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**CANADIAN MANUFACTURED**  
 AND INDUSTRIAL WORLD  
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

VOL. 38.

TORONTO, APRIL 7, 1899.

No. 7.

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 PRODUCTS OF  
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 SOLE AGENTS FOR CANADA, TORONTO.

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All Polished. Good Black Finish

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ALSO MANUFACTURERS OF  
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**ELECTRIC HYDRAULIC STEAM HAND-POWER**

All made of the best material and finest workmanship.

**Elevators**

The Fensom Elevator Works, 251, 253, Duke Street, Toronto, Ont.

**RUBBER GOODS OF ALL KINDS.**

**THE GUTTA PERCHA & RUBBER MFG. CO. OF TORONTO, LIMITED**

61 and 63 FRONT ST. WEST, TORONTO.

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

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Manufactured by The HAMILTON AND TORONTO SEWER PIPE CO.  
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Manufactured by the

Owen Sound Portland Cement Co.  
OWEN SOUND, ONT. LIMITED

Is Equal to any Cement made in the WORLD.

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Sulphuric, Nitric, and Muriatic Acids—Commercial and  
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Mixed Acids for Explosives.

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

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## Yarn Manufacturers, DYERS AND BLEACHERS.

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

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Montreal, Radnor and Three Rivers

Manufacturers of the well-known

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

Suitable for Car Wheels, Cylinders and Fine Castings,  
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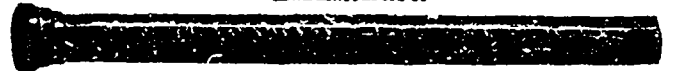
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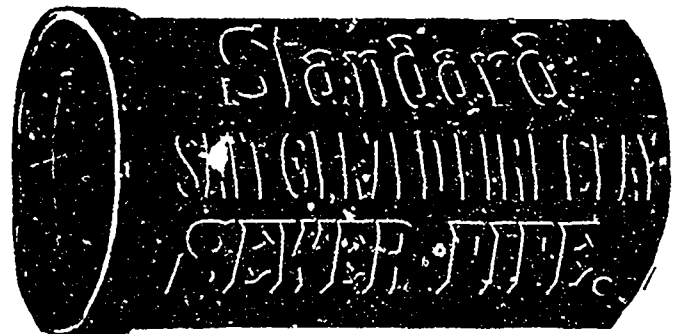
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THE STANDARD DRAIN PIPE COMPANY, ST. JOHN'S, P.Q.

Manufacturers of Salt Glazed Vitrified Sewer Pipes, Double  
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The Standard Drain Pipe Co. of St. John's, P.Q., Ltd. W. C. TROTTER  
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SIMPLICITY, COMPACTNESS,  
PERFECT REGULATION,  
ECONOMY,  
AUTOMATIC LUBRICATION.

For Electric Lighting Mills, Factories,  
and other purposes where Economy,  
close regulation and enduring service  
is required.

Manufactured  
by.....

R. WHITELAW, Woodstock, Ont.

# The Canadian Peat Fuel Company.

Incorporated by Act of Parliament of the Dominion of Canada, 59 Vict., Cap. 47.

Authorized Capital \$1,500,000.00

Stock Issued \$715,200.00

Shares, \$100 Each.

Head Office: TORONTO.

---

## DIRECTORATE.

*President*: ALEX. JARDINE, Pure Gold Manufacturing Co., Toronto.

*Vice-President*: E. W. SPRAGGE, M.R.C.S., L.R.C.P., Toronto.

HON. R. M. WELLS, Q.C., Toronto.

ALEX. LUMSDEN, M.L.A., Lumberman, Ottawa.

J. S. LOUDON, Assistant Gen. Mgr. Standard Bank, Toronto.

J. LORNE CAMPBELL, Vice-President Toronto Stock Exchange, Toronto.

E. J. CHECKLEY, Accountant, Toronto.

---

## PROPERTY.

The Company's lands near Welland, Ontario, consist of about 4,000 acres, upon which the following valuable materials are found:--

**PEAT**: suitable for fuel of the highest grade, and possessing the maximum of combustibles, averaging in depth from four to twenty feet; estimated at twenty-five million tons.

**PEAT MOSS**: About 2,000,000 tons, sold as a superior bedding for horses, for packing nursery stock and which (owing to the very gratifying results of experiments) it is anticipated will now be used for paper stock, a use which gives promise of furnishing the most profitable and marketable product this material yields.

**CLAY**: A large underlying deposit of white clay, suitable for the manufacture of pottery, tile, vitrified brick, terra cotta work and Portland cement.

## IMPROVEMENTS.

Large sums of money have been expended in the draining of the entire bog of 4,000 acres, erecting buildings, installation of plant for the picking, drying and packing of the moss, and manufacture of peat fuel, constructing four miles of railway and steel swing bridge over Welland canal feeder.

## PATENTS.

The Company has also acquired from Mr. A. A. Dickson the exclusive right for Canada to manufacture, use and sell under his latest patents covering machinery, process and products. These three patents constitute rights so broad and comprehensive as to convey an absolute monopoly and control of the market

for peat containing all of the inherent combustible and valuable elements condensed and consolidated into dry, hard and dense blocks of specific gravity approximating that of anthracite coal, and of slow but thorough and even combustion in their manufactured condition.

### SOURCES OF REVENUE.

**PREMIUMS:** The Company is licensing local operators to manufacture and sell peat fuel in specified territory. A premium is required for each franchise.

**ROYALTIES:** In addition to a specific amount as premium, Licensees are required to pay a royalty of from 25 cents to 50 cents per ton of fuel manufactured, regulated by local conditions. (Two-fifths of premiums and royalties collected from Licensees are reserved to Mr. Dickson).

**PEAT FUEL MANUFACTURE:** The Counties of York, Wentworth, Halton, Peel, Lincoln, Haldimand and Welland, including the important cities of Toronto and Hamilton are reserved for the operations of the Company and the fuel manufactured by the Company is not subject to any charge by way of premium or royalty to the Patentee.

### INCOME.

**PREMIUMS:** Applicants for Licenses have entered into agreements (final and optional) under terms of which premiums of \$53,700 are stipulated for, covering a small portion of the Dominion only, large tracts of valuable territory being still open for disposal.

**ROYALTIES:** Twenty-three machines (capacity 1½ tons per hour each) and two (capacity 3 tons per hour each) have already been contracted for by Licensees. It may be fairly anticipated that before and during the season in which peat can be excavated and dried preparatory to its manufacture, numerous additional machines will be installed. The operations of initial plants this year will doubtless lead to a large expansion of the industry.

**MANUFACTURED PRODUCTS:** Fuel manufactured and disposed of by the Company in reserved territory. **Paper stock, Litter and Packing for Nurseries.**

From the following statistics the great importance of the Peat Fuel industry may be gathered.

Extract from Government Report for Fiscal year 1898:

#### Coal Mined in Canada 1897.

Ontario		None.
Quebec	Destitute of coal beds.	"
Manitoba		"
Nova Scotia	2,290,033	Tons.
New Brunswick	6,000	"
N. W. Territories	267,163	"
British Columbia	1,019,390	"
	Total mined	3,582,586 tons.

#### Coal Imported into Canada 1898.

Bituminous	1,942,000	Tons.
Anthracite	1,460,701	"
Coal Dust	231,954	"
	Total imported	3,634,655 tons.

