bertrand and E. Cote, of Saint Jean Baptiste de Isle Verte.

The R. E. T. Pringle Co., of Montreal, have been licensed to do business in Ontario in the manufacture and sale of electrical appliances. The company have maintained a Toronto office for some time.

The Portable & Adjustable Balcony Co. have opened offices in Montreal, where they are registered to do business.

The contract for the construction of a new water system at Levis, Que., has been awarded to Messrs. Dussault & Power of that place, the contract price being \$287,000.

Tenders are being received for the erection of a new courthouse at Sherbrooke, Que.

J. T. Peddie, of Montreal, has invented a new wind-gauge and vertical rifle sight which is being tested by the British War Office in London with a view to its adoption in the British Army.

The La Societe Generale du Canada of Montreal have been incorporated with a capital of \$1,000,000, to engage in the pulp and lumber business; incorporators, J. A. Ouimet, W. E. Blumhart, Montreal and Adelard Turgeon, Quebec City.

The Laurentide Pulp Co., Grand Mere, Que., have placed a contract for a new paper machine with Pusey & Jones, of Wilmington, Del.

Brayley Sons & Co., Montreal, manufacturing druggists, have reorganized as a joint stock company, capital, \$90,000.

The report of the harbor commissioners of Montreal shows that 511 sea-going vessels, having a tonnage of 1,196,219, visited the port last year as against 485 vessels of 962,217 tons for the preceding year. The report also shows that the number of inland vessels that arrived during the same period was 6,560 of 1,460,437 tons as compared with 5,479 vessels of 1,444,720 tons for the preceding year.

The E. & T. Fairbanks Co., St. Johnsbury, Vt., manufacturers of scales, etc., are considering the establishment of a branch works at either Rock Island or Sherbrooke, Que.

Messrs. Finley & Sponce, architects, Montreal, are preparing plans for the erection of a building four stories high, with stone front, to cost about \$35,000, for Mr. W. St. Pierre, of that city.

The town council of Windsor Mills, Que., have awarded the contract for the installation of an electric light plant in that town.

The Dominion Radiator Co., Toronto, are erecting a branch factory at Lachine, Que.

Messrs. Ungar's Laundry, Dyeing & Carpet Cleaning Works, St. John, N.B., have been incorporated with a capital of \$30,000, to acquire the business of Ungar's Laundry, Dye & Carpet Cleaning Works. The provisional directors include L. Green, J. B. Gillespie, and M. B. Edwards, of St. John.

The Union Foundry & Machine Works, St. John, N.B., have been incorporated with a capital of \$45,000, to acquire the business of the Union Foundry & Machine Works and to manufacture machinery, boilers, stoves, etc. The provisional directors include Jas. Manchester, Wm. Bruckhof and G. H. Waring, of St. John.

Mr. H. Heustis, Providence, R.I., who purchased the Hardscabble Mine of the Prospect Chemical Co., at Lower Cove, N.S., has organized the Fundy Coal Co., to operate the property. As soon as a line of railroad to the mine is completed, the product will be placed on the market.

The entrance to Mabou Harbor, N.S., has been dredged by the government to a depth of 15 or 16 feet at high tide. A tow boat is to be kept on the harbor and vessels arriving for coal will have free towage in and out. There are two shipping piers at Mabou. On each pier there is a storage capacity for 800 tons of coal. This will insure the speedy loading of vessels, as they can come in with one tide and out with the next.

The new wharf of the Acadia Coal Co. at Pictou Landing, N.S., is expected to be ready for next seasons operations.

A test has been made of the hoisting, tipping and screening plant of the Mabou Coal Co., Mabou, N.S. The creeper-and-

picking belt worked without hitch and the same may be said of every part of the machinery. Much satisfaction is felt at the perfect working of the plant which is very creditable to the Brown Machine Co., who made all of the screening machinery.

The Electro Manganese Co., have entered into an agreement with the New Brunswick Government for the lease of Grand Falls water power for a period of 30 years, and will manufacture ferromanganese from bog ore. The company is now operating a plant at Shawinigan Falls, Que.

The Royal Furniture Co., Woodstock, N.B., have been incorporated with a capital of \$20,000, to manufacture furniture, etc. The provisional directors include Alex. Henderson, Hugh Hay and J. A. Hayden, of Woodstock.

The Scott Lumber Co., Dumfries, N.B., have been incorporated with a capital of \$98,000, to carry on a lumbering and saw milling business. The provisional directors include Jas. M. Scott, and Wm. J. Scott, Dumfries, and J. S. Scott, Fredericton, N.B.

The government cable steamer Tyrian, which arrived at Sydney a few days ago from Labrador, reports the discovery of an extensive deposit of hard coal of excellent quality at Fortune Bay, on the Labrador coast. The discovery was made by Captain Reid, of Guysboro, N.S., and who has taken possession of the deposit discovered. The existence of coal this far north has until now been unknown, the belief being that there was none there.

The contract between the St. John, N.B., city council and the Imperial Dry Dock Co., for the construction of a large dry dock at St. John, has been signed. It is expected that the construction will be commenced in the spring.

The Newfoundland Government have decided to construct two new lighthouses, and a number of additional fog signal stations on the Newfoundland coast, and two new lighthouses on the Labrador coast.

Mr. R. B. McComisky, Yarmouth, N.S., will establish a factory at Granby, Que., for the manufacture of combs, etc.

The city of St. John, N.B., have leased to the F. B. Dunn Pork Packing Co., a site in Fairville, on the outskirts of the city, on which the company, will build a factory to take the place of that recently destroyed in the Musquash fire. Another site has been given the St. John Ladder Co., and they will build a factory, in which it is intended to manufacture ladders of all kinds for the Canadian market and for export.

The Fern Dam Mining Co., Fairville, N.B., have been organized with a capital of \$250,000.

The New Brunswick Government are inviting tenders for rebuilding the Arsenneau bridge in Gloucester county.

Messrs. Stewart & Metcalfe, implement dealers, Winnipeg, Man., have purchased the building on Logan avenue formerly used as an obo factory by the McCredy Syndicate of London, England, and now

occupy the premises for warehouse purposes.

Work has been commenced on a new forty-stall roundhouse for the Canadian Northern Railway at Winnipeg, Man.

The Canadian Moline Plow Co. have purchased a lot at the corner of Nena and Chambers streets, Winnipeg, Man., on which they will erect an extensive implement warehouse. The building will be 100x80 feet and will cost about \$20,000.

The Redwood Brewery, Winnipeg, Man., will be enlarged and a new plant installed at a cost of about \$50,000.

The Western Trading Co., Shoal Lake, Man., have purchased the elevator business of Robt. Scott, of that place.

The Stimpson Computing Scale Co., of Elkhardt, Ind., have selected a site at Fort Rouge, Winnipeg, Man., upon which they will erect a factory.

The town of Morden, Man., have granted tax exemption and a free site of twenty-two acres to The Manitoba Cement Co. Contracts will be let at once for the new works.

Messrs. Dawson & McEwen, Wapella, N.W.T., have purchased the flour mill of Jas. Saunders, at that place.

The International Coal & Coke Co., who own extensive bituminous coal lands in Alberta, N.W.T., on the line of the Crow's Nest Pass Railway, have engaged Geo. S. Baton, a Pittsburg expert to design a plant capable of producing an output of 2,000 tons daily. The town which will grow up when these works are in operation will be known as Coleman, and the mines as the Denison mines.

The Hanbury Mfg. Co., Brandon, Man., have purchased the sawmill at Cranbrook, B.C., formerly owned by Lensk & Slater. The mill has a capacity of cutting from 45,000 to 50,000 feet of lumber per day.

The Dunbar Fire Brick Co., Pittsburg, Pa., of which Mr. John Palmer is general sales agent, have secured a contract for several million fire brick from the International Coal & Coke Co., of Alberta, N.W.T., to be used in the construction of a new coking plant.

Capt. F. W. Coates and R. J. Mosher, formerly connected with the Rainy River Navigation Co., Rat Portage, Ont., have arranged to build a large steamer at Edmonton, N.W.T., for service on the Saskatchewan river. The hull will be built of wood at Edmonton and the engines at Toronto. It is proposed to place three or four steamers of various sizes on the river.

The ratepayers of Calgary, N.W.T., are considering the installation of an electric light system.

The Arrow Milling Co. have greatly improved their plant at Birtle, Man. Considerable new machinery has been installed.

The Canadian Pacific Railway Co., will construct a two decker wharf at Vancouver, B.C. The plan of construction calls for five piers, each 650 feet long by 175 feet wide, with two warehouses on each 150x50 feet, and a railway track between.

The Crow's Nest Pass Coal Co., are building 500 coke ovens in addition to the 630 it already has in operation. Two hundred and fifty of them will be located at Morrissey, B.C., and an equal number at Michel, B.C. When the ovens are completed the company will have 462 at Michel, 424 at Fernie, and 250 at Morrissey. All these ovens will be ready to fire within the next two months.

The Armstrong Light & Power Co., have been incorporated at Victoria, B.C., with a capital of \$25,000, to construct and operate electric works, to generate electricity, etc.

The Dominion Power & Irrigation Co., have been incorporated at Victoria, B.C., with a capital of \$300,000, to supply compressed air, electricity, and water power for hydraulic mining and irrigation purposes.

The Perry Creek Hydraulic Mining Co., have been incorporated at Victoria, B.C., with a capital of \$1,000,000, to carry on a general mining, milling and refining business and to manufacture pulp, paper, etc.

The Fisher Maiden-Troy Mines, Limited, have been incorporated at Victoria, B.C., with a capital of \$150,000, to carry on a general mining business and to manufacture machinery, implements, etc.

The Canadian Timber & Saw Mills, Limited, an English incorporation, have been granted license to carry on saw mill and timber business and to manufacture articles in which timber is used, with head office at Trout Lake, B.C., and a capital of \$150,000.

The Texada Mining Co., Tacoma, Wash., have been granted a license to do business in Vancouver, B.C., with a capital of \$10,000.

The Cassiar Coal Development Co., Toronto, have been granted a license to do business in Vancouver, B.C., with a capital of \$300,000.

Mr. W. Bauer, Vancouver, B.C., who recently returned from a trip to Princess Royal Island, B.C., states that the experts who have examined the spruce limits on the island say that it is of the finest quality for the manufacture of newspaper. Mr. Bauer said that a new company have definitely decided to establish mills on Princess Royal Island to manufacture white paper.

The Canadian Pacific Railway steamer Princess Beatrice was launched from the British Columbia Marine Railway Co's yard at Esquimalt, B.C., September 10. The Princess Beatrice is intended for the company's route from Vancouver to Alaska and is built of wood. She is 212 feet long, fitted with triple-expansion engines, and has accommodations for 100 first-class passengers, a large number of intermediate passengers and 700 tons of cargo.

The Great Northern Railway have commissioned Mr. John Creau, New Westminster, B.C., to secure an option on property upon which a six-story first-class hotel, to be called the Great Northern, will be erected. The plans provide for modern house, costing about \$750,000.

A large body of zinc has been discovered recently in the lower working of the Bismarck on South Fork, B.C. The strike shows up 14 inches wide and an assay gave 42 per cent. zinc and 126½ ozs. in silver.

W. B. Pool, Ferguson, B.C., and J. J. Young, Calgary, N.W.T., arrived at Revelstoke, B.C., from Poplar Creek, B.C., with specimens of gold quartz. One piece weighs 5 pounds, contains 2½ pounds of gold, and is worth for the gold alone about \$700, though its value as a unique specimen is probably several thousands. The latest development in the Poplar Creek district is to the effect that it is to be a silver as well as a gold country. Marquis & Gilbert on the discovery claim, have put down a shaft 30 feet and they find the galena ore studded with free gold.

The St. Paul's Catholic Hospital, Vancouver, B.C., will be enlarged at a cost of about \$40,000.

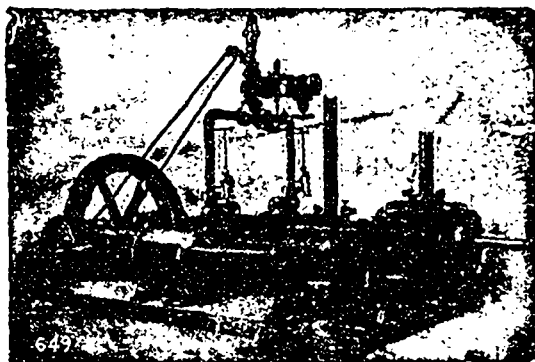
European papers are publishing interesting comments on Canada's paper production. They say that its resources of raw material for paper making are practically inexhaustible. A production of fully 1,300,000 pounds every twenty-four hours is looked for in the near future. The present capacity certainly gives promise of this output. These figures include paper of all kinds. The industry is 75 years old, has 40 mills, and is turning out a constantly improving quality and quantity. It is meeting foreign competition with more than fair prospects of success. It is succeeding in

replacing many foreign grades with the domestic production. Still, imports of the finer kinds of foreign grades are increasing. The kinds imported are blotting, fine writing, printing and carpet paper.

The Anglo-Indian Review summarizes an interesting and illuminating account of the possible future applications of radium. The area where success is practically assured is at present not very large, but in the medical field it is already fairly extensive. In the working of X rays and in the marvellous results achieved in the treatment of cancer and blindness we have every hope for great and universally benefiting results. In its industrial application we are somewhat restricted by the extremely limited supply of radium available, but it is stated that a small fraction of an ounce, properly employed, would probably provide a good light sufficient for several rooms and would not require renewal during the present century. It has been calculated that the energy stored up in 1 gram of radium is sufficient to raise 500 tons weight a mile high. An ounce would, therefore, suffice to drive a 50-horse-power motor car at the rate of 30 miles an hour round the world.