TORONTO, ONT., MARCH 27th, 1899.

## LIST OF SHAREHOLDERS

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- Agar, Charles A., John Abell Engine Co., Toronto.  
Ardagh, Arthur G., Civil Engineer, Barrie.  
Blake, E. F., Blake, Lash & Cassels, Toronto.  
Bradshaw, W. A., Mgr. Grocers' Goods Mfg. Co., Toronto.  
Burland, Col. Jeffery H., Burland Lith. Co., Montreal.  
Brebner, Jas., B.A., Registrar Toronto University, Toronto.  
Bixell, A. A., Bixell Brewing & Malting Co., Brantford.  
Burnett, Geo. G., Ocean Accident Assurance Co., Toronto.  
Bourne, C. K., University College, Toronto.  
Carling, Fred. W., Carling Brewing & Malting Co., Ottawa.  
Clare, Fred., Clare Bros. & Co., Founders, Preston.  
Campbell, J. Lorne, Vice-President Toronto Stock Exchange, Toronto.  
Cook, Christopher, Manager Standard Bank, Brantford.  
Cook, Thos. J. R., Turkish Baths, Toronto.  
Crerar, Jas. P., Bank of Montreal, Ottawa.  
Comstock, W. H., President, W. H. Comstock Co., Brockville.  
Chant, C. A., University College, Toronto.  
Checkley, E. J., Accountant, Toronto.  
Dickson, Archibald A., Manufacturer, Toronto.  
Dickson, (Mrs.) V. R. W., Toronto.  
Eliot, Chas. A., Commission Merchant, Ottawa.  
Francis, Wellington, Barrister, Toronto.  
Fauquier, E. F., Contractor, Ottawa.  
Fleming, S. H., Contractor, Ottawa.  
Gowan, Hon. J. R., C.M.G., Senator, Barrie.  
Heintzman, Gerhard, Manufacturer, Toronto.  
Hanning, C. R., Banker, Preston.  
Hunter, David, Merchant, Mexico.  
Hogg, J. S., Merchant, Galt.  
Hay, Andrew, High School, Barrie.  
Hutton, Maurice, M.A., Prof., University College, Toronto.  
Harcourt, Hon. R., Provincial Treasurer, Toronto.  
Jardine, Alex., President Pure Gold Mfg Company, Toronto.  
Jardine, (Mrs.) Agnes, Toronto.  
Jephcott, William C., Toronto Lith. Co., Toronto.  
London, John S., Ass't General Manager Standard Bank, Toronto.  
Lumsden, Alex., M.L.A., Lumberman, Ottawa.  
MacKeen, Hon. David, Senator, Glace Bay.  
Maclaren, David, Lumberman, Ottawa.  
Manuel, John, Lumberman, Ottawa.  
Mallory, Geo. I., Vice-President W. H. Comstock Co., Brockville.  
Matheson, C. A., Manufacturer, Perth.  
Mulloy, N., Physician, Preston.  
Merrill, F. W., Druggist, Brantford.  
McKenzie, William, President Toronto Railway Co., Toronto.  
McPherson, D. A., Physician, Toronto.  
Nesbitt, Wallace, O. C., Beatty, Blackstock & Nesbitt, Toronto.  
Perley, Geo. H., Lumberman, Ottawa.  
Pattee, G. B., Lumberman, Ottawa.  
Powell, C. Berkeley, M.L.A., Lumberman, Ottawa.  
Perley, H. S., V.S., Ottawa.  
Purdy, F. M., Purdy, Mansell & Co., Toronto.  
Russell, (Mrs.) E., Ottawa.  
Ross, Jas., President Montreal Ry. Co., Montreal.  
Roschman, Richard, Manufacturer, Waterloo.  
Schellings, C. J., Merchant, New York.  
Strathcona, Baron, Canadian High Commissioner, London, Eng.  
Spragge, E. W., M.R.C.S., L.R.C.P., Toronto.  
Stevenson, J. McL., Registrar, Barrie.  
Thomson-Currie (Miss) L., Orillia.  
Tippitt, W. H., Merchant, Toronto.  
Turnor, Capt. Hatton, Mexico.  
Thayer, Ira B., Insurance Manager, Toronto.  
Vigeon, Harry, Accountant, Toronto.  
Webb, (Mrs.) Mabel T., Quebec.  
Wells, Hon. Rupert M., Q.C., Toronto.  
Wells, Jas. D., New York.  
Wanless, James W., Railway Agent, Courtright.

TORONTO, MARCH 27th, 1899.

Syndicates recently licensed by the Canadian Peat Fuel Company to manufacture, are in many instances applying for incorporation; the following have been Gazetted:

### The Trent Valley Peat Fuel Company, Limited.

Authorized Capital, \$500,000.

Head Office: Peterborough, Ont.

#### DIRECTORATE.

*President:* A. L. Davis, of Messrs. Cox & Davis, and Mayor of Peterborough.

*Vice-Presidents:* A. A. Cox, Director Central Canada Loan and Savings Company, Peterborough.  
J. R. Stratton, M.P.P. for West Peterborough.

*Sec'y-Treasurer:* W. G. Morrow, Manager Toronto Savings and Loan Company, Peterborough.

*Manager:* W. J. Sims, Contractor for Trent Valley Canal, Peterborough.

### The Brockville Peat and Power Company, Limited.

Authorized Capital, \$99,000.

Head Office: Brockville, Ont.

#### DIRECTORATE.

*President:* W. H. Comstock, President W. H. Comstock Company, Limited, Brockville.

*Vice-President:* W. H. Gilmour, Wholesale Grocer, Brockville.

*Secretary:* O. K. Fraser, Barrister, Brockville.

*Treasurer:* Geo. I. Mallory, Vice-President W. H. Comstock Company, Limited, Brockville.

*Managing Director:* E. W. McCrea, Brockville.

### The Simcoe Peat Fuel Company, Limited.

Authorized Capital, \$20,000.

Head Office: Barrie, Ont.

#### DIRECTORATE.

*President:* Andrew Hay, Teacher, Barrie.

*Vice-President:* William Reiner, Clergyman, Barrie.

*Manager and Secretary:* W. A. Boys, Barrister, Barrie.

Dr. W. D. MacLaren, Barrie. D. H. MacLaren, Druggist, Barrie. John Scott, Merchant, Barrie.

### The Prince Edward Peat Fuel Company, Limited.

Authorized Capital, \$20,000.

Head Office: Picton, Ont.

#### PROVISIONAL DIRECTORS.

C. H. Widdifield, Barrister, Picton.

J. E. Clapp, Farmer, Township of Hallowell.

W. E. VanVlack, Master Mariner, Picton.

Richard Hadden, Merchant, Picton.

J. C. North, Merchant, Picton.

J. H. Allan, Esquire, Picton.

William Smeaton, Merchant, Picton.

R. H. McKenna, Veterinary Surgeon, Picton.

Information regarding the following Companies, not yet incorporated, may be had on application:

The Ottawa Peat Company, H. M. E. Evans, 39 Sparks St., Ottawa.

The Huron District Peat Company, A. G. Ardagh, C.E., 110 Adelaide St. W., Toronto.