German papers report the discovery by Mr. Edward Mollard, a Frenchman, of a new metal called solum. According to the English Mechanic, the discoverer claims that solum costs but one-twelfth as much as aluminium and is lighter and stronger. It does not rust, and is therefore suitable for use in shipbuilding, for the manufacture of pipes, and for railroad construction. On account of its cheapness—and as it is capable of a fine polish, resembling nickel—it would be desirable for manufacturing cooking utensils. Its density is 2.6 and its hardness not quite that of iron, but greater than lead or zinc. Its power of resistance is said to be greater than that of iron, but less than that of steel. The melting point is at 1,600° C. In melting, it contracts somewhat, but moulding in forms is not impossible.

Among the recent important contracts made by the Union Switch & Signal Co. are those for the Interborough Rapid Transit Co. (Subway) of New York. The Westinghouse Electro-Pneumatic system is to be installed, but a new feature is to be introduced, that of using alternating



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current. It is obvious that the use of track circuits on third-rail roads, where the rails are used for the return circuit, and at the same time for the signalling circuit, introduces what may be serious complications. In order to avoid these difficulties, the signals will be controlled by alternating current, through relays that are sensitive to alternating current only, and which will not be affected by the direct current used for train service in the subway.

What promises to be one of the richest graphite deposits on this continent has been discovered on the north-east coast of Newfoundland, says the North Sydney N S. Herald. Mr. Alexander Kawaja, of that town, is one of a company who are the owners of about twenty acres of land, all of which is rich with this valuable ore. Mr. Kawaja has returned from Newfoundland and brought with him some samples which have been forwarded to New York. The company have a gang of men at work on the property and expect to develop their holdings on a large scale. A short time ago prospectors sent out by this same company discovered extensive deposits of Mica on Bell Island, Newfoundland. Samples sent to New York recently have been pronounced as of best quality, and other reassuring reports on the matter have prompted the company to go on with the work. Mr. Kawaja intends leaving for New York in a few days to purchase machinery, etc., for the working of their graphite and mica properties.

It is difficult to give a commercial value for molybdenum ore, as the market is limited only to two or three concerns in the United States, and as purchases are made entirely by assay. The treatment of molybdenum ore is a metallurgical proposition, and is entirely done at the works named, so far as the saving of the metal is concerned. All that is necessary at the point where it is mined is a simple concentration to free the ore from gangue and impurities. The purchasers of molybdenum ore are the Primos Chemical Co., Primos, Pa.; Asch & Denninger, Phoenixville, Pa.; the Tungsten & Rare Metals Co., 91 Blackfriar's Road, London, E.C., England, and George G. Blackwell Sons & Co., Liverpool, England.

An American expert has been engaged to co-operate with the Newfoundland geological officials for the scientific explorations of coal areas for the colony, under the joint auspices of the Government and Messrs. Harmsworth, the London publishers. The arrangement is that the Government pays \$10,000 towards this undertaking, the Harmsworths providing the remainder, they to secure the areas on easy terms if the enquiry shows that the properties are worth working. The future of mining on the island depends to a very large extent upon the outcome of this research. If there is coal in workable quantity large projects will soon take shape. The smelting of copper is certain to be started without delay, and the Legislature has provided for the payment of a bounty on the manufacture of iron and steel. The Imperial Government would cordially welcome the discovery of

workable coal in the colony, which would be a most important strategic centre in time of war.

Work is progressing rapidly on the new plant of the Canadian Heating & Ventilating Co. at Owen Sound, Ont., and the plant will be ready for operations early next year. Jas. Christy, Owen Sound, is general manager.

The blast furnace of the Nova Scotia Steel & Coal Co., at Sydney Mines, will not go into operation this year. The furnace is all but ready, but the plant for the ore pier has not come to hand. The non-delivery of the discharging plant in the time specified has caused much delay and is a heavy loss to the Steel Company. It is hoped that the parts will be landed in time to make a test on a trial cargo of ore before the middle of November.

Messrs. William Jacks & Co., London, England, under date September 17, 1903, writes as follows:

Since writing you last, prices of pig iron have fallen here, principally owing to the fear that we are on the eve of shipments of American and Canadian iron. This was accentuated to-day by the publication of the Iron Age telegram in to-days Times, stating that the production of pig iron in the United States was at the rate of ninety million tons per annum. To-days quotations are as follows:

No. 1 Gartsberrie..62/9 p. t., f.o.b. Glasgow, including dues.  
No. 3 " . 56/6 p. t., f.o.b. Glasgow, including dues.

M/Nos. Cumberland Hematite...61/3 p. t., f. o. b. Liverpool.

No. 3 G.M.B., Foundry Middlesbro..46/3 p.t., f.o.b. makers wharf, including dues.

The Morgan Construction Co., Worcester, Mass., announce in our columns their readiness to supply Canadian manufacturers with machinery for steel plants, rolling mills, gas producers, wire mills, etc. They say that nearly every important wire mill in Canada and the United States uses their machinery.

Canadian manufacturers of heating apparatus are finding in the North-West a profitable market for a large amount of apparatus in this line. The climate is such that more than ordinary attention must be given to heating methods and appliances, while the rapid increase in population is widening the market every year. The prosperous conditions which have prevailed in the North-West, as well as in every part of Canada, for several years past, have put the people in possession of means with which to make themselves comfortable, and large expenditures are being made for this object. The manufacturers of heating apparatus claim that better prices are obtainable in the North-West than in Eastern Canada. They also state that, notwithstanding the mildness of the climate in British Columbia, there is a considerable demand for heating appliances in that province. In view of the rapidly widening market, several manufacturing firms are increasing their facilities for the production of this line of goods.

## ANOTHER STEEL PLANT FOR ONTARIO.

That the United States Steel Trust proposes the early establishment of an extensive plant in Ontario, probably at Port Burwell, is apparent from a statement made by Mr. John Charlton, M.P., whose name was mentioned in a New York despatch a few days ago on this subject. Mr. Charlton, however, disclaims any interest in the project, other than a desire to see them establish a plant in Canada, and a local interest in seeing it established at Port Burwell or Port Rowan. My connection with the proposition, said Mr. Charlton, probably arose in this way. I was in New York four or five weeks ago, and had a conversation with Mr. James Galey, first vice-president of the United States Steel Corporation. He said that while they had no immediate intention of doing it, they were considering the propriety of establishing works at some point in Canada, and had thought of Sarnia, because that was a convenient point for ore, or of some point on Lake Erie, because that would be convenient for coal. In discussing the matter, Mr. Galey seemed to be rather impressed with the advantages offered by Port Burwell, where there is a new harbor, the best, in fact, on the north shore of Lake Erie, and almost directly opposite the coal ports of Ashtabula, Conneaut and Fairport, and within 45 miles of either of the latter two. They would also have the advantage of a railway line from Port Burwell to Ingersoll, crossing the three trunk lines of Ontario, the Wabash, Grand Trunk and Michigan Central, and also connecting with the Canadian Pacific Railway, and giving them competing rates from all these lines. Since then I have received a telegram from Mr. Galey asking me as to the respective advantages of Port Burwell and Port Rowan as to the harbor facilities, to which I was obliged to reply they were very much in favor of Port Burwell, because there was no harbor at Port Rowan. I imagine that the United States Steel Corporation intend to establish branch works in Ontario, and that they are investigating now as to the most advantageous point. My information is that Port Burwell will be one of two, or perhaps three, points on Lake Erie to be selected, and that these advantages in the character of its harbor and in the independent railway line connecting with the trunk lines make it the point most likely to be selected. They did consider the advantages of Sarnia, because of its being nearer the ore bodies, but the Lake Erie points are nearer the coal deposits. I presume they will draw much of their ore from northern Michigan, but they will also develop some of the ore beds in north-western Ontario where they now have large deposits. The corporation realizes that even with the present tariff it is to their slight advantage to manufacture on this side, and in case our tariff should increase, the advantage would be much greater. It is a good policy to take early possession of the field, because they lose nothing, and may derive a great advantage from being ready. In reply to a question, Mr.

Charlton said the reported proposal of the trust to take advantage of the cheap Niagara power and of the new electrolytic process was not discussed by Mr. Galay.

**THE SAULT STE. MARIE DISASTER.**

On September 18 the following regrettable announcement affecting the works of the Consolidated Lake Superior Co. was made public by Mr. Coyne, assistant to the president of the company:

President Shields, on account of not having funds to meet the pay roll and current accounts, and no immediate prospects of securing money to meet them, is unwilling to proceed longer incurring liabilities on account of its officers, men, or other creditors, and consequently today has suspended all operations whatsoever except the Algoma Water & Light Co. and street railway service in the Canadian Soo, and the ferry service, and the street railway service in the American Soo. But one train per week shall be run on the Algoma Central Railway between the Soo and end of track, or about 60 miles. This means that 3,500 men will be thrown out of employment.

The Helen ore mine, employing 300 men; the Grace gold mine, employing 70 men; the Michipicoten branch of the railway, employing 50 men; veneer mill at the Soo, Ont., employing 75 men; the sawmill at the Soo, Ont., employing 100 men; the car shops at the Soo, Ont., employing 20 men; the Algoma Iron Works at the Soo, Ont., employing 160

men; the sulphite pulp mill at the Soo, Ont., employing 100 men; the ground wood pulp mill at the Soo, Ont., employing 100 men; the Gertrude nickel mine, at Sudbury, employing 80 men; the reduction works at the Soo, Ont., employing 40 men; the paper mill at the Soo, Mich., employing 20 men; the Michigan Lake Superior Power Co. at the Soo, Mich., employing 50 men; the pine veneer, log pulp and charcoal industries, operating along the line of the Algoma Central Railway, employing 1,700 men; the retort plant at the Soo, Ont., employing 90 men; and the Algoma steel plant at the Soo, Ont., employing 150 men, will be absolutely closed down, leaving at each simply one caretaker in the day time and two watchmen at night to protect the property. The general office staff and the Algoma Central main line staff will be reduced proportionately, the probability being that no more than 15 of the entire staff will be retained. It is with deep regret this announcement is made, but it is the only alternative.

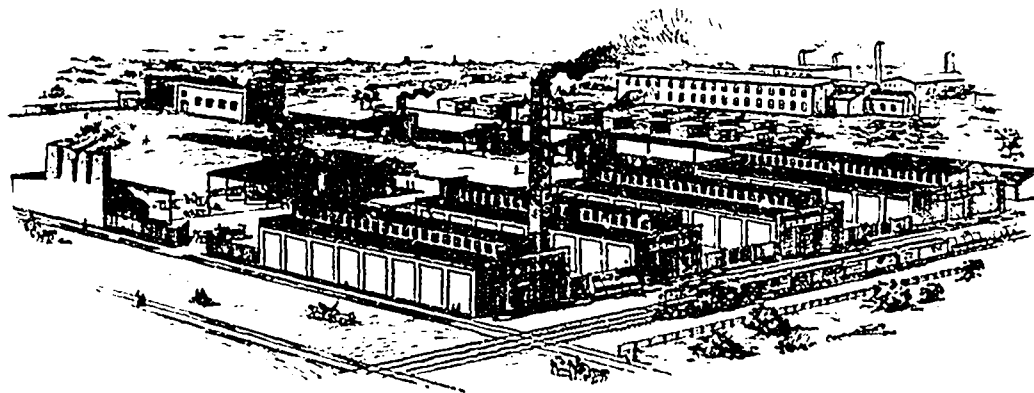
For the past 90 days everything that human intelligence could suggest or tireless energy compass has been done to raise funds to finance this immense, magnificent property, but without avail. The hardships that this will bring upon many officers and employees must be borne as patiently as possible, trusting that the future may bring about a happy solution and settlement of all difficulties. Above all else I must ask you to remember that we are all law-abiding citizens and that our misfortunes, while hard to bear, are

not likely to continue forever. The company's loss on account of this necessary shut down will be almost irretrievable, for the reason that no pulp-wood, sawlogs or veneer logs will be available to run the pulp mills, sawmills or veneer mills next year.

All of the operations of the company have been closed down, and the great industries are silent for the first time in six years. The various plants are in charge of watchmen, and the town is filled with the unemployed. There is a general feeling of uneasiness among the citizens, who dread the inevitable approach of an extremely hard winter, combined with the more immediate danger of what may happen when the dismissed employes are assembled in town and unable to get their overdue wages. The town is ill prepared for an emergency of this kind, and it is to be hoped that money will be forthcoming very soon to pay these men off.

The situation, so far as Sault Ste. Marie is concerned, is by no means hopeless. In fact the contrary view is taken by many who have regarded reorganization as inevitable for two or three years past. It is confidently believed that if the affair can be tidied over during the winter months the spring will bring brighter prospects than have ever been experienced in the past. It is most irrational to believe that these magnificent industries, with their great earning possibilities, can long remain idle.

Much sympathy is felt for President Shields, who has spent the past three



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months in an heroic effort to work out a solution of this difficulty, but whose lack of success has been almost solely due to the unprecedented depression in the money markets.

Mr. Robert Jaffray, speaking to a reporter regarding the railway development in connection with the Consolidated Lake Superior industries, said: The Algoma Central consists of the Michipicoten branch, which runs from Nepigon to the Helen and Josephine mines, and 75 miles of the Soo or main line. In the Michipicoten branch there are 24 miles of finished road of very superior construction, stone culverts and everything substantial about it. There are stations and docks for the shipment of ore. I believe this branch has fully earned its dividends in shipments of ore from the Helen mine. Of the Soo or main line 75 miles have been constructed from the Soo, and have been in use. In addition there are ninety miles of road graded towards the point of junction with the Michipicoten branch, but the bridges are not built. The reason for this is that the character of the timber to be used necessitates its being brought from British Columbia, and it could not be got forward. It is estimated that it would require \$4,000 a mile to lay the rails on this 90 miles, and that the bridges would probably cost \$175,000 more. Ten miles of the Michipicoten branch would be used by the main line, and beyond this there would be 45 miles to carry the road to a junction with the Canadian Pacific Railway. This 45 miles is said to be of easy construction.

Between the end of the present line and the Canadian Pacific Railway there is at Dog River an iron range, said to be the best iron property in the district. It is understood that there has been expended upon the construction of these lines and equipment \$7,000,000, more than enough to pay the Speyer loan. The company's sawmill and other development in the manufacture of lumber on the main line, and also the charcoal business, contribute freight for this line.

#### HOW COKE IS MADE.

It is surprising the number of people interested in the consumption of coke, living remote from the coking coal fields, who are not acquainted with its mode of manufacture. The style of oven principally used in this country is the beehive type. The by-product type is being introduced, but the preference in America to date seems to be for the beehive oven. These remarks, therefore, refer only to the latter. They are built in solid rows of any number consistent with the character of the surface of the ground. They may be bank ovens (single row built against a hill) or block ovens (double row on open ground). The coal is carried to them in lorries holding enough coal to charge the oven, and running on a track built on top of a row of ovens. The coal is charged from the lorry into the ovens through a hole in the top. The process of applying the heat is where we find many people mystified, or laboring under a wrong impression. When the oven is new the heat is applied by burning wood until the bricks get thoroughly

hot. The oven is then charged with coal and ignites. The burning is from the top of the oven to the base. When the coke is ready to draw, the door in front of the oven is opened and the cooling process started. This is done by quenching with water through a hose pipe, manipulated by the drawer. When cool enough to handle the drawer pulls the coke out on the yard with a large iron fork, finishing the quenching outside, as too much water permitted in the oven would tend to reduce the heat. As soon as possible after the oven is emptied it is recharged from the lorry with the same quantity of coal as before, and the burning process commences instantly from the heat of the oven. This continues during the entire period the oven is in operation.

Coke is burned 48 to 72 hours—48 hours because a certain quantity of coal will burn in a certain sized oven that length of time with best results to produce the highest quality of coke for blast-furnace use. The 72-hour coke, being burned longer, is harder and consequently of better quality, and is specially adapted to foundry practice.

#### NO SUCH WORD AS "FAIL."

Almost from the day the first white man looked upon the great cataract, Niagara Falls has had its heroes, says The Niagara Falls Gazette. During the past few years a large number of names have been added to the list of those who for the saving of human life or furthering the cause of science or industry have dared the perils of the Niagara River in one way or another. This week another is added to the roll.

One of the most amazing tasks in connection with the present power development is that undertaken by Battle Bros., contractors, of Thorold, Ont., who are building a great wing dam at the head of the White Horse Rapids for the Niagara Construction Co., builders of the works of the Ontario Power Co. This dam is being thrust out into the deep, silent, swift-running water at the head of the rapids for a distance of 260 feet, and then down stream 700 feet, involving a work of almost incredible difficulty. The first section is now completed, and 400 feet of the second have been built. A few days ago the contractors decided to obtain, if possible, soundings of that part of the river in which the rest of the dam is to be built. At first they were at a loss for a method of doing this, but the matter was referred to William Larocque, their French-Canadian foreman from below Montreal, and in a few hours the problem was solved.

Larocque first built a sort of float, 32 feet long and 14 feet wide. The upstream end of it was only about a foot thick, but at the other end it sloped up to a height of three feet. On this a mast 20 feet high was erected and securely braced, and to its top a stout cable was attached. Two other cables were then fastened to the front of the float, and the queer craft was started down stream from the extremity of the dam. Another cable led out sideways to aid in directing the float. The current runs over fifteen miles

an hour at this point, and as soon as the float was fairly started the water rushed over the low front of it, and bore down so hard as it was forced up over the higher back that the float went to the bottom like a stone. This was exactly what Larocque had intended. The two cables were paid out slowly and carefully till the float had gone down stream about two hundred and seventy feet. It was found then by pulling on the cables that they would stand a strain as great as if the float were anchored to the rock at the bottom of the river.

Then Larocque came to the front again. He had a sort of box attached to the cable stretched from the mast on the float to a mast on the dam, and into this he got, and ordered his men to let him slide out on the cable. The box was hung to the cable by a pulley, and the mast on the dam was higher than that on the float, so that the box would slide out. The rope attached to the box was controlled by the daring foreman's brother, Napoleon Larocque, and another man named Philip Clarmont. They were on top of the "shore" mast, and directed the whole operations on the dam. A life line was fastened round the waist of the man in the box, and a gang of trusty men held the other end of it.

Out on the thin cable, swaying to and fro in his crazy box, Larocque slid, foot by foot, till presently he signalled that the box be stopped. Then he lowered an inch and a quarter steel sounding rod into the water, till he touched bottom, and the engineers on the shore levelled their instruments and took the level. Out again went the box, and another sounding was made, and so on again and again, until the intrepid foreman was close to the sunken float, and only about fifty feet from the break of the rapids. Every few feet he signalled for the box to stop and let down his rod. By an ingenious arrangement he was able to lower the box nearer to the water, and once he was down within two feet of the rushing tide. No man ever went out there before and returned to tell the tale. Death in the boiling rapids and a final plunge of a battered corpse over the cataract was always the inevitable fate. Larocque did not seem to realize the terrible peculiarity of his position, but went on making his soundings till all was completed. Then he gave the signal, and was drawn up to the dam without accident. A crowd of contractors, engineers, photographers and other spectators crowded forward to grasp his hand, but the Frenchman seemed unable to realize why they should make such a fuss. It was all in the day's work to him. The sunken float was dragged back, and to-day, if you visit the spot, you will see no sign of where a brave man in blue jeans risked his life and saved it by his own skill and inventiveness.

#### THE HUMAN ELEMENT IN LABOR.

The ordinary student of economics has but a vague idea of the daily work in a machine shop. In particular, his notions of the performance of machine tools are wildly wide of the facts. Under every-

day conditions the time taken in placing and adjusting the work, in changing from one task to another and in waiting for material, is considerably greater than that during which the cutting edge of the tool is actually guawing metal. Hence, there is ample opportunity for really alert and enthusiastic labor to force the output even of lathes and planers.

It is now a well-understood principle of wood and metal working that for the maximum economy of the whole process of manufacture every cut should be taken at the most efficient speed—generally much higher than used to be customary. Clear recognition of this principle and the introduction of improved tool steel have made it feasible to work metal at a rate which would have been considered a sheer impossibility even a few years since. But only intelligent and active workmen can take proper advantage of the situation and force the shop to a condition of efficient production. An atmosphere of fagged and spiritless endurance in a shop is a steady drag on manufacturing efficiency, and the shortening of the working day unquestionably has the effect of putting the men on their mettle and dispelling the sedate melancholia that afflicts the unwilling.

The human element in labor cannot be put aside by any amount of automatic machinery, nor can the man be reduced to the level of the machine in spite of the most earnest efforts of numerous employers. He reckons ill who imagines that he can for any long period keep on increasing the productiveness of labor

without increasing its remuneration. That workmen do resent the attempt to make them mere cogs in a money-getting machine for the profit of others, is, upon the whole, vastly to their credit. To establish sound human relations between employers and employed it is not at all necessary to strike an attitude of disinterested philanthropy. The world could not be, and need not be, run on strictly altruistic principles, and self-help—call it enlightened selfishness if you will—is the necessary prelude to mutual helpfulness.—Dr. Louis Bell, in Cassier's Magazine.

**DEVELOPMENT OF THE WORLD'S STEEL INDUSTRY.**

The Deutsche Industrie Zeitung says that of all the countries producing steel in 1902 the United States led, with an output of 15,000,000 tons. These figures grow in importance when it is remembered that the world's production in 1894 was only 12,851,000 tons. Germany's production in 1902 was 7,780,000 tons, one-half that of the United States; while England's was only 5,000,000 tons, or one-third the production of the United States. The world's total steel output for 1902 was estimated at 35,000,000 tons. This would indicate a growth of 700 per cent. in twenty-two years, or an increase from a little more than 4,000,000 tons in 1880 to 35,000,000 tons in 1902. The great increase is due to the introduction and improvement of the processes, notably the flame furnace. Pennsylvania leads all parts of the world in the use of this

furnace, followed by Illinois, New England, Ohio, etc.

The steel produced by the Bessemer process during the last fifteen years was used mostly for rails. In England more than half of the steel produced by the Bessemer process went into rails. In Germany and the United States the proportion is not so large. While the United States produced 9,306,471 tons of steel ingots in 1902, it turned out only 2,876,293 tons of steel rails, or about 30 per cent. of the steel-ingot production. In Germany the amount of Bessemer steel put into rails is proportionately smaller. Because of the resisting power of the steel, the wear and tear on the rails is far less; but the manifold uses to which the steel can be put has taken away somewhat from the importance of steel-rail manufacture. The last twenty years has resulted in an age of steel. Three times as much steel is now produced as in 1894. The universal opinion seems to be that the production of steel is to go on increasing. If, during the next twenty years, the same rate of increase is maintained as marked the past, 1923 will see an advance of from 20,000,000 to 25,000,000 tons in the world's total production. In this enormous increase the United States, according to experts, is to play the important part. At the very least, this opinion seems reasonable. The United States now uses in a year 30,000,000 tons of the very best iron ore. In twenty years this would mean a total of 600,000,000 tons—possibly the exhaustion of the sources of supply.

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### PRODUCTION OF NICKEL IN 1902.

The United States Geological Survey has completed an exhaustive review of nickel and cobalt production in 1902 and the four preceeding years, and development work in the United States and Canada. The only nickel ores produced on a commercial basis in the United States last year were as by-products from mine La Motte, Missouri. The quantity and value of nickel obtained from United States ores during the last five years are:

	Pound.	Value.
1898.....	11,195	\$3,956
1899.....	22,541	8,566
1900.....	9,715	3,886
1901.....	6,700	3,551
1902.....	5,748	2,701

Most of the nickel used in the United States is obtained from Canada. For the years 1896 to 1902 the amount of nickel ore mined and smelted in Canada was:

	Ore Produced.	Ore Smelted.
1896.....	Tons.... 109,097	73,505
1899.....	" .... 203,118	171,230
1901.....	" .... 326,295	270,380
1902.....	" .... 269,538	233,338

The total imports into the United States of nickel oxide, alloy of nickel, etc., during the calendar year 1902, amounted to 33,742,710 pounds, valued at \$1,437,649, as compared with 117,364,337 pounds, valued at \$1,849,620, in 1901.

### AN IMPORTANT CANADIAN INVENTION.

Dr. George Archbold, A.M., consulting chemist, Prescott, Ont., informs us that a company has been formed at Newcastle, Ind., with a capital of \$500,000, to erect, equip and operate works for the manufacture of cornstarch under what is known as the Archbold two-day process. This process will, it is claimed, revolutionize existing processes in that no starch runs or shakers are required, the process yielding a much higher percentage of starch of great purity. Only 48 hours are required in the operation from the time the corn enters the steeps until the finished product—pure starch—is obtained, whereas older processes require from ten to fourteen days under most favorable conditions. A demonstration of the Archbold process, with an experimental 500-bushel plant, will shortly be made in the presence of old and reliable starch manufacturers in the Western States; already a satisfactory experimental test, on a smaller scale, having been made by Dr. Archbold.

### ARTIFICIAL NIAGARA AT ST. LOUIS.

An immense artificial cascade has been determined upon by the authorities of the Louisiana Purchase Exposition as the centrepiece of the semi-circular lay-out of the principal buildings. The cascade itself will be divided into three parts; a large middle cascade with a smaller one at each side, the water flowing directly into the head of the Grand Basin. In all,

about 90,000 gallons of water per minute will be supplied at a head of 159 feet, forming the greatest artificial water effect ever attempted.

The water will be taken from the Grand Basin itself and will be raised to the top of the cascade by a pumping station located under Festival Hall. The pumping machinery will consist of three 36-inch single-stage turbine centrifugal pumps purchased from Henry R. Worthington, of New York City, each driven by a 2,000 h.p. Westinghouse alternating current motor. The total horse-power utilized will thus be 6,000, making this the largest electric pumping station in the world. The pumps and other pieces of machinery for this plant are now being installed at St. Louis.

### WROUGHT IRON vs. STEEL.

According to the Birmingham Age-Herald, steel sheets, whether galvanized, covered with tin or left uncovered, rust much quicker than wrought iron sheets. Especially is this true of sheets exposed to the weather. The sheets having a steel body are very perishable. Steel nails in a roof lose their strength by oxidation much quicker than cut nails do, and the demand for the latter is increasing. It would not be strange if there should be a return to iron plates for use in the weather. The obstacle in the way is the increased cost of production. Neither cut nails or iron sheets can be made as cheaply or in as great quantities as steel nails and steel sheets can be. Iron nails and iron sheets can now be purchased in the market, but they cost more. Any one who is willing to pay the price can, however, procure them. They are better and more durable in exposed places. The production of soft steel in large quantities and at low prices has been carried perhaps too far, and wrought iron deserves more consideration and will perhaps secure it, especially in the preparation of roofing material. Steel is not adapted to the uses of roofers and cornice makers. It is not durable. It readily rusts. Why, the chemist cannot tell us, but actual experience tells us that it lacks durability and that iron is preferable. This may lead to considerable changes in the future, especially if the production of iron sheets and nails can be cheapened and can be increased in volume. Both difficulties stand in the way.