The Wellington Peat Fuel Company, Col. A. H. Macdonald, O.C., Guelph.

The London Peat Fuel Company, F. C. Jones, 558 Dufferin St., Toronto.

Parry Sound Peat Fuel Company, W. Ireland, Parry Sound.

The Grey County Sydicate, W. A. Boys, Parrister, Barrie.

Contractor for the County of Lanark, C. A. Matheson, Perth.

Western Algoma and Manitoba Syndicate, W. A. Boys, Barrister, Barrie.

# The "Ideal" High Speed Engine...

Built by the GOLDIE & McCULLOCH Co., LIMITED, GALT, ONT., is particularly adapted to direct connected work on account of its Perfect Balance, Quiet Running, Automatic Lubrication and Cleanliness, in addition to its Massive and Compact Construction. Write for a Handsome Catalogue if you are interested in steam plants.

**THE GOLDIE & McCULLOCH CO., LIMITED,**  
GALT, ONTARIO.

## EXPORTERS FROM CANADA . . .

Desiring information regarding the best facilities for shipping abroad, with whom correspondence may be had, and to whom consignments may be made, should correspond with . . . . .

**The Canadian Manufacturer,**  
TORONTO, CANADA.

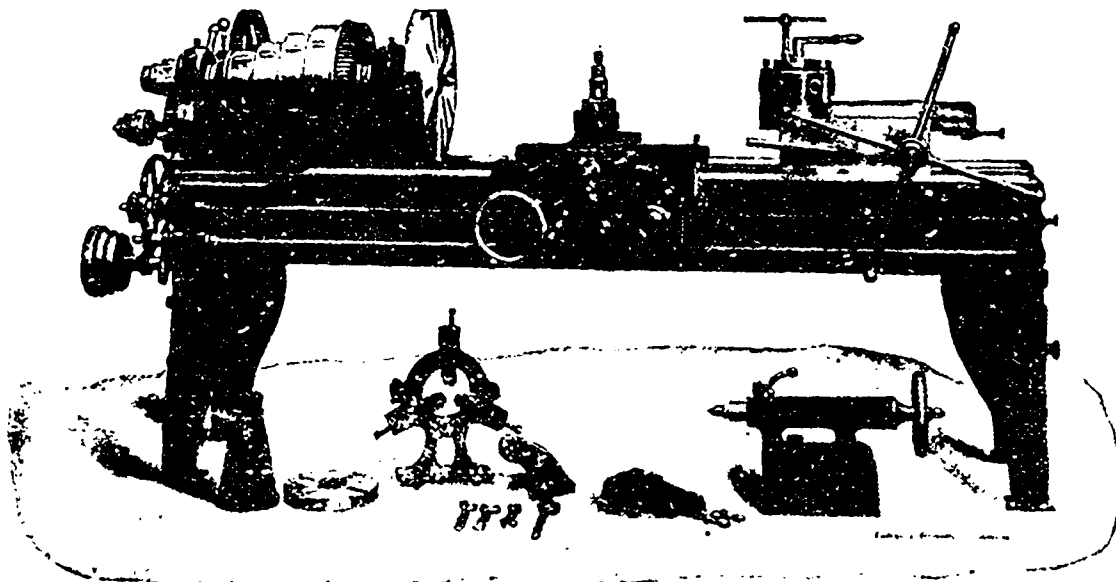
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DUNDAS, . . . ONTARIO.

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ENGINE LATHE WITH TURRET ATTACHMENT.

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Good Order are  
offered at

**Very  
Low  
Prices**

To clear out  
Stock quickly.

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PLEASE  
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INTERESTED

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MANUFACTURERS OF

## BRIGHT COMPRESSED STEEL SHAFTING

FROM  $\frac{1}{2}$  TO 6 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN  $\frac{1}{16}$  OF AN INCH.

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

### RAILWAY AND ELECTRIC RAILWAY CAR AXLES

### FISH PLATES, SPIKES AND TRACK BOLTS

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

## HEAVY FORGINGS a SPECIALTY.

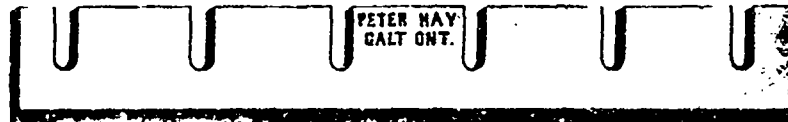
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Works—NEW GLASGOW, N.S., and FERRONA, N.S.

Head Office—NEW GLASGOW, NOVA SCOTIA

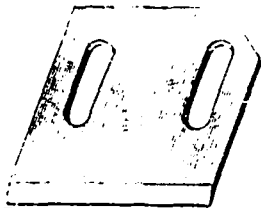
## GALT Machine Knife Works

PETER HAY,



GALT, ONT.

Manufacturers of Every Description of.



## KNIVES,

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

BARK KNIVES  
PULP KNIVES  
RAQ KNIVES  
Etc., Etc.



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



Quality Guaranteed.

Special Knives Made to Order.

Send for Price List

## DOMINION BRIDGE CO., Limited,



MONTREAL AND LACHINE LOCKS, P.Q.

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

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

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

ALWAYS ON HAND IN LENGTHS TO THIRTY-FIVE FEET.

Post Office Address, MONTREAL.

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

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**BRUNNER MOND & CO.'S**  
 Pure Alkali,  
 Bleaching Powder,  
 Caustic Soda, ALL STRENGTHS.  
 Bicarbonate of Soda,  
 Concentrated Sal Soda,  
 Soda Crystals.

**Wm. J. MATHESON & CO., LIMITED**

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**DYE . . .**  
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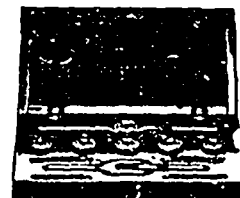
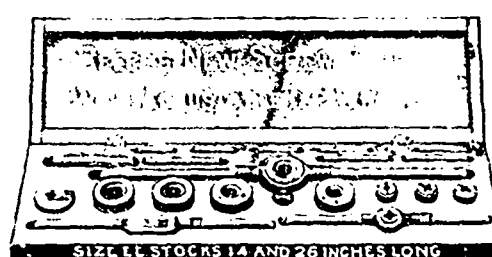
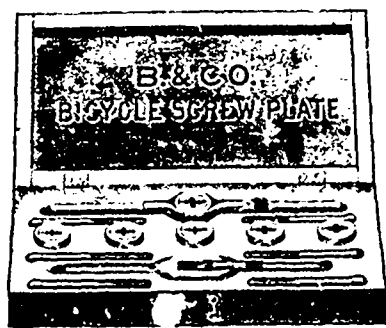
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THE BEST EQUIPPED BOILER AND ENGINE WORKS IN CANADA.

We Manufacture— **STEEL BOILERS**

The **BROWN AUTOMATIC ENGINE, MARINE ENGINES** (SINGLE, COMPOUND AND TRIPLE), Hoisting and Mining Engines  
**STEEL STEAM VESSELS OF EVERY DESCRIPTION. STEAM YACHTS AND LAUNCHES.**  
 GET OUR PRICES BEFORE ORDERING.

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



Bicycle Screw Plates, Reece Screw Plates, Derby Screw Plates, Blacksmiths' Stocks and Dies, Blacksmiths' Improved Screw Plates, Hand Taps, Machine Taps, Pipe Taps, every kind of Taps and Dies are manufactured by

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## ALBERT MANUFACTURING CO.