### SOFT COAL FOUND AT BLACKSMITH RAPIDS, ONT.

Mr. J. M. Bell, who is in charge of the exploratory party in search for coal in northern Ontario, writes to the Ontario Crown Lands Department regarding a trip on the Abitibi River, as follows: In all, at three distinct points, boring operations were carried on, but at no place were these successful save at the Blacksmith Rapids, and even there not comparable with the Someska. The deposit occurring at this point is too extraordinary to be discussed in the compass of this letter, but, in brief, it may be said that soft coal of excellent quality occurs on both sides of the Abitibi River, and sometimes of great thickness. At several

points it was 24 feet thick, and, if I remember rightly, it appears continuously, as shown by our test pits for some 350 feet on the west side, and higher up on the same shore for about as much again. The outcrop on the opposite bank is much smaller. Unfortunately no boring operations could be conducted in the interior, owing to the thick coating of boulders overlying. Though not a continuous deposit as on the Someska, still there is a great deal of fine coal in sight, and if not fit or in a large enough deposit for export (and I do not say that it is not), it will certainly be of value for local consumption when the north country is opened up. The coal on the Blacksmith Rapids, as that on the Someska, burned freely in the open air.

From the Abitibi a trip was made on foot by myself across to the Grand Rapids of the Mattagami, and the iron deposit, there occurring, carefully examined. This splendid deposit, which consists of limonite, or brown hematite of good quality, occurs on both sides of the river, on the west side for 1,160 feet, and on the east side for 325 feet. At low water the limonite also appears in the river bottom.

### THE MADE IN CANADA EXHIBITION.

The "Made in Canada" Exhibition at Hamilton, Ont., was opened in due form on Monday, September 14.

The list of exhibitors includes the Cowan Co., Toronto; John McPherson Co., Hamilton; Hamilton Cotton Co., Hamilton; Pure Gold Mfg. Co., Toronto; Galt Knitting Co., Galt; Harris & Co., Rockwood; T. Upton & Co., Hamilton; Slater Shoe Co., Montreal; Tolton & McKay, Toronto; Meakins & Sons, Hamilton; Bovril Co., Toronto; Caldwell-Boyd Co., Lanark; Chadwick Bros., Hamilton; Canadian Packing Co., London; C. Turnbull & Co., Galt; Crompton Corset Co., Toronto; Penman Mfg. Co., Paris; the Tuckett Co., Hamilton; D. Morton & Sons, Hamilton; Hamilton Coffee & Spice Co., Hamilton; R. Soper & Co., Hamilton; Iron Ox Remedy Co., Walkerville; Dominion Corset Mfg. Co., Quebec; Grafton & Co., Dundas; E. W. Gillett Co., Toronto; Watson Mfg. Co., Paris; Corticelli Silk Co., Toronto; Toronto Carpet Mfg. Co., Toronto; Colonial Bleaching & Printing Co., Montreal; Holt, Renfrew & Co., Quebec; Cummings & Sellers, Toronto; Model Bakery Co., Toronto; St. Charles Condensing Co., Ingersoll; Gowans, Kent & Co., Toronto; Brown & Wigle, Kingsville; A. & R. Clarke, Toronto.

### A FACTORY PRODUCT OF MANY PHASES OF INTEREST TO THOSE WHO BUILD.

An interesting side view is given of expanded metal, one of made-in-Canada products, by the fact that recently four of the largest concerns of the country have utilized this steel mesh material for widely different purposes. These are the Canadian General Electric Co., for gallery railings and for clothes lockers for the employes; Deering Harvester Co.,

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Expanded metal figures in boiler-setting where it improves on the old plan of brick work. Stone men use the finer mesh grades for cement insulating purposes; it has superseded wood lattice for veranda panels; is popular as window guards because secure from unravelling and very rigid; and has a steady sale to manufacturers of minor articles like ash-sifters, etc. It is used as a base for tiling on walls and floors by the leading firms to prevent cracking. Extremely diverse, indeed, are the "Doings of Expanded Metal." Such, by the way, is the title of an attractive and readable little journal issued monthly by the Expanded Metal & Fireproofing Co., of 100 King St. West, Toronto. A perusal of its numbers instills the belief, and experience has proven it to hundreds of Canadian manufacturers, that whether as an alternative for terra cotta for fireproof flooring, or for brick or concrete arches for floors to carry very heavy loads, the newer expanded metal and concrete system possesses superior advantages at greatly reduced cost.

The company's contracting practice runs the gamut from roofs subjected solely to snow loads all the way to viaduct tops that have to carry a 15-ton road roller.

Expanded metal lath wired to steel studs and plastered two inches thick with Portland cement mortar is known to architects as Cementine, and is a construction that has been tried in all climates, Sydney, Ottawa, Montreal, Toronto, etc. Cementine is tested fireproofing and is applicable to walls, roofs, partitions, ceilings, fire curtains, elevator enclosures, hot air ducts, etc., for factories and warehouses. Applied directly to wood, expanded metal lath and plaster is a cheap means of thoroughly rendering the same proof against fire action. It is the exception, now, to build a boiler-room or engine room without protection of this kind for all wood work, and first-class work calls for cinder concrete with expanded metal embedded for floors, both above and below. An important feature is that a better insurance rating is thus secured.

#### PERSONAL.

Mr. J. A. Robertson, of the Robertson, Tait Hardware Co., Brisbane, Queensland, Australia, and Mr. H. J. Hyne, of Hyne & Sons, lumber merchants, Maryborough, Queensland, were in Toronto a few days ago. They are making a tour of the world, during which they are collecting as much information as they possibly can on business, taxation and educational matters. Speaking of the proposed preferential tariff policy, both expressed their belief that Australia was in favor of such a policy.

Messrs. J. T. Burk and Thomas Keilty, Ontario Government factory inspectors, are on a tour of inspection through northern Ontario.

The headquarters of the Canadian Bullock Electrical Mfg. Co., are to be moved from the Merchants Bank Building, Montreal, to the Coristine Building in that city.

The Hanna Engineering Works, Chicago, Ill., have issued a circular calling attention to the appointment of A. C. Anderson, Toronto, as their Canadian agent.

The Belleville Portland Cement Co., of which Mr. J. W. McNab, Belleville, Ont., is managing director, have opened offices in the Temple Building, Toronto.

Capt. G. P. Phillips, the Dominion inspector of steamboats for western Ontario, Manitoba and the territories, has completed a 5,000 mile trip from Edmonston, Alta., for the purpose of inspecting the twelve steamers and other vessels engaged on the stretches of navigation including the Great and Lesser Slave lakes, Peace and Mackenzie rivers.

The Toronto City Council has appointed Mr. Robert McCallum as City Architect at a salary of \$3,500 per year. A by-law will specifically define the duties of the Architect.

Manufacturers and others requiring the services of a competent architect either in designing factories or dwellings, or in superintending the erection of such buildings, should consult Mr. R. J. Edwards whose business card appears on another page.

Mr. Samuel Rogers, president of the Queen City Oil Co., Toronto, died at his late residence in this city on September 27 aged 69 years. He was born in North York, near Toronto, of a notable family of Friends, and came to Toronto in 1876, when he established the oil business of Samuel Rogers & Co., which later grew into the Queen City Oil Co., of which his son, Mr. Albert Rogers is the manager. Mr. Rogers devoted a great deal of his time to charity. He was a member of the Board of the Hospital for Sick Children, and in a quiet way was constantly engaged in acts of philanthropy.

The regular annual meeting of the Canadian Wholesale Hardware Dealers Association was held in Toronto September 22 and 23. The following named officers were elected for the ensuing year:—President, F. O. Lewis, of Lewis Bros., Montreal; vice-president, John Bowman, of the John Bowman Hardware Company, London; secretary-treasurers, Jenkins and Hardy, Toronto; executive committee, Thomas Birkett, Ottawa; A. Jeanotte, Montreal; W. Shaw, Quebec; C. A. Whitton, London; A. G. Macpherson, Montreal.

#### THE CANADIAN MANUFACTURERS' ASSOCIATION.

At the annual meeting of the Canadian Manufacturers' Association held in Toronto, September 17, 18 and 19, the following officers were elected for the ensuing year:—President, George E. Drummond, Canada Iron Furnace Co., Montreal; first vice-president, W. K. George, the Standard Silver Co., Toronto; On-

tario vice-president, H. Cockshutt, the Cockshutt Plow Co., Brantford; Quebec vice-president, Hon. J. D. Rolland, the Rolland Paper Co., Montreal; Nova Scotia vice-president, D. W. Robb, Robb Engineering Co., Amherst, N.S.; British Columbia vice-president, John Hendrie, British Columbia Mills, Timber & Trading Co., Vancouver; Manitoba vice-president, E. L. Drewery, Winnipeg; New Brunswick vice-president, W. S. Fisher, Emerson & Fisher, St. John; treasurer, George Booth, the Booth Copper Co., Toronto.

Toronto Executive—J. O. Thorn, W. P. Gundy, J. P. Murray, R. J. Christie, Frederic Nicholls, C. N. Candee, J. K. Osborne, William Stone, A. W. Thomas, A. F. Rutter, A. S. Rogers, Thomas Roden, J. S. King, P. H. Burton, E. C. Boeckh, S. M. Wickett, W. B. Tindall, George H. Hees, J. W. Cowan, R. A. Donald, H. Wright, W. B. Rogers.

Ontario Executive—L. J. Breithaupt, Berlin; J. D. Chaplin, St. Catharines; J. D. Flavell, Lindsay; Geo. D. Forbes, Hespeler; W. M. Gartshore, London; Jas. Goldie, Guelph; Lloyd Harris, Brantford; J. B. Henderson, Paris; J. Hewton, Kingston; R. Hobson, Hamilton; R. O. McCulloch, Galt; R. McLaughlin, Oshawa; Jas. Maxwell, St. Mary's; Wm. Robins, Walkerville; T. A. Russell, Toronto Junction; T. H. Smallman, London; J. M. Taylor, Guelph; C. R. H. Warnock, Galt; C. H. Waterous, Brantford; R. J. White, Smith's Falls.

Montreal Executive—C. Ballantyne, Fred Birks, I. P. Black, S. S. Boxer, Jas. Davidson, J. S. N. Dougall, S. W. H. Ewing, J. T. Hagar, J. Horsfall, W. McMaster, D. Morrice, jr., Robt. Munro, G. W. Sadler, Geo. A. Slater, Wm. Strachan, F. W. Thompson, Howard Wilson, James R. Wilson.

Quebec Executive—Geo. E. Amyot, G. A. H. Vandry, C. H. Carrier, T. B. Eddy.

Nova Scotia Executive—John F. Stairs, H. L. Hewson, C. M. Crockett, Alfred Dickie.

British Columbia Executive—D. R. Kerr, J. G. Woods.

New Brunswick Executive—Charles McDonald.

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Ottawa—W. A. Rowley, Geo. L. Orme.

London—A. W. White, F. W. Coles, Winnipeg—E. L. Drewry.

Halifax—W. J. Clayton.

Standing Committees were appointed as follows:

Parliamentary—P. W. Ellis (chairman), J. O. Thorn, J. F. Ellis, T. A. Russell, Edward Gurney, F. B. Polson, Robt. Munro, Wm. Stone, John Adams, Geo. W. Watts.

Tariff—W. K. McNaught (chairman), P. H. Burton, Frederic Nichols, T. A.

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Industrial Canada—F. J. Smale (chairman), The Wm. Davies Co., Toronto; S. M. Wickett, Messrs. Wickett & Craig, Toronto; Geo. A. Howell, The Howell Litho. Co., Toronto; T. A. Russell, The Canada, Cycle & Motor Co.; A. Cecil Knight, Messrs. Lever Bros.

Reception and Membership—R. J. Christie (chairman), Messrs. Christie, Brown & Co.; Thos. Roden, Messrs. Roden Bros., Toronto; Geo. H. Hees, Messrs. Geo. H. Hees, Son & Co.; Maurice J. Taylor; L. V. Dussseau, The Gendron Mfg. Co., Toronto; Robt. Crean, Messrs. Robt. Crean & Co., Toronto; Frank Rolph, Messrs. Rolph, Smith & Co., Toronto; W. A. Kemp, The Kemp Mfg. Co., Toronto; C. Howard Smith, The Kinleith Paper Co., Toronto; Geo. C. Gale, The Gale Mfg. Co.

Railway and Transportation—J. O. Thorn, The Metallic Roofing Co., Toronto; P. McMichael, The Dominion Radiator, Co., Toronto; E. C. Boeckh, The United Factories, Toronto; George Heintzman, Messrs. Heintzman & Co., Toronto; F. H. Whitton, The Ontario Tack Co., Hamilton; R. Hobson, The Hamilton Iron & Steel Co., Hamilton; J. H. Housser, The Massey-Harris Co., Toronto; S. H. Chapman, The Ontario Wind Engine & Pump Co., Toronto; W. A. Strawger, The Canadian Cereal Co., Toronto; A. W. Allen, The Allen Mfg. Co., Toronto.

Different sections of the Association elected the following officers

Agricultural Implements—Chairman, A. Cockshutt; vice-chairman, R. Harmer; secretary, R. J. Younge; executive committee, P. E. Shantz, W. J. Johnston, F. R. Bell, H. W. Fluery, Frank Frost, H. P. Cockburn, Peter Hamilton, Jas. Maxwell, W. J. Verity, E. Ffolkes.

Manufacturing Grocers—Chairman, R. A. Donald; vice-chairman, W. J. Mitchell; secretary, J. F. M. Stewart; executive committee, S. W. Ewing, W. Gorman, C. S. Dunn, J. D. McLaren, I. J. Ward, I. M. Mayell.

Cement Manufacturers—Chairman, J. M. Kilbourn, vice-chairman, F. G. D. Allan, secretary, R. J. Younge, executive committee, Matthew Kennedy, John George, Mr. Puch, G. S. Kilbourn; Mr. Stanhope, Mr. Elliott, D. Kuechtel, Mr. Morgan, C. A. Masten.

Engine and Boiler Manufacturers—Chairman, R. O. McCulloch; vice-chairman, Edgar, McDougall; secretary, J. F. M. Stewart.

Gold and Silver Section Chairman, Thomas Roden; vice-chairman, George H. Lees; secretary, R. J. Younge.

#### INDUSTRIAL PUBLICATIONS.

The Sullivan Machinery Co., Chicago, Ill., have issued a catalogue on rock drill and stone channeling machines.

The Roman Stone Co., Toronto, have issued a circular giving some facts about "Roman Stone," a new building material.

The Crocker-Wheeler Co., manufacturers and electrical engineers, Ampere, N.J., have issued for the American Street Railway Association convention, a special bulletin descriptive of the generators manufactured by the company for the railway service. The bulletin is neatly gotten up and the illustrations are of a superior character.

The new catalogue of the St. Thomas Acetylene Mfg. Co., St. Thomas, Ont., gives much valuable information regarding this system of lighting and contains a list of users of the equipment manufactured by the company.

The Canadian Bearings Co., Hamilton, Ont., are distributing a neat little booklet telling about the Wright Taper Bearings.

The Fox Typewriter Co., of which The A. D. Fisher Co., Toronto, are sole Canadian agents, have issued an illustrated folder.

The new line of Crown Valves are described and illustrated in a new booklet issued by the Stouffville Brass & Steel Works, Stouffville, Ont.

The Empire Machine & Metal Stamping Co., Toronto, have just issued a catalogue and price list of the Stanyon Hygienic Steel Folding Couch, a novelty in its line which is certain to have an extensive sale.

The Chicago Pneumatic Tool Co., Chicago, have sent us a neat four-page folder having reference to the pneumatic tools manufactured by them. Some of the articles alluded to are pneumatic hammers, for chipping, caulking, bead-and, riveting, etc., which are described as being powerful economical and durable; new improved pneumatic geared hoists, with motors, trolleys, winches, etc., built in all sizes and styles. They invite inquiries for catalogues illustrating and describing their lines of pneumatic labor saving machinery.

The D'Olier Engineering Co., 119 South Elweuth St., Philadelphia, Pa., have sent us a bulletin having reference to the direct current steam turbine dynamo manufactured by them.

The Canadian Corundum Co., Toronto, have issued a folder showing samples of the different grades of Craig Mine Crystal Corundum. A view of Craig Mine Mountain is also shown, and an Abrasive Catechism is appended.

The Philip Carey Mfg. Co., Toronto, and Lockland, Ohio, have issued a neat catalogue of 40 pages, devoted to Careys' magnesia flexible cement roofing, and to magnesia and asbestos steam pipe and boiler coverings, asbestos and asphalt materials, paints for tin, iron, steel and all classes of metal and felt surfaces, all of which they manufacture.

The Rossendale Belting Co., 59-63 Front street East, Toronto, of which Mr. L. J. Rowland is manager, have just issued a very handsome catalogue and price list of brands of Rossendale hair beltings and Rossendale M. A. Y. braud of

solid woven beltings. The company manufacture ten grades of this well-known belting which have a large sale all over the Dominion. Power users and others interested should write for a copy of this catalogue.

We are in receipt of issue Number 1 of Volume No. 1 of The Indian Textile, Mechanical and Electrical News, the offices of which are at 16 Parsee Bazar Street, Fort, Bombay, India. The editors of this journal are, Messrs. H. Monie, textile; T. S. Dawson, mechanical; and S. Joyce, electrical. The interests specially catered to are railway officials, mechanical and electrical engineers and textile manufacturers, and to those interested in those industries.

Mr. H. M. Ami, of the Dominion Geological Survey Department has sent us a copy of his reports upon resources of the country between Quebec and Winnipeg, along the line of the Grand Trunk Pacific railroad. The official reports support the opinion that the country, for seventy-five miles north and the same distance south of the route of the railway and for the greater part of the distance between Quebec and Winnipeg, consists of fertile land, well timbered and fit for settlement.

Mr. John Taylor, 180 St. James street, Montreal has sent us a very neat gilt-edged folder enumerating some of the railway supplies handled by him. Mr. Taylor is Canadian agent for many of the largest British and other manufacturers of such articles, regarding which he will give particulars on application.

## OPPORTUNITIES.

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

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

1096. Enquiry has been received from a Yorkshire firm for the names of Canadian houses open to buy serges direct from their factory.

1097. A Gloucester firm making a specialty of indoor and table games desires to find business openings in Canada.

1098. The names of Canadian manufacturers of hosiery and woolen goods desiring representation in Ireland are asked for by a gentleman residing in Dublin.

1099. Enquiry is made for the names of owners of crude asbestos mines in Canada.

1100. A Paris, France, firm wishes to be placed in communication with producers of Canadian wood pulp desiring to be represented in that city. They are also willing to do business in other classes of Canadian goods, and to act as buyers of French goods for Canadian houses.

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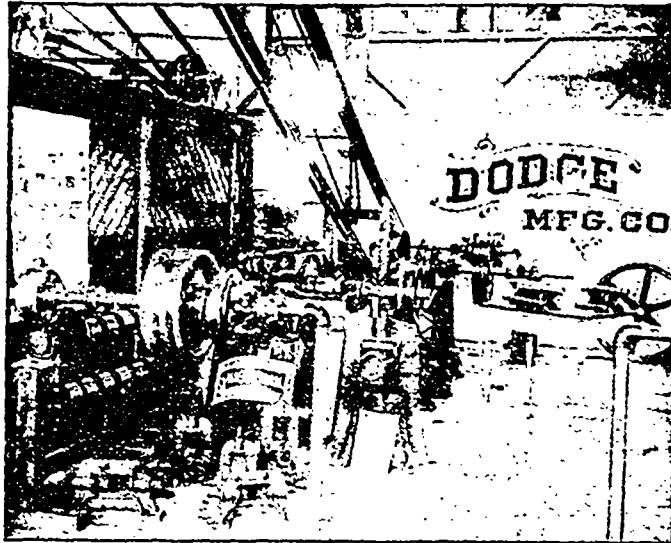
**AN ATTRACTIVE EXHIBIT.**

Among the many remarkable exhibits at the recent Toronto Exposition, that of the Dodge Mfg. Co., Limited, Toronto, was worthy of particular note.

The exposition of a complete rope drive from the main shaft in the building, exploiting with remarkable simplicity the Dodge continuous system, presented a clear demonstration of the exceeding efficiency for which it is so famous. Advantage was also taken of this opportunity to present to the public eye, the renowned Dodge travelling take-up carriage in its relation to the rope drive.

The Dodge friction clutch, one of the company's many specialties, was attached to a piece of shafting which served as a railing for the exhibit. It was thus in a place convenient for the inspection of the many interested spectators.

Piled in great columns at one side were another of the company's specialties—the Dodge split wood pulleys. The com-



pany was somewhat handicapped in this line of its exhibit, being unable to do itself justice as only the smaller pulleys could be exhibited, the larger ones ranging as large as 30 feet in diameter.

The booth itself contained a display of the complete line of couplings, hangers, machine moulded iron pulleys, clutches, ring, chain, and capillary self-oiling bearings, and a full line of grain and elevator machinery.

The exhibit as a whole did as much credit to the company as could be expected, since to demonstrate the true worth of the Dodge appliances would mean a matter of years, as any goods of a mechanical nature can be shown while new in satisfactory operation, the only real test being found in subsequent years in their continued efficiency, freedom from repair, and longevity. And as the thousands of Canadian manufacturers testify it is in these respects that the supremacy of the Dodge appliances is maintained.

**MINERAL PRODUCTION OF CANADA.**

Mr. E. D. Ingall, head of the mining bureau of the Canadian geological survey, says:

The total production of pig iron in Canada in 1902 from Canadian and foreign ores amounted to 357,903 tons, valued at \$4,243,545, of which it is estimated 71,665 tons, valued at \$1,043,011, should be attributed to Canadian ore and 286,238 tons, valued at \$3,200,534, to the ore imported. The respective columns give quantity and value of product marketed. The ton used is that of 2,000 pounds; the copper contents of ore, matte, etc., at 11.626 cents per pound; the lead shows contents of ores, etc., at 4.069 cents per pound; the nickel shows nickel contents of ore, matte, etc., at 47 cents per pound; the silver contents of ore valued at 52.16 cents per ounce. The coke is oven coke, all the production of Nova Scotia and British Columbia. The natural gas means gross returns from the sale of gas. The oil statement includes crude oil sold to refiners and oil sold for fuel and other purposes.

The total values reported for 1886, 1897, 1901, and 1902 have been as follows:

1886.....	\$10,221,255
1897.....	28,661,430
1901.....	66,712,708
1902.....	61,970,732

The rapid growth since 1897 has been largely due to the discovery and development of the gold placers of the Yukon.

The report says that notwithstanding the most gratifying increase in the total value of the production of nonmetallic

minerals, the grand total of the value of the production of all the mineral industries of Canada shows a falling off of 2.6 per cent. This is due not merely to the decrease in the Yukon output of gold, amounting to \$3,500,000, but also to the very considerable falling off in values of all the remaining metallic minerals other than nickel. But for the large growth of the coal and coke industry, helped by increases in many of the other nonmetallic products, the decrease in the grand total on account of the metallic class would have amounted to nearly 10 per cent.

In regard to their relative importance, the metallic industries as a group still occupy the most important place, although not leading to the extent they did in former years. They contributed about 55 per cent. of the whole, the nonmetallic following with nearly 33 per cent., and the structural class with nearly 12 per cent. Grouping the metalliferous class with coal and coke, about 81 per cent. of the value is accounted for.

Product.	METALLIC.	
	Quantity.	Value.
Gold:		
Yukon .....		\$14,500,000
All other.....		6,241,245
Total .....		20,741,245
Copper, pounds..	39,168,202	4,553,695
Iron ore (exports)		
tons .....	428,901	1,065,019
Pig iron from Canadian ore,		
tons .....	71,655	1,043,011
Lead, pounds....	23,000,000	935,870
Nickel, pounds..	10,693,410	5,025,903
Silver, ounces...	4,373,000	2,280,957
Zinc, pounds....	166,700	8,068
Total metallic.....		\$35,653,768

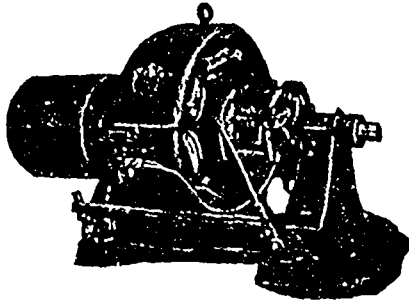
Product.	NONMETALLIC.	
	Quantity.	Value.
Coal, tons.....	7,639,255	15,538,611
Coke, tons.....	506,466	1,538,930
Gypsum, tons ...	332,045	356,317
Limestone for flux		
tons.....	293,108	218,809
Petroleum, barrels	521,485	934,740
Salt, tons .....	63,056	288,581
Total.....		\$18,875,988
All other nonmetallic .....		2,369,106
Total non-metallic .....		\$21,245,094

Product.	STRUCTURAL MATERIALS AND CLAY PRODUCTS.	
	Barrels.	Value.
Cement, natural rock .....	124,400	\$91,870
Cement, Portland..	594,594	1,028,618
Total.....		\$1,120,588
All other structural materials, etc.....		6,651,382
Total .....		\$7,771,870
Estimated value of mineral products not returned.....		300,000
Metallic.....		35,653,768
Nonmetallic.....		21,245,094
Total for 1902.....		\$64,970,732

It will be noticed that although the output of pig iron from Canadian ore has fallen off, the whole iron-smelting industry shows marked growth notwithstanding. Taking the values of the coal and coke produced during 1902, together with those in the allied iron-smelting industry, an increase of nearly \$4,500,000 is exhibited, showing a growth in these, the most commercially important industries of the country, more than offsetting the diminution of the \$3,500,000 in the necessarily fluctuating product of the placer-gold washings of the Yukon Territory.

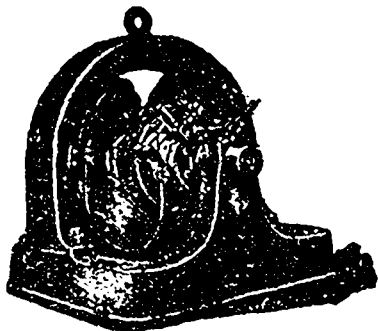
The per capita value of the total mineral products for 1902 was \$11.87, as compared with \$2.23 in 1886, the first year for which figures are available.

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**The Kerr Engine Co.**  
Limited  
WALKERVILLE, - ONT.

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**English Hardware Agency**

An English manufacturer of many years standing desires to act in Great Britain as agent for a reputable Canadian Hardware Manufacturing firm. He has just completed an extensive tour of Canada, familiarizing himself with hardware requirements in all parts of the Dominion—and is in a position in his particular line to secure valuable trade on terms which cannot be excelled.

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In stock for immediate delivery. This list is only partial—Write us your Wants.