Manufacturers of the  
well-known

"HAMMER BRAND"

## Calcined PLASTER

—AND—

## Patent Rock Wall Plaster

HILLSBOROUGH, N.B.,  
CANADA.

**GET THE BEST**  
And at Same Time the CHEAPEST  
**HEARLE'S ANTI-SCALE POWDER**  
The Unequaled Boiler Purge.  
Send for Circular with Testimonials.  
**C. C. HEARLE,**  
823 LaSalle Street, Montreal, P. Q.

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Georgetown, Ont.

Manufacturers of... **Book and Fine Papers.**

THE TORONTO PAPER MFG. CO., Cornwall, Ont.,

Manufacturers of Engine Sized Superfine  
Papers, White and Tinted Book Papers, Blue  
and Cream Laid and Wave Fool-caps, Account  
Envelope and Lithographic Papers, etc.

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## Galvanizing

DONE FOR THE TRADE.

GET OUR PRICES.

## WELLAND VALE MANUFACTURING CO.

Limited, ST. CATHARINES ONT.

Manufacturers of...  
**Axes, Edge Tools, Saws,  
Farming Implements  
and Bicycles.**

## F. W. Hore's Sons, HAMILTON, ONT.

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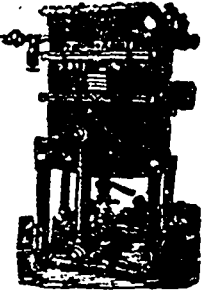
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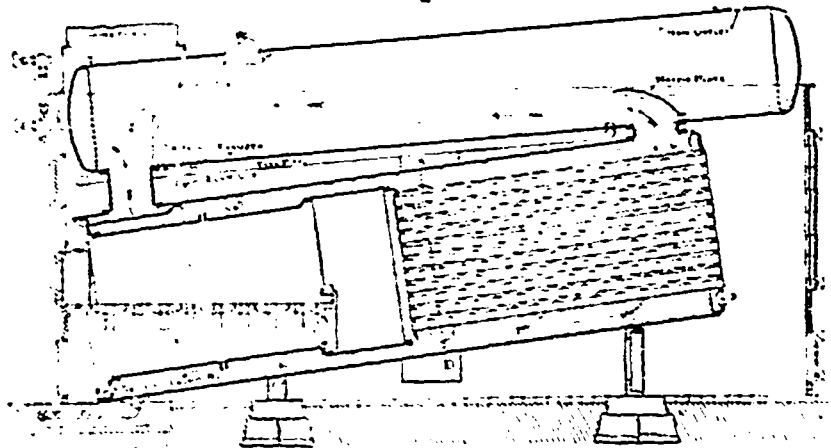
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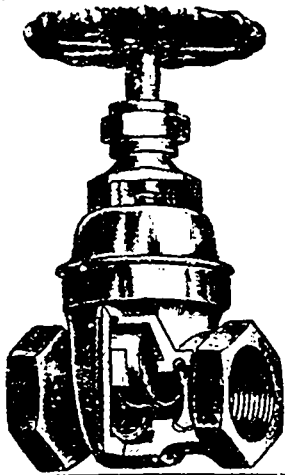
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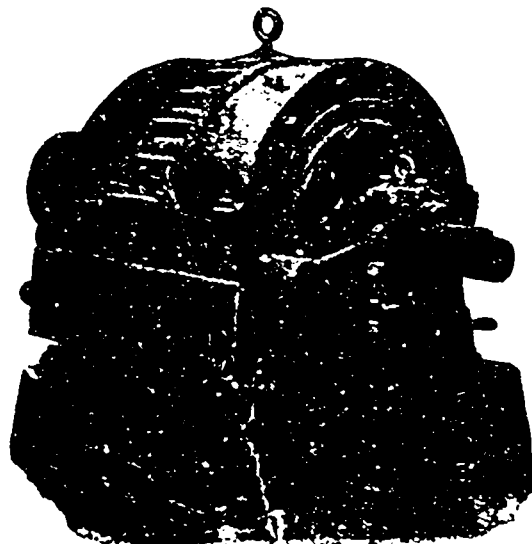
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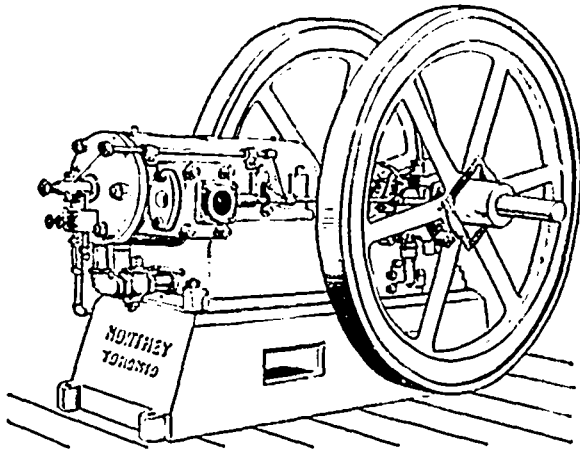
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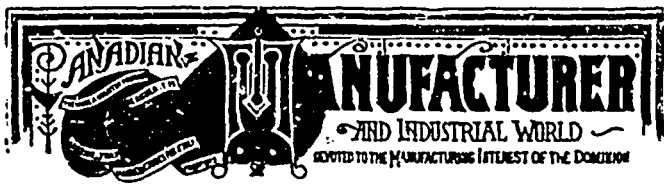
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**ANNUAL MEETING OF THE CANADIAN MANUFACTURERS' ASSOCIATION.**

The Twenty-Fourth Annual Meeting of the Canadian Manufacturers' Association will be held at their office in McKinnon Building, Toronto, at eleven o'clock in the forenoon of Tuesday, April 18, 1899.

The regular business to be brought before the meeting will be the reading and discussion of reports of officers and committees, and the election of officers for the ensuing year.

The objects of this Association are:

To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.

To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body is necessary.

To maintain Canada for Canadians.

Any person directly interested in any Canadian manufacturing industry is eligible for membership.

**THE MONTREAL, OTTAWA AND GEORGIAN BAY CANAL.**

A glance at the map of North America shows that through the channels of the St. Lawrence and the Ottawa, nature has provided an almost complete route of direct transportation between the great West and the seaboard, and that by the addition of a few artificial facilities, either of these routes could be made the shortest and cheapest method by which the surplus products of the West could reach the needy populations of Europe. For the products of the country

bordering on Lakes Ontario and Erie, the St. Lawrence route is unmitigably the best; and for the country bordering on Georgian Bay, Lakes Huron, Michigan and Superior, the route via French river and the Ottawa seems to have been provided.

So far back as the year 1615, that enterprising Frenchman, Samuel Champlain, adopted the route via the Ottawa river as the shortest, safest and easiest by which to ascend from Montreal to Lake Huron, shortly afterwards followed by La Salle and others, who considered that there were fewer great difficulties to be encountered there than by way of the St. Lawrence river. So far as economy in construction is concerned, there can be no doubt that an efficient river, lake and canal route from the seaboard to the upper lakes could have been completed at a much smaller cost via the Ottawa than via the St. Lawrence rivers, but owing to the superior agricultural value of the lands on the southern portions of Canada, and the consequent much larger population settled thereon, the St. Lawrence system was very naturally and wisely adopted.