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| <p><b>Lathes</b><br/>12 x 5 Reed<br/>12 x 6 Prentiss<br/>13 x 6 P. &amp; W. with taper<br/>13 x 5 Blaisdell<br/>13 x 6 Sebastian<br/>13 x 6 Ames<br/>14 x 6 Bogart<br/>16 x 6 Porter<br/>16 x 6 Perkins<br/>16 x 10 Bridgeport<br/>18 x 0 Perkins with chuck<br/>18 x 6 New Haven<br/>18 x 8 Lodge &amp; Shipley<br/>18 x 10 Lodge &amp; Davis<br/>20 x 8 Lath &amp; Momo<br/>21 x 8 Blaisdell<br/>26 x 20 Blaisdell<br/>28 x 12 Wood Light<br/>48 in Pulley Lath</p> <p><b>Turret Lathes</b><br/>14 in. Pratt &amp; Whitney<br/>16 x 6 Universal, Lodge &amp; B.<br/>16 in. Warner &amp; Swasey<br/>16 in. Jones &amp; Lamson<br/>16 in. Pratt &amp; W.<br/>19 in. Hendey</p> <p><b>Scrow Machines</b><br/>14 in. Garvin<br/>15 in. Garvin<br/>14 in. Warner &amp; Swasey<br/>No. 2 Pratt &amp; Whitney</p> <p><b>Boring Mills</b><br/>6 in. Bedford, 3 heads<br/>6 in. Niles, 1 head</p> <p><b>Drills</b><br/>No. 5 Plain Rad. All 6 Box<br/>1 in. Lauer adj table<br/>12 in. Two spindle adj. Foot-<br/>Rae<br/>36 in. Snyder</p> <p><b>Planers</b><br/>24 x 24 x 7 ft. Geneva Ma-<br/>chine Co<br/>14 ft. Plate Planer, Sellers<br/>16 in. x 12 in. x 21 in. Brad-<br/>ford<br/>22 x 18 x 3 Planer<br/>29 x 29 x 10 ft. Gleason</p> <p><b>Milling Machines</b><br/>No. 2 Lincoln, P &amp; W.</p> | <p><b>Shapers</b><br/>6 in. Boynton &amp; Plummer<br/>13 in. dbl hd. trav. Sellers<br/>18 in. Traverse Hd. Shaper<br/>15 in. Hendey<br/>30 in. Fox<br/>19 in. Fitchburg</p> <p><b>Hammers</b><br/>25 lb. Poppet Drop<br/>25 lb. Scratton, power<br/>20 lb. Baudy "<br/>No. 900 Trtheway<br/>250 lb. Bell, steam<br/>100 lb. Board Drop Hammer<br/>Merrill, steam</p> <p><b>Presses</b><br/>125 ton Wheel Press<br/>1222 Foot Ferracule</p> <p><b>Miscellaneous</b><br/>No. 3 Clement vert. Wood<br/>Boring Machine<br/>Fin. Strapping Machine, Good-<br/>year, also Dayton<br/>11 in. Keysenter, Mills &amp;<br/>Merrill<br/>No. 1 L. N. L. Pipe Cutter<br/>1 to 4 in. Power Pipe Cutter,<br/>Armstrong<br/>32 in. Foot Power Squaring<br/>Shear, Niagara<br/>42 in. Power Squaring Shear,<br/>Niagara<br/>15 in. Double Head Bolt Cut-<br/>ter, Adams<br/>Wire Former<br/>Horizontal Keyscutters<br/>50 in. Auto Gear Cutter<br/>No. 1 Universal Grinder<br/>Bainmond<br/>15 in. Power Riveter, Adt<br/>11 in. Schlenker Bolt Cutter<br/>18 in. x 7 ft. 6 in. Lead Rolls<br/>5 in. Whiton Centering Ma-<br/>chines<br/>No. 1 Garvin Hor. Tapping<br/>Machine<br/>26 in. Semi-Automatic Gear<br/>Cutter, G &amp; E<br/>4 in. Cutting-off Machine<br/>accelerated speed, Hurl-<br/>bert &amp; Rogers<br/>Cock Grinder, Warner &amp; S.<br/>No. 4 Fox Multiple Tube<br/>Cutter<br/>Power Marking Machine</p> |
|--|--|

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An English corporation having acquired vast holdings of high-grade canal coal in the United States, being in a position to deliver same to the market at a rare profit, having in fact a monopoly of the canal coal in the United States, invite Canadian capitalists to join their enterprise on a fair basis of representation. An extensive market has been established for this coal, and preparations are being made to export it to Great Britain and Europe. The construction of a short line rail-road is necessary to reach through this entire survey, and they will consider a Canadian contract for this work.

From this property we are able to deliver at tide-water high-grade coals for a century at a price not to exceed 86 cents per ton inclusive of all charges. This will put them in absolute control of the proposed Isthmuth canal trade and dictate the coal prices of the Southern Atlantic seaboard.

SHIP BUILDER, care CANADIAN MANUFACTURER, Toronto.

**OPPORTUNITY FOR INVESTMENT.**

A Scotch gentleman largely interested in the United States, wishes to float the bonds of a small railroad in Canada, or have some reliable institution to guarantee to take these bonds upon completion of the road, and with this in view, is desirous of opening up correspondence with some reliable broker or financial agent.

If, however, a contractor could arrange part of the finances of the line in Canada, he could secure the construction of this road. The branch road connects with the largest trunk system in America, and passes through a thickly peopled country, opening up the largest known beds of coal and iron on the continent.

Investigation will show that the road can be sold for twice its cost the day it is completed.

Half of the road is at present graded and one-fifth of the rails laid, all of which would be to the estimated benefit of the contractor.

Address: GLASGOW, care Canadian Manufacturer, Toronto, Canada, or Room 40, 130 Broadway, New York City.

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### CONSIDERATIONS TOUCHING THE METRIC SYSTEM.

F. A. Halsey, in American Industries.

The changing of a people's system of weights and measures is a task of mountainous difficulty and of endless confusion. So great is the task that it is safe to say that no nation in modern times has ever completed it. France certainly has not. The evidence in support of this statement is overwhelming and may be found at considerable length in my paper, *The Metric System*, which was presented at the December meeting of the American Society of Mechanical Engineers. The facts there given will be drawn upon here. . . .

Weights and measures are used in two ways—in commerce and in manufactures. The tourist visiting France—that is, Paris, which, from the tourist's standpoint is France—sees the system in ordinary commercial use in the shops and naturally concludes that it is established throughout the country. The fact is, however, that the very fabrics which he buys across the shop counters of Paris by the meter are made in the mills of Lyons by the aune. It is absolutely established from French and German sources that in both the French and German textile industries the metric system is not the basis of production, and, moreover, there is not even a pretext that it is. In these industries the old units, by which manufacturing is done and cost calculations are made, absolutely dominate the situation. . . .

The facts which are now before the manufacturing public simply turn the metric case to ridicule. In the face of the facts the claims of uniformity, of simplicity and of universality become grotesque in their absurdity. So far from our looking upon metric countries with envy because of their possession of a simple system of weights and measures, we may feel assured that, measured by the fewness of the units in actual use and by their uniform value throughout the country, we have the simplest and most uniform system of weights and measures in the world. The attempt to introduce the metric system here can only do what it has done elsewhere—engraft it upon the existing system and create confusion for a century to come. The uniformity which the metric advocates are professedly anxious to establish is the very thing which they will, in fact, destroy. . . .

The confusion in our weights and measures of which we hear so much is a figment of the metric imagination. The only vestige we have of it is found in our two tons, and, not satisfied with one ton too many, the metric programme is to cure the matter by adding a third—the metric—ton. Our three pounds, while illogical, produce no confusion because they are used for different and perfectly well understood purposes. Very few men outside a scale maker's factory have ever

seen a troy or apothecaries pound weight, and outside of the same factory the man who was ever confused by them would be difficult to find. . . .

The American manufacturer is not a man to grasp at a shadow nor to chase a will-o'-the-wisp. It is probable that the arguments for the theoretical superiority of the metric system are by him properly discounted as of little real importance, but the ceaseless chatter that the adoption of the system is essential to the growth of foreign trade is of an entirely different character and has an entirely different effect. It has been repeated so often, and is, superficially, so plausible, that it has probably done more to mislead than all other arguments combined.

The expansion of our foreign trade in manufactured goods during the past half-dozen years is unexampled in the history of the world, and in no branch of manufacture has the growth been greater than in machinery, which is the embodiment of measurements. It is established by an overwhelming mass of first hand testimony that in this trade there has been no call for the construction of our machinery to metric dimensions. In but a single class of machinery—machine tools—has any change been asked for. These changes have been confined to occasional adjusting and measuring screws, and the majority of even these have not been changed. One manufacturer testifies that of lathes sold to Germany less than one per cent. have had metric lead screws. . . .

What then, it may be asked, is the foundation of the reiterated assertions by American consuls and others, including the American Chamber of Commerce of Paris, that the interests of foreign trade require the adoption of the metric system? To appreciate the distinction which must be made the manufacturer must discriminate between his two activities as a manufacturer and as a merchant. Our manufacturers are criticised—and justly—for sending English catalogues to other than English speaking countries, and they are criticised—and justly—for using English weights and measures in such catalogues and in commercial correspondence with customers who use the metric system, and it is this last fact which gives rise to the consular reports referred to. In buying a machine, for example, the customer needs to know certain facts, and these facts should be given him in language he can understand. Among such facts are the weight, the length, width, height and the capacity. If the machine is a planer, for example, the customer must be told the largest size of work which it will do, as well as its weight and over all dimensions, in his own language, which includes his system of weights and measures. To give such facts in the metric system no more involves the adoption of the system than the naming of prices to a German cus-

tommer in German currency would involve the adoption of that currency in our domestic affairs. Our consuls imagine that, because a foreign buyer needs such leading weights and measurements as would be given in a specification or in a letter describing the article offered for sale in metric units, therefore it is necessary to upset our entire industrial system, abandon all our standards, and adopt the metric system in factory operations. The use of metric units in this descriptive or specification way when writing to a prospective German customer, for example, is exactly analogous to the use of the German language under the same circumstances. Both serve to put the information which the customer wants in terms which he can readily understand.

This distinction is pointed out by one of my correspondents—M. Laurence V. Benet, artillery engineer for Hotchkiss & Cie, Paris, who have large numbers of American machine tools in their factory—in the following words: If American manufacturers wish to facilitate their export trade there are several things that they should attend to before upsetting existing standards of weights and measures. Of these the most important is the question of trade catalogues and price lists. American manufacturers get out the finest catalogues in the world, but they are all in the English language, and the dimensions and shipping weights are given in English measurements only. The example of German firms should be followed, and for the export trade all literature should be issued in English, French and German, and for South America in Spanish. Dimensions and shipping weights should be given in English, and metric measurements and all instructions regarding the setting up and handling of machines should be given in the language of the country to which shipped.

But, says the metric advocates, why not adopt the system in manufacture and so save the labor of these conversions? which is equivalent to asking, why not climb a mountain to avoid stepping over an ant-hill? To make these conversions involves nothing in manufacturing, plant, method, or equipment; it involves nothing but the occasional use of conversion tables by comparatively few people, while the alternative involves an upheaval and reorganization of industries at a cost which pen can not picture nor words describe.

The experience of countries that have endeavored to make the change demonstrates that we must make up our minds to get along with various systems of weights and measures in the world as we get along with divers languages and currencies. Like the idea of a universal language, the idea of a universal system of weights and measures is an iridescent dream. It may once have been possible, but the invention of the metric system, with its units incommensurate with every-

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**An Immense Electrical Manufacturing Works** are now erecting half a million dollars worth of additional buildings to their plant.

**Binder Twine Mills** have recently been completed at cost of about \$300,000.

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thing else on earth, and the anchoring meanwhile of other systems in manufacturing industries, has now, probably, made it impossible. Had the French people adopted Sir Joseph Whitworth's eminently practical suggestion and made their meter 40 inches long, the difficulties of the change would have been divided—at the least—by their favorite number ten.

Regardless of all representations to the contrary, American manufacturers should understand that the Metric System Bill now before Congress is a compulsory measure. The Attorney General has given an opinion that the words "legal standard" do not make the system compulsory between individuals, and the metric advocates endeavor to so stretch language as to make it appear that the bill has no compulsory features. Thus Mr. Southard, chairman of the House Committee on Coinage, Weights and Measures, in discussing my paper declared: There is not a word in this bill looking to compulsion.

The bill states that all the Departments of the Government of the United States in the transaction of all business requiring the use of weights and measures, excepting in completing the survey of public lands, shall employ and use only the weights and measures of the metric system.

It needs no Attorney General to make the meaning of these words clear. As in all transactions there are two parties, and, as the use of the system is compulsory in all Government transactions, it is compulsory on both parties alike, as it is admitted to be and as it is intended to be on the first party—the Government Departments.

The case is exactly parallel with that of the Eight Hour Bill. That bill is intended to compel all manufacturers who supply the Government with goods to employ their workmen eight hours only, and the Metric System Bill is likewise intended to compel those manufacturers

to use the metric system. No one will pretend that the Eight Hour Bill is not compulsory, and no one can rightly claim that the Metric System Bill is not, in the same way and to the same degree, compulsory. To claim that it is not thus compulsory is more than untrue; it is ridiculous.

The similarity of these two bills extends even to the penalties which they impose. Both bills say in effect—do this or withdraw from Government business.