The march of time has shown that the modern system of water transportation has resulted in the employment of vessels of much larger dimensions and capacity than was anticipated in 1875, when the Dominion Parliament decided upon the adoption of the present capacity of the Welland and St. Lawrence canal system, which has now proved to be utterly inadequate to secure for Canada that share of the traffic of the West which its natural advantages ought to enable Canada to obtain. The question arises whether a river, lake and canal route from the mouth of French river, through Lake Nipissing, the Ottawa river and Lachine canal to Montreal can be established, which will attract through Canada that portion of the western traffic which present routes are unable to accomplish; and whether this addition to through traffic, together with the many local advantages to be derived, justify the cost of its construction.

With respect to through traffic, taking Chicago in the west and Montreal in the east as the basis of comparison with other routes, and relative distances as the first point to consider, it is shown that the distance between these two cities is 980 miles by the Ottawa canal route, 1,050 miles by the Toronto and Georgian Bay canal route, and 1,348 miles by the Welland canal and St. Lawrence route. The distance from Chicago to New York by lake, canal and Hudson river is 1,450 miles, and, all rail, about 940 miles. In respect of shortness of route by water, the Ottawa route has the advantage. But the shortest route is not necessarily the cheapest. Compared with the Welland route, on the latter, there are seventy miles of canal navigation, on the Ottawa route, fifty-eight miles. Another consideration is as to quickest route, and in this respect there is very little difference. Above all questions as to shortness of route, proportion of canalling and quickness of transportation is that of cheapness of freight. Admitting the contention of some authorities that on the completion of the Welland and St. Lawrence canals, wheat can be profitably carried from Chicago to Montreal for three cents per bushel, exclusive of canal tolls and marine insurance, will the proposed Ottawa route be able to do the work as cheaply? Perhaps a more pertinent question would be, will the proposed Ottawa route be able to transport wheat so cheaply that it will be able to attract a fair share of the carrying

trade of the large vessels which cannot use the Welland and St. Lawrence canals, but now deliver all traffic for the seaboard at Buffalo? As the average rate of freight from Buffalo to New York, via Erie canal, is about 4 to 4½ cents, it follows that the Ottawa route must be able to do this service more cheaply, or at least as cheaply as the Erie canal.

Mr Walter Shanley, in his report in 1858, of the survey of the Ottawa route, makes the distance from the mouth of the French river to Montreal, 430 miles, of which fifty-eight miles is canal navigation, including the Lachine canal, already finished, leaving about fifty miles to be constructed or enlarged.

The two principal difficulties in connection with the survey were serious doubts as to the sufficiency of the supply of headwaters to feed the canal both ways, (a difficulty which appears to be largely increased owing to the impossibility now of raising the level of Lake Nipissing as was then proposed), and a further doubt as to possibility of obtaining a sufficiently deep channel through the Lake of Two Mountains except at enormous cost, owing to the rocky character of the bed of the lake. These two difficulties can be determined by accurate survey under present conditions.

Another survey of the route was made in 1860 by Mr. Thomas C. Clark on a somewhat different line from that of Mr Shanley. The distance from Lake Huron to Montreal, according to Mr Clark's survey was 430.76 miles, of which 29 3/4 miles was canal, with 64 locks having a total lift of 665½ feet.

Mr. Shanley's estimate of cost per his route was \$24,000,000, Mr. Clark's estimate was \$12,057,680. So many changes have taken place during the last forty years in the conditions of the streams and lakes, in the settlement of people along the route, in the methods of canal construction and in the requirements of the carrying trade, that these surveys of a far back date can scarcely be held to establish much as to present cost of such a work. But they do seem to establish, in a general way, the feasibility of the project and a moderate cost of construction. The only ground on which it can be shown to merit public assistance is its capacity to cheapen transportation from the West, to attract a traffic which our present public works are unable to secure, and, above all, to develop and promote the local interests and resources which are of such great value on both sides of the route.

It is impossible to judge from the frequent changes announced, with reference to the designs of the present company which hold the charter for the construction and operation of this work, what they have decided upon as to capacity of proposed canals. Sometimes it is spoken of as a steam-barge canal route, with a depth of water of ten or twelve feet. Lately it has been given out that it is to be of the same depth of water and capacity as the Welland and St. Lawrence system, so that propellers of 2,000 tons capacity can pass from upper lakes to Montreal without breaking bulk. At other times, the magnificent scheme of a twenty-foot channel is presented. With regard to the last of these propositions, it may be dismissed as visionary and impracticable, as the interest on the cost would far outweigh any saving in transportation that could be effected, and any other advantages that could be derived. With reference to the second proposition of a fourteen-foot channel, such a scheme would not be entitled to public assistance, as the present Welland

and St. Lawrence system is amply sufficient for the traffic of all the vessels of 2,000 tons' capacity that are likely to be over employed between the West and Montreal. To become a public work or be entitled to Government aid, the proposed route must be proved to be capable of attracting a large share of that Upper Lake traffic which is now and will in future be conducted with the largest class of propellers now employed on Lakes Huron, Michigan and Superior. The question of transshipment of grain en route from the West to the East, which was so long dreaded as a great impediment, is now considered as of little moment, the cost of this service being now less than one-eighth cent per bushel.

It might be well for Government and the promoters of the Ottawa canal to examine carefully the very able report of Major Symons, engineer, in the service of the United States, on lake and other inland transportation. He shows that under his proposed scheme for the enlargement of the Erie canal, and its deepening to ten feet of water for the grain trade between Buffalo and New York, a distance of about 500 miles, a fleet consisting of one steam barge and three motorless consorts, carrying in all 190,000 bushels wheat, could carry wheat at a cost of 1.07 cents per bushel, exclusive of transfer charges at Buffalo, allowing for return freight equal to one-third of the tonnage of eastern bound freight. He allows nine round trips for the season. With the much shorter route, and especially much shorter canal navigation, a similar fleet on the Ottawa canal should be able to make a good many more than nine round trips in the season of seven months.

Accepting the estimate of Major Symons, it may be confidentially anticipated that this proposed route will be able to compete successfully with Buffalo for a large proportion of the grain and other traffic carried on the largest class of vessels now in use or likely to be employed. No other proposed route through Canada presents equal assurance of economical transportation, and increase in trade with the West.

The advantages to the public of this French River, Ottawa, and Montreal river, lake and canal route in the above two respects are of great value, but still more important would be its local advantages to the vast variety of the resources already ascertained and yet to be developed along both banks of the Ottawa river and its tributaries; its water powers, its forests and its minerals. The granting of a charter to any company which thereby obtains the command and control of countless franchises was a mistake; the extension of it to this same company which had shown itself incompetent even for the work of a thorough survey, and estimate of cost was a still greater mistake. The conditions as to amount of stock and bonds authorized to be issued are such as could not be safely granted to a fully established company of well known wealthy capitalists. They open a door for a dangerous amount of manipulation and stock jobbing. It is to be devoutly hoped that Government will exercise its power of assuming all the rights and privileges granted to the company, and will undertake at once the duty of procuring a thorough survey of the route and a reliable estimate of the cost of the enterprise, and if the project is found practicable at a moderate cost, proceed with its construction as a public work, to be operated in conjunction but not in competition with the present canal system.