Regardless of all disclaimers, the bill is simply an insidious means of compelling manufacturers to use what they do not wish to use. The labor interests and the metric advocates have for years urged their favorite plans upon the public without producing an effect which is satisfactory to them. Despairing of success in any other way, both now adopt the same tactics and seek to compel the adoption of their plans by those who deal with the Government. In this course the labor men frankly avow their purpose and their object. The metric advocates tell us: There is not a word in this bill looking to compulsion. The object of the bill is of course to pave the way for the general introduction of the system.

#### SUBURBAN TROLLEY SYSTEMS.

According to the Indianapolis Journal, no great war or political change ever worked nearly so great a revolution for the betterment of a people and the quickening of their ways of life as is now being wrought throughout the middle west by the trolley systems that are spinning their webs in every direction. Within the cities the change is already old, and we have forgotten how things were when we formerly depended on the mule cars for such little transportation as we had within the city. Such a thing as pleasure riding on the street cars was then unknown, and the pleasures of the parks were available to those alone that could

afford horses and carriages. Moreover, the quickening of life that came with rapid transit and the general broadening out to larger areas and more comfortable living come to be an old story in the city. But in the smaller towns, where the trolley is new and the closer connection with the larger and busier centres of life has but recently come, the changes are just now working, and it is interesting to observe their outward phases. Ride out over any line through a section where, a couple of years ago, there were old, unpainted houses and tumble-down fences, and you will see a sprucing up in the way of new paint and new buildings and general tidiness that is astonishing.

#### TO CURE BURNS.

Blast furnace men, rolling mill men, and steel workers, who are liable to be burned, may find the following worthy of preservation.

For a dry burn there is nothing better than equal parts of linseed oil and lime water. This makes the carron oil which the Welsh miners use in case of burns. It should have a place in every closet where household remedies are kept. In applying it shake the bottle, saturate a soft cloth with the mixture, and lay over the burn. Then cover closely with cotton batting or flannel to keep out every bit of air and secure the whole with a light bandage.

Burns may also be treated by covering with a thick layer of any bland oil, like vaseline, sweet oil, linseed oil, castor oil, butter, or almost any fat that is not rancid. Glycerine should not be used. It is too irritating. Soft powders, like flour and laundry or corn starch, may also be dusted on thickly and then bound up.

For a scald or burn by steam no treatment gives better results than a dressing of saturated baking soda. Wring out cloths, lay on the burned surface, and as they dry pour on more of the solution.

## M<sup>c</sup>CULLOUGH-DALZELL CRUCIBLE CO. PITTSBURG, PA. U.S.A.

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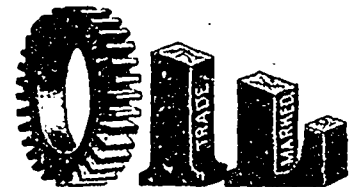
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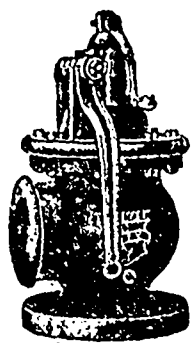


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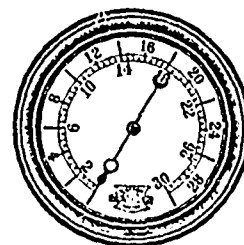
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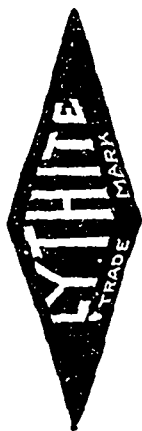


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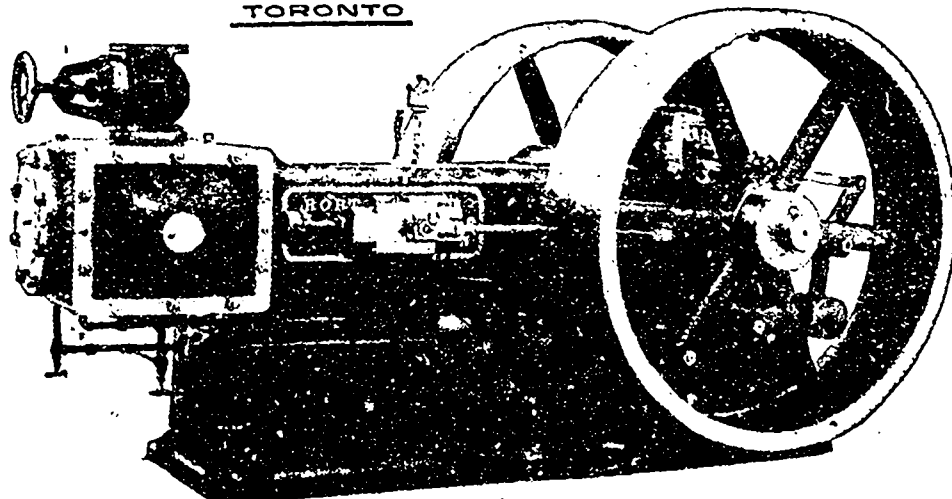
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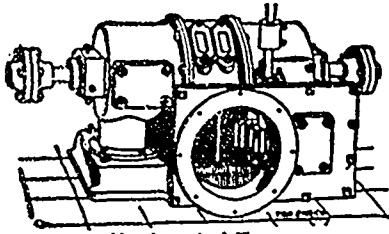
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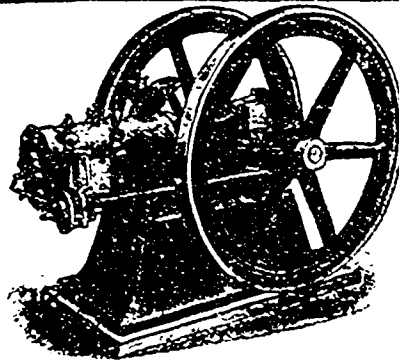
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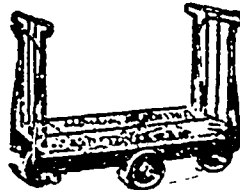
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## CLASSIFIED INDEX.

### Abrasives.

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

### Air Compressors

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

### Air Reservoirs.

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

### Aluminum

Syracuse Smelting Works, Montreal.

### Angles, Beams and Girders

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Leslie, A. C. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Scalfe, Wm. B. & Sons Co., Pittsburg, Pa.

### Annealing Boxes.

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

### Annealing Muffles and Furnaces.

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio

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Syracuse Smelting Works, Montreal.

### Anvils and Vices.

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

### Architects

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

### Assayers.

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

### Axles

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

### Babbitt Metal

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

### Bar Iron and Steel

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

### Bolt Dressing.

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

### Bolt Fasteners.

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

### Belting (Cotton.)

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

### Belting (Leather.)

McLaren, D. K., Montreal.  
Rico, Lewis & Son, Toronto.  
Williams, A. R., Machinery Co., Toronto.

### Belting and Supplies

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

### Bobbins

Wilson Bros. Bobbin Co., Liverpool, England.

### Boiler Tube Cleaners

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

### Bolt Taps

Butterfield & Co., Rock Island, Que.

### Brass

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

### Brass Foundries

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

### Bridges.

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

### Building Iron and Steel.

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

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### Builders' Materials

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

### Canada Plates

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

### Canoes

Peterborough Canoe Co., Peterborough, Ont.

### Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

### Cast Iron Pipe

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

### Castings (Iron and Brass)

Toronto Iron & Brass Bedstead Co., Toronto.

### Cement

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

### Cement Machinery

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

### Chain Making Machinery

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

### Channels

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

### Charcoal Pig Iron

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

### Chemicals and Dye Stuffs

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

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

### Clay Working Machinery

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

### Coal and Coke

Milnes, James H., & Co., Toronto.

### Coal Cutting Machines

Jeffrey Mfg. Co., Columbus, Ohio.

### Coal Tipples

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

### Coll Chains

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

### Conveying Machinery

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

### Copper Materials

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

### Corrugated Iron and Steel

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

### Corundum

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

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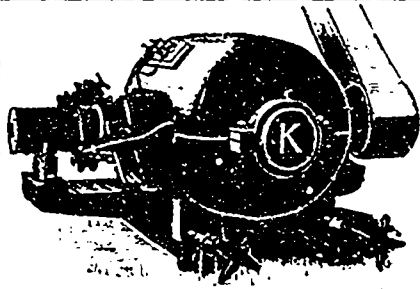
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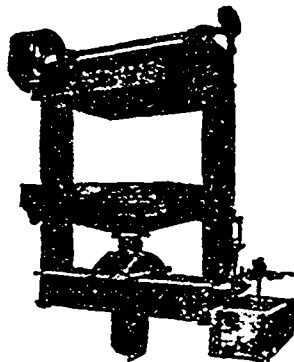


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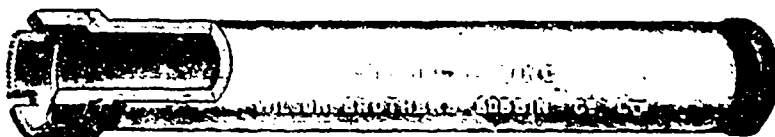
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- Crayons**  
Lowell Crayon Co., Lowell Mass.
- Crucibles**  
Mixon, Joseph, Crucible Co., Jersey City, N.J.  
McCullough Dalzell Crucible Co., Pittsburg, Pa.  
Samuel, M. & L. Benjamin & Co., Toronto.  
Syracuse Smelting Works, Montreal.
- Crucible Caps and Nozzles**  
McCullough Dalzell Crucible Co., Pittsburg, Pa.
- Crucible Covers and Stoppers**  
McCullough Dalzell Crucible Co., Pittsburg, Pa.
- Detective Agencies**  
Noble's Dominion Detective Agency, Toronto.
- Dies**  
Hamilton Stamp & Stencil Works, Hamilton, Ont.  
**Dies (Socket, Sewer Pipe and Tite-Clay.)**  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.
- Directories**  
Dean & Son, London, E. C., England.  
Kelly's Directories, Limited, Toronto.
- Draw Banches (Wire)**  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.
- Drills**  
Bertram John & Sons Co Dundas Ont  
Canadian Hand Drill Co. Sherbrooke, Que.  
Cooper, James, Mfg. Co., Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.  
London Machine Tool Co., London, Ont.
- Dry Kilns.**  
Buffalo Forge Co. Buffalo, N.Y.  
McEachren Heating & Ventilating Co., Galt, Ont.  
Stevens, Alfred J., Toronto.  
Sturtevant, B. F. Co., Boston, Mass.
- Dust and Shavings Separators**  
Buffalo Forge Co., Buffalo, N.Y.  
McEachren Heating & Ventilating Co., Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.
- Electric Mine Locomotives**  
Jeffrey Mfg. Co., Columbus, Ohio.
- Electrical Supplies**  
Canadian General Electric Co., Toronto.  
Electrical Construction Co., London, Ont.  
Forman, John, Montreal.  
Jones & Moore Electric Co., Toronto.  
Kay Electric Dynamo & Motor Co., Toronto.  
Packard Electric Co., St. Catharines, Ont.  
Phillips, Eugene F., Electrical Works, Montreal.  
Toronto & Hamilton Electric Co., Hamilton, Ont.  
United Electric Co., Toronto.  
Worth & Martin, Toronto.
- Electro-Plating**  
Brantford Plating Co., Brantford, Ont.
- Elevators**  
Canadian Otis Elevator Co., Toronto.  
Darling Bros., Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.
- Emery and Emery Wheels.**  
Canadian Corundum Wheel Co., Hamilton, Ont.  
Forman, John, Montreal.  
Hart Emery Wheel Co., Hamilton, Ont.
- Employers' Liability Insurance**  
Maryland Casualty Co., Toronto.
- Engineers (Cement)**  
Wentz, R. F. Engineering Co., Toronto.
- Engineers (Chemical)**  
Heys, Thos. & Son, Toronto.  
Metallurgical Laboratory, Pittsburg, Pa.
- Engineers (Civil)**  
Kelsch, H. S., Montreal.  
Parke, H. J., Toronto.  
Vogel, C. H., Ottawa.
- Engineers (Consulting)**  
Electrical Construction Co., London, Ont.  
Kelsch, H. S., Montreal.  
Parke, H. J., Toronto.  
Perrin, Wm. R. & Co., Toronto.  
Simpson, T. T., Deschenes, Que.  
Vogel, C. H., Ottawa.  
Wentz, R. F. Engineering Co., Toronto.
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Electrical Construction Co., London, Ont.
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Canadian General Electric Co., Toronto.  
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Toronto & Hamilton Electric Co., Hamilton, Ont.  
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Worth & Martin, Toronto.

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### Engineers (Mechanical)

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

### Engineers (Mill and Hydraulic)

Vogel, C. H., Ottawa.

### Engineers (Mining)

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

### Engineers and Contractors.

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

### Engines and Bollers

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

### Engravers

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

### Exhaust Hoods

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

### Factory Sites

Central Ontario Power Co., Peterboro, Ont.  
Sweeney, James Jr., North Tonawanda, N.Y.  
Walshaw, J., Bolton, Ont.

### Filcs

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

### Financial

Bradstreet's, New York City.  
Dun, R. G. & Co., Toronto.  
Neff & Postlethwaite, Toronto.

### Filters

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

### Firo Brick

Hamilton Facing Mill Co., Hamilton, Ont.  
Pennsylvania Firo Brick Co., Lock Haven, Pa.  
Scoto Firo Brick Co., Scotoville, Ohio.

### Fluo Cleaners

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

### Founders

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

### Foundry Facing

Hamilton Facing Mill Co., Hamilton, Ont.

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Leelle, A. C. & Co., Montreal.  
Seafie, Wm. B. & Sons Co., Pittsburg, Pa.

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Stratford Mill Building Co., Stratford, Ont.

### Gas Plants

Sicho Gas Co., Toronto.

### Gas Producers.

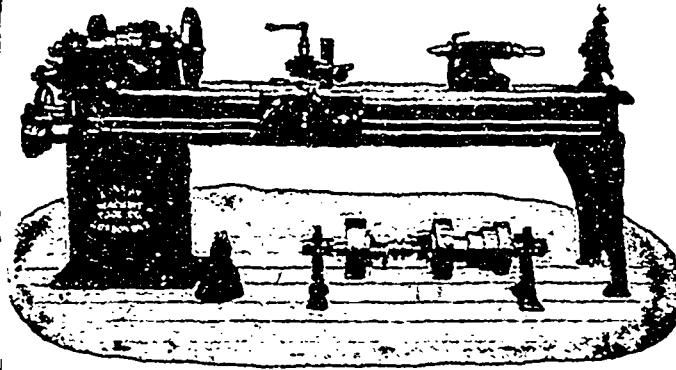
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## CLASSIFIED INDEX.

(CONTINUED).

### Generators

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

### Government Notices

Factory Inspectors.  
Minister of Agriculture.

### Grinding Machinery

Hart Emery Wheel Co., Hamilton, Ont.

### Hardware

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

### Heating and Ventilating

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

### Hydraulic Machinery

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

### Iron and Steel Specialties

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

### Japans.

Berry Bros., Walkerville, Ont.

### Lamps—Electric

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

### Lathes

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

### Leather Belting

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

### Machinists.

Worth & Martin, Toronto.

### Machinists' Supplies

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

### Machine Tools

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

### Malleable Iron Castings

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

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# CLASSIFIED INDEX.

(CONTINUED).

## Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.

## Metallurgists.

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

## Mill Machinery and Supplies

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

## Mining Machinery

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

## Motors and Dynamos

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

## Novelty Manufacturers.

Worth & Martin, Toronto.

## Nozzles.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

## Office Furniture and Supplies

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

## Oils and Lubricants

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

## Oil Filters

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

## Paints and Colors

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

## Paper Manufacturers

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

## Patents

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

## Perforated Metals

Greening, H. Wire Co., Hamilton, Ont.

## Phosphorizers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

## Pig Iron

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

## Pipe Threading Machines

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

## Pipe (Riveted Iron and Steel.)

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

## Pipes and Tubos

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.  
Montreal Pipe Foundry Co., Montreal.  
Rico Lewis & Son, Toronto.  
Samuel, M. & L. Benjamin & Co., Toronto.

## Plaster

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

## Plates

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

## Plating

Brantford Plating Co., Brantford, Ont.

## Plumbago

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

## Pneumatic Tools

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

## Pointers (For Rods and Wire.)

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

## Portland Cement

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

## Power—Electric and Water

Central Ontario Power Co., Peterboro, Ont.

## Power Plants—Equipments

American Steam Gauge & Valve Mfg. Co., Boston, Mass.

Buffalo Forge Co., Buffalo, N.Y.  
Canadian General Electric Co., Toronto.  
Cooper, James Mfg. Co., Montreal.  
Darling Bros., Montreal.  
Electrical Construction Co., London, Ont.  
Goldie & McCulloch, Galt, Ont.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Jenckes Machine Co., Sherbrooke, Que.  
Jones & Moore Electric Co., Toronto.  
Key Electric Dynamo & Motor Co., Toronto.  
Leonard, E. & Sons, London, Ont.  
Northey Co., Toronto.  
Perrin, Wm. H. & Co., Toronto.  
Phillips, Eugene F., Electrical Works, Montreal.  
Robb Engineering Co., Amherst, N.S.  
Smytho, S. H. Co., Pittsburg, Pa.  
Stevens, Alfred J., Boston, Mass.  
Sturtevant, H. F. Co., Boston, Mass.  
Toronto & Hamilton Electric Co., Hamilton, Ont.  
United Electric Co., Toronto.  
Wilson, J. C., & Co., Glenora, Ont.

## Presses (Tilo, Sewer Pipe, Nozzles and Sleeves.)

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

## Pulleys

Darling Bros., Montreal.  
Dodge Mfg. Co., Toronto.  
Goldie & McCulloch Co., Galt, Ont.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Wilson, J. C., & Co., Glenora, Ont.

## Purifiers

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

## Purifying System (Water.)

Darling Bros., Montreal.  
Scalfe, Wm. B. & Sons Co., Pittsburg, Pa.

## Railroads

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

## Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.  
Cooper, James, Montreal.  
Gartshore, John J., Toronto.  
Greening, H. Wire Co., Hamilton, Ont.  
Montreal Steel Works, Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
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tors will find them at the above address.

JOHN DRYDEN, Minister of Agriculture.

## CLASSIFIED INDEX.

(CONTINUED).

### Rivets

Bourne-Fuller Co., Cleveland, Ohio.

### Roofing

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

### Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

### Scalo Removers

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

### Second-Hand Machinery.

Wormer, C. C., Machinery Co., Detroit, Mich.

### Shafting

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

### Shear Knives

Hay, Peter, Galt, Ont.

### Sheets (Iron and Steel.)

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

### Shellac Gums.

Berry Bros., Walkerville, Ont.

### Smoke Stacks.

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

### Softening Systems (Water.)

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

### Solder

Syracuse Smelting Co., Montreal.

### Stamps & Stencils

Hamilton Stamp & Stencil Works, Hamilton, Ont.

### Stand Pipes.

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

### Steam Gauges

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

### Steam Pumps

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

### Steam Separators

Darling Bros., Montreal.

### Steam Specialties

Darling Bros., Montreal.

### Steam Valves

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

### Steel Rails

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

### Steel Shafting

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

### Stocks and Dies

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

### Stoppers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

### Structural Steel.

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

### Tags

Morton Co., Toronto.

### Tanks (Iron and Steel.)

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

### Tees

Bourne-Fuller Co., Cleveland, Ohio.

## CLASSIFIED INDEX.

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### Textile Manufacturers

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

### Tin

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

### Tin Plates

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

### Tool Steel

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

### Trucks

Slingsby, H. C., Montreal.

### Trucks (Wire Mill)

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

### Tubs (Cleaning and Coating Wire)

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

### Turbines

Jenckes Machine Co., Sherbrooke, Que.  
Wilson, J. C. & Co., Glenora, Ont.

### Typewriters and Supplies

United Typewriter Co., Toronto

### Valves

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

### Varnishes.

Berry Bros., Walkerville, Ont.

### Ventilators

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

### Wagons and Carriages

Hore, F. W., & Son, Hamilton, Ont.

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

### Water Filters and Filtering Systems.

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

### Water Softening and Purifying Systems.

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

### Water Tanks

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

### Water Towers

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

### Weaving Machinery

Karch, H. W., Hespler, Ont.

### Wire and Wire Rope

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

### Wire Cloth

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

### Wire Drawing Machinery

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

### Wire Specialties

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

### Wood-Working Machinery

Carrier, Laine & Co., Levis, Que.  
Cowan & Co., Galt, Ont.  
Karch, H. W., Hespler, Ont.  
London Machine Tool Co., London, Ont.  
McEachren Heating & Ventilating Co., Galt, Ont.  
Wormer, C. C., Machinery Co., Detroit, Mich.

### Zinc

Leslie, A. C. & Co., Montreal.  
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Sheets containing terms and conditions of Sale and information as to Areas and Lots and Concessions comprised in each Berth will be furnished on application, either personal or by letter, to the Department of Crown Lands, Toronto, or the Crown Timber Agencies at OTTAWA, SAULT STE. MARIE, POIT ARTHUR, HAT PORTAGE and FORT FRANCES.  
**E. J. DAVIS,**  
*Commissioner Crown Lands.*  
 DEPARTMENT OF CROWN LANDS,  
 TORONTO, July 29, 1903.  
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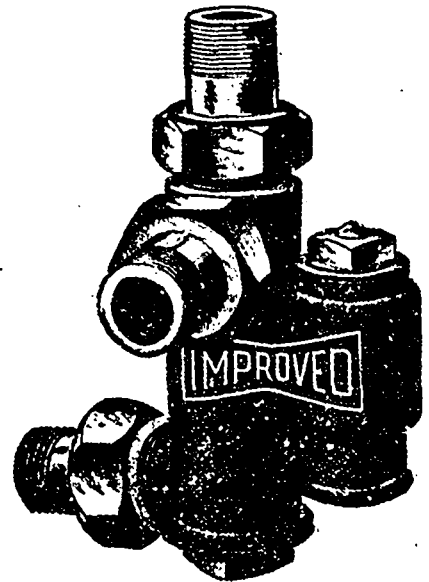
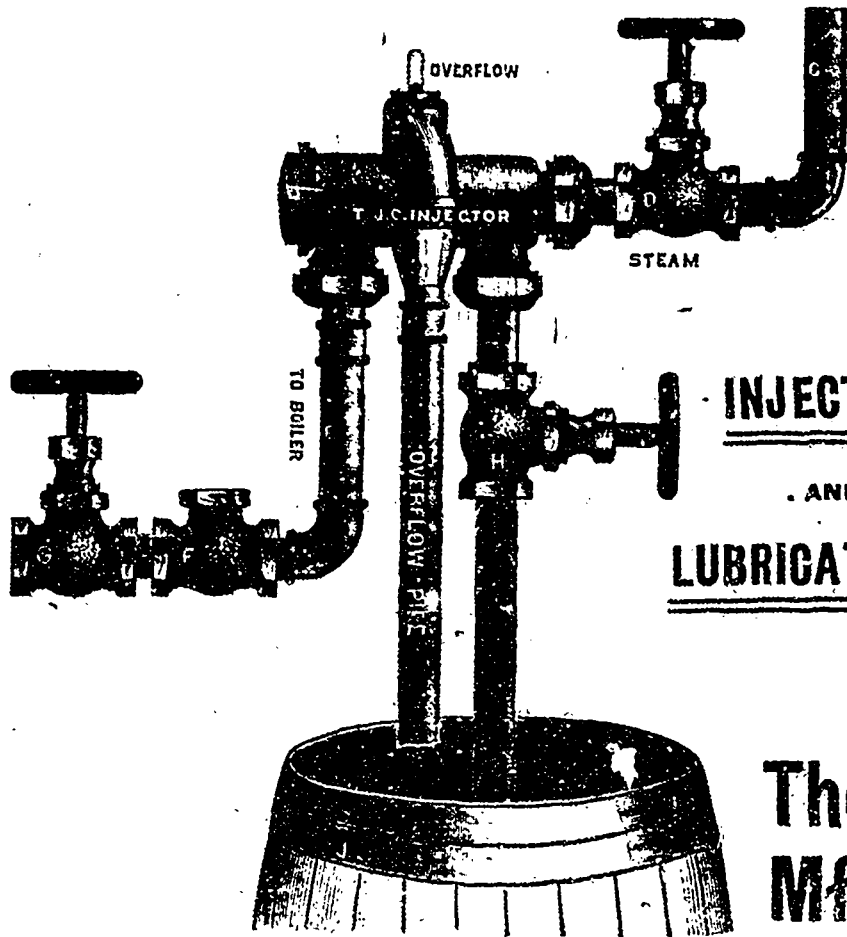
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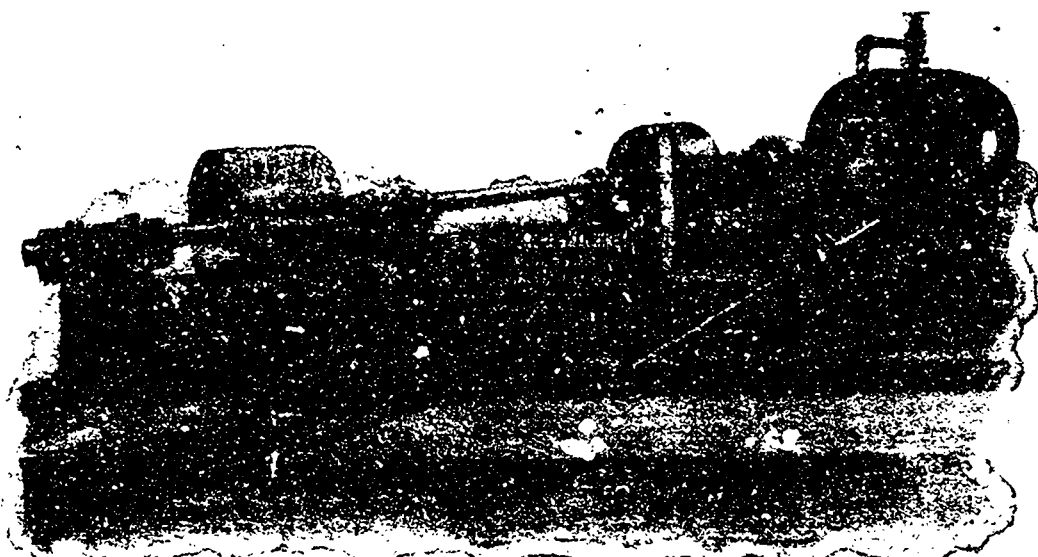
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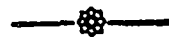
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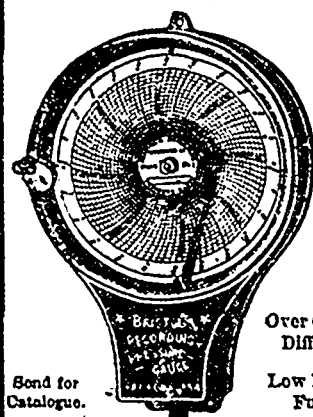
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