## FUEL OIL—THE PRODUCER.

In our March 3rd issue mention was made of the fact that a number of manufacturers who are users of fuel oil, had held a meeting in Toronto to discuss the operation of the combination between the Standard Oil Company and the Grand Trunk and Canadian Pacific Railway Companies, and that it was resolved to petition the Dominion Government to remove the duty now imposed on fuel oil imported into Canada. Subsequently, in our March 17th issue, a report was given of what transpired at Ottawa when these manufacturers waited upon the Government to state their grievances. On March 14th a deputation from Petrolia and Sarnia, Ont., waited upon the Government to ask that the manufacturers' demand for the abolition of the duty on fuel oil be not granted. The deputation spoke for the oil producers, who sell the crude article to the refiners. Those present were Mr. John Fraser, M.P., East Lambton, Mr. Charles Mackenzie, ex M.P.P., Sarnia; Mr. J. H. Fairbank, ex-M.P., Mr. C. Jenkins, Petrolia, and Mr. F. A. Fitzgerald, of London. The members of the Government by whom they were received were Sir Wilfrid Laurier, Sir Richard Cartwright, Sir Henri Joly, Messrs. Paterson, Mulock, Fielding, Tarte and Blair.

Mr Fairbank was the first speaker. He said that he was called on once more to take up the crude oil man's burden. He said that when the reduction on the duty on oil was made, some two years ago, the oil producers accepted it, thinking that the matter was fixed for good. After touching on the fuel oil question and making the point that it is not true economy to use crude oil as it comes from the well for fuel, "the still should separate the products and the least valuable be used for fuel," Mr. Fairbank alluded to the manufacturers' deputation whose statements he controverted. As for their fears of financial loss, he said:—"They say they use one and one-half million gallons a year. They are charged about four cents a gallon for Canadian oil. The price of this oil to which they refer, in Buffalo, not in Ohio, but in Buffalo, is about three cents a gallon, tariff two and one-half cents, making cost of American five and one-half cents a gallon, while the Canadian oil costs them four cents, causing a loss to them of one and one-half cents per gallon, which upon one and one-half million gallons they say they use yearly would amount to about \$22,500. To the Department of the Minister of Finance, where this two and one-half cents would go, there would be a gain of \$37,500. But there is no pretence that the shortage could exceed one-third the amount required. This would reduce the manufacturers' loss to \$7,500, still a considerable amount, but would it close up all manufacturers from Windsor to Montreal? I believe there is no permanent shortage of Canadian fuel oil, even when confined to the products of the still, certainly there cannot be when crude oil is included, which is open to all buyers."

Mr Fairbank contended that there is no degrading of quality, and touched on the relative advantages of light and heavy oils. He continued as follows. "As to advance of price, if there were one would it be intolerable? Has there not been an advance in many lines? The consumption of iron at the oil wells is a very heavy item. There has been recently a heavy advance in iron goods. These Canadian manufacturers cannot supply all we require. We are not besieging the Government to make our raw material free. But I do not find any recent advance in fuel oil. I find that in 1895 and

1896, the last years I was a refiner, I sold fuel oil at four cents per gallon. There has been no advance in Canadian crude. We hope there will be, we need it.

"The manufacturers' three allegations are without substantial foundation, and their fourth, that it did not affect the oil wells, is the direct opposite of the fact. They say if it affected the oil wells there would not have been a deputation. Well, it does affect oil wells, as the value of the products of the flour mill affects wheat, and we ask the court for a non-suit. . . . You may desire to know of how much importance the matter is to the oil wells. I shall not claim that it is in itself a star of the first magnitude, but it is of much more importance than others that oil men know. To keep up the supply of crude oil the drill must be kept running. To keep the drill running there must be confidence. The oil wells have been hit a number of times since 1894, and if the splinters are to fly at every shot the men at the guns will quit, and the manufacturer will see too late his blunder. Leave the oil tariff alone. Let the oil men feel that there is some solid ground under them. The manufacturers will be supplied."

Mr. Fairbanks asserted that no legislation would be required because in a short time the conditions would adjust themselves, and nothing more would be heard about the matter. He said that the manufacturers could not be cornered while crude oil was being produced, because there was no combination or monopoly in crude oil. The crude oil producers were quite independent of the Standard Oil Company. The Standard people were producers themselves, but only to the extent probably of two or three per cent. of the whole. He claimed that crude oil was a good fuel oil, and that manufacturers were open to purchase it. He told the Government that if an investigation were made they would be surprised at the small ground of complaint of many of those who composed the manufacturers' deputation.

Mr. Jenkins pointed out and admitted that it was not possible now to give the quantity of the class of fuel oil to manufacturers as formerly, but they still offered a superior article for the uses wanted, and all that was required was for manufacturers to keep themselves better posted on chemistry, and be able to use an oil of a heavier gravity. The changes that were necessary to enable the manufacturers to use the material of which there was an abundance, were of the most trivial character. He was not a believer in the Government interfering with trade matters, but one had to accept the conditions which existed.

Mr. Fitzgerald said that out of 800,000 barrels of crude oil only about 20,000 were controlled by parties who were associated with the Standard Oil Company. The refining of oil in Canada was not in the hands of the Standard Company, but was controlled by the Imperial Oil Company, the Imperial Company having absorbed the Standard Company's interests. There was no competition in the refining, yet there was nothing to prevent anyone getting into the refining business. About nine-tenths of the crude oil went to the refineries, and about one-third of the stock of the Imperial Oil Company was held by Canadians.

Mr. Charles Mackenzie followed, showing the unwisdom of disturbing the confidence of those engaged in the oil industry by a re-opening of the tariff question. He made the point that oil production was a mining industry which was as much entitled to consideration as iron or coal mining industries.



Mr. Mackenzie concluded by saying that the oil production of Canada was entirely independent of the Standard Oil Company. Since they had come to the country the Canadian public had been supplied with the finest oil in the world, and the well owners had received fair and steady prices for their product, and it would be a thousand pities if at the request of a few men the Government should do anything to disturb the confidence of those who had invested money in the industry.

Mr. Fairbank availed himself of the opportunity to correct a wrong impression that prevailed as the result of the conversation between the Ministers and members of the deputation in regard to black oil. He said that the change in the process of manufacture had only reduced the quantity of distilled fuel oil a very little, and that it would only be necessary for a few manufacturers to use the heavy oil, which they could do to their own advantage, to make the supply go around. Under the old system of refining a barrel of crude oil produced about five gallons of fuel or gas oil, while under the new process the quantity of this product obtained was reduced to four gallons. If a few of the manufacturers would consent to use black oil instead of fuel oil the supply would be ample. If they wanted to use imported fuel oil they should be willing to pay the duty just as an oil producer was compelled to do if he required an article not obtainable in Canada. If a man wanted to smoke Havana cigars, Mr. Fairbank said, he should be willing to pay for them.

Sir Wilfrid Laurier promised that the representations would be carefully considered.

#### THE OPERATION OF THE TARIFF.

In the Dominion Parliament at Ottawa last week in reply to the speech from the Throne, Hon. N. Clarke Wallace went into a close and accurate analysis of the operation of the Canadian tariff since the advent to power of the present Government.

In the Trade and Navigation Returns, Mr. Wallace said, the preferential tariff was called a reciprocal tariff. Reciprocity meant mutual concessions, but while Canada gave concessions to Great Britain, the Mother Country had not discriminated in favor of Canada, but had simply accorded the same treatment to us as to all other nations.

Take the article of oil. The duty on coal oil, which we get entirely from the United States, was six cents per gallon and they have reduced it to five. But they did more, as I shall presently show. The duty on linseed oil was ad valorem; it amounted to about 6½ cents per gallon. What did they do? They increased it, if I may borrow an expression of the Minister of Trade and Commerce, they increased the duty on linseed oil twenty-five per cent. Of the linseed oil that is brought into Canada, seven-eighths of it is from Great Britain and one-eighth from other countries. They add twenty-five per cent. to the duty on linseed oil, then they give Britain a preferential tariff and take twenty-five per cent. off. Was not that an admirable concession to Great Britain? I could mention hundreds of other items to the same effect, but I shall confine myself to a few important ones. Take iron or steel scrap. The old duty was \$4 per ton, the new duty is \$1. They have reduced the duty on that. There were \$75,000 of imports from Great Britain, and \$458,000 of imports from other countries. They have reduced the duty very largely,

but not for the benefit of Great Britain, because she supplies less than one-seventh of what is imported into Canada. Then take the duty on pig iron. The old duty was \$4. The new duty is \$2.50. We imported from all other countries \$330,000 worth, and from Great Britain \$50,000 worth—that is you have more than 6½ times as much from the other countries, chiefly from the United States, altogether, I might say, and they give the United States the benefit of a reduction, if we use the figures of the Minister of Commerce, of 62½ per cent. in the duty. That is a great deal more than twenty-five per cent. preference to Great Britain. Then they make us pay it by a direct tax upon the people by increased bounty.

Then take the article of rolled iron or of steel ingots, etc. I may say that the old duty on that was thirty-five per cent., or less than \$10 per ton; the new duty is specific, \$7 per ton, or a reduction, according to the Minister of Commerce, of 42 6-7 per cent. The imports are \$11,452 from Great Britain and \$237,000 from other countries, principally the United States. So that on all these articles a direct and enormous preference is given to those that are imported largely from the United States, and scarcely any to those that come from Great Britain. Take another item, rolled iron or steel sheets or plates. The imports are \$71,000 from the United States, and \$698,000 from Great Britain. The old duty was \$10, the new duty is \$7, or a preference for the United States of 42 6-7 per cent. In the matter of railway fish plates the old duty was \$10 a ton, the new duty \$8 a ton, and we imported \$161,000 from the United States, and \$9,684 from Great Britain. On cast-iron piping of every description the old duty was \$9 and the new duty is \$8, and from the United States we imported \$32,500 worth, and from Great Britain \$5,600, showing an enormous advantage to the United States and very little to Great Britain. On tubes of rolled steel, the old duty was \$15, and the new \$10, a difference (according to the calculations I have referred to) of 33 1-3 per cent. reduction, and we imported from the United States \$118,000 worth, and from Great Britain \$9,000. In the case of iron and steel fittings, the old duty was thirty-five per cent., the new duty is thirty, and the importation from the United States was \$84,600 worth, and from Great Britain only \$809.

You will see from that that in those articles that we import from the United States when this Government was making the tariff, they reduced, I won't say in every instance, but in almost every instance, the duties on these articles, where the United States were largely interested in furnishing us, and they correspondingly increased duties on these articles that we are getting from Great Britain. I have referred to the increase in duties because they were United States products. But let us take some examples in the increase in duties on English goods. Of domestic damask and linen diaper napkins and other articles of that description, we imported from all other countries \$16,000 worth, and we imported from Great Britain \$268,000 worth, or more than sixteen times as much as from all other countries combined, yet on these articles imported from Great Britain, the old duty was twenty-five per cent. and the new duty thirty per cent. On handkerchiefs the old duty was thirty per cent., and the new duty thirty-five per cent. and we imported \$7,800 worth from all other countries, and \$114,000 from Great Britain. So that in this instance they increased duties on British goods, while they told the people of Great Britain:—"Why we are giving you a

preference of twenty-five per cent. over other nations." Take towels, the imports from all other countries were \$4,900 worth, from Great Britain \$104,600 worth, and the duty was increased in that instance from twenty-five to thirty per cent. In the matter of linen, brown or bleached, we imported from all other countries \$982 worth, and from Great Britain \$96,000 worth. Yet this Government increased the duty in that instance fully twenty-five per cent., and then they have taken twenty-five per cent. off in order to be able to tell British people what they have done for the trade of Great Britain. On the item of braids, cords, tassels, and so forth, the old duty was thirty per cent. and the new duty was thirty-five per cent., and we imported from the United States \$95,000 worth, and from Great Britain \$224,000 worth. In cotton fabrics, printed, dyed or colored, there is a very large importation. From the United States we took \$645,000 worth, and from Great Britain \$1,735,000.

Adverting to the trade question, Mr. Wallace pointed out that President McKinley and the Republican party were on record that they would protect the American farmer. Was it fair, under these circumstances, for the Government to say to the farmers of Canada that a treaty would be negotiated with the United States to get a market for Canadian farm products? With reference to the lumber question, Mr. Wallace was afraid that the Government was considering the interests of lumber kings more than the interests of the people of Canada. He thought that the interest of the men employed in the mills should be considered as well as the employers. The lumber industry was of too great importance to hand over in any way to the tender mercies of the United States. When the commissioners came back and it was declared that no treaty was made a thrill of pleasure and satisfaction went through most of the members of the Liberal party—a satisfaction which was fully shared by the commissioners because there had been a general feeling of alarm lest something should be done contrary to the interests of the people of Canada.

Speaking of the importance of Canadian manufacturing industries, Mr. Wallace said:

An impression prevailed that a selected list of manufactures had been prepared, and that the commissioners were ready to sacrifice them. The Canadian people had no industries which had not proved their right to live, and no country could be prosperous or great without manufacturers. The industries of Canada were increasing rapidly, and anything done to disturb them would have been viewed with profound alarm. According to the last census, there were in Canada 75,000 manufacturing establishments, with 370,000 employes. It would not be unfair to calculate upon an increase of twenty per cent. from that time, giving more than 90,000 manufacturing establishments, with at least 450,000 employes. At the time of the last census the amount of capital invested in land and buildings was \$91,000,000; in tools and machinery, \$81,000,000; in working capital \$181,000,000; in wages paid \$181,000,000; in raw materials \$256,000,000; and the value of the articles produced was \$476,000,000. At the present time the amount of wages paid was probably about \$150,000,000, and the value of the product \$600,000,000. These figures would give some idea of the mischief that might be done by inconsiderate interference with Canadian industries.

#### NEW ONTARIO.

A few days ago a delegation of gentlemen from Port Arthur and Fort William and that vicinity, visited Toronto, where they delivered addresses with appropriate illustrations relating to the wealth and natural advantages of the section of the Province of Ontario, and which they call New Ontario. These gentlemen are patriotic missionaries who are now touring through many parts of Canada upon the errand indicated. They tell us many things that all of us ought to know, but which very few of us actually know about New Ontario. But they have made the matter a study, and as they are all well-known business men, their statements may be relied upon, and all the more so when they are verified by officials of both the Ontario and the Dominion Governments.

Twenty-five years ago, they tell us, Fort William was a trading post of the Hudson Bay Company, the inhabitants, numbering about twenty-five souls, mostly Indians. To-day Port Arthur and Fort William have good streets, common, separate, boarding and high schools, electric railway, churches of all denominations, foundries, saw and planing mills, work shops, round houses, elevators capable of holding 6,000,000 bushels of wheat, a hundred and seventy thousand ton coal pile, incandescent and arc lights, sewers and water works, 200 miles of radiating wagon roads, court houses, customs and inland revenue officials and harbor masters, four railways, seven miles of electric railway, five regular steamship lines and 200 transient trading vessels.

These twin cities occupy the proud position of being at the extreme head of navigation of the Great Lakes and are on the through line of travel between China, Japan, and the Pacific Ocean, and Toronto, Montreal, St. John, Halifax, England, or any other place in the wide wide world.

What is inevitably to be a most valuable feeder to this inland seaport, situated as it is in the very heart of the American Continent, is the projected Thunder Bay, Nipigon and St. Joe Railway, to extend from Port Arthur through some of the most valuable mining lands in which are immense deposits of iron, copper and nickel ore and white marble, and which are covered with millions of acres of spruce timber; and there are but few sections where immense water powers cannot be found. We are told that a projection of this proposed railroad will reach the east arm of Dog Lake from whence there will be by navigation, a territory of more than a million acres of land tributary to the railway, a large percentage of which is covered with spruce. The railway crosses the height of land, passing within a few miles of a large deposit of iron ore, of very high grade, down the valley by the river into which all the streams will carry timber, past, over and through virgin forests of ash, elm, pine, spruce, balsam, tamarack, hemlock, red and white birch, mineral and salt springs, sandstone, marls, clay, kaolin, asbestos, limestone, plumbago, red paint ore, mica, gold and silver bearing rocks, farming lands, and an immense deposit of marble in layers of from twelve inches to twelve feet. This is claimed to be the largest known deposit of the kind in Canada, as it extends from within fourteen miles of the C.F.R. at Black Bay to and across the Pash ko Kagan River, and is believed to underlie an area of about 200,000 acres. An earthquake, or some natural disturbance, has here and there thrown up and formed pallsades, where the marble is seen, sometimes capped, other times not. All the colors of the rainbow can be obtained, but white predominates.

CANADA'S FOREIGN TRADE.

The Canadian Trade and Navigation returns for the fiscal year ended with June 30, 1898, which has just been issued, show the aggregate trade of the country with the rest of the world for that year to have been \$304,475,736, of which \$164,152,683 were exports and \$140,323,053 imports. Of the imports, \$130,698,006 were entered for consumption. The aggregate trade for the previous year was \$257,168,862, the increase being \$47,306,000. The exports increased \$26,202,000, while the imports increased \$21,104,000. The duty collected increased from \$19,891,000 in 1897, to \$22,157,000 in 1898. The trade with Great Britain advanced from \$106,639,000 in 1897 to \$137,499,000 in 1898, and with the United States from \$111,022,000 in 1897 to \$124,410,000 in 1898, the trade with Great Britain being \$13,000,000 greater than with the United States. While the average excess of imports over exports since Confederation was \$15,456,000, the excess of exports over imports in 1898 was \$23,729,000.

Of Canada's exports, Great Britain took \$104,998,000 and the United States \$45,705,000, so that we sent to the mother country \$59,293,000 worth more of our products than to the United States. It is interesting to note that the excess of our exports to Great Britain is greater than our whole exportation to the United States. The very opposite condition of trade is disclosed by the tables of imports for consumption. While we bought \$32,500,000 worth from Great Britain, we received goods from the United States valued at \$73,705,000. Canada sold to Great Britain \$104,900,000 worth more than she bought, and took from the United States \$33,000,000 more than she received. The exports to the United States decreased by \$3,600,000. The duty collected on the imports from Britain was \$6,649,000, an increase of over \$400,000 over 1897. The duty collected on United States goods was \$9,941,000, as against \$8,147,000 in 1897, an increase of \$1,800,000.

Canada's trade with France rose from \$3,292,047 in 1897 to \$5,000,613 in 1898. There was a slight decrease with Germany the figures being \$7,538,800 in 1897 and \$7,421,462 in 1898. With Newfoundland trade grew from \$2,144,874 in 1897 to \$2,632,184 in 1898. There was a drop with the West Indies from \$4,322,230 to \$3,829,346. With South America there was an increase of about half a million, or from \$2,026,085 in 1897 to \$2,505,195 in 1898. With China and Japan there was a decrease of half a million, from \$3,300,331 in 1897 to \$2,829,890 in 1898.

The percentage of duty on the total value of goods entered for consumption, dutiable and free, was 16.95 as against 17.87 last year, and the percentage of duty on goods imported dutiable and free, was 15.79, as against 16.68 in the previous year. The exports were divided as follows:—

	1897.	1898.
The mine.....	\$11,550,087	\$14,694,054
The fisheries.....	10,569,088	10,973,977
The forest.....	31,432,294	27,043,072
Animals and their produce..	40,368,260	46,136,138
Agricultural products.....	25,694,267	43,727,779
Manufactures.....	10,300,344	11,879,851
Miscel. articles.....	596,233	455,944
Total.....	\$130,510,573	\$154,901,815
Bullion and coin.....	3,492,550	4,623,138
Estimated amount short returned at inland ports.....	3,947,130	4,627,730
Grand total.....	\$137,950,253	\$164,152,683

Of the \$164,152,683 of exports, \$18,558,298 represents the value of goods not produced in Canada, but exported from the country. Great Britain took of our exports, as has already been stated, \$104,998,818, and we sold to the whole of the British Empire \$110,779,358. Our principal exports to Great Britain were:—Fisheries, \$6,018,125; the forest, \$16,015,381; animals and their produce, \$39,998,466; agricultural products, \$29,579,275; manufactures, \$6,628,811. The principal divisions of exports to the United States, aggregating \$36,454,507, were:—The mine, \$13,338,831; fisheries, \$2,979,404; the forest, \$9,336,252; agricultural products, \$1,133,293; manufactures, \$2,829,510. The Spanish West Indies took from us fish to the value of \$787,727.

It is interesting to note the articles in which our greatest foreign trade took place. The exportation of coal, comparing the fiscal years of 1897 and 1898, decreased from \$3,560,827 in the former year to \$3,456,059 in the latter. Gold-bearing quartz increased from \$2,804,101 to \$3,588,842; copper contained in ore and matte from \$540,439 to \$832,546; lead in ore from \$522,000 to 1,008,000; nickel in ore, matte or speiss, from \$498,000 to \$970,000; silver in ore, concentrates, etc., from \$2,613,000 to \$3,519,000; and, taking all the products of the mine, the increase was from \$11,550,000 to \$14,694,000. There was an increased exportation of fish amounting to \$548,000. Codfish showed a slight decline, but a considerable advance is recorded in respect to canned lobsters and salmon. Of canned lobsters we exported in 1898 \$2,291,000, as against \$2,079,000 in 1897, and \$3,627,000 worth of salmon, mostly canned, as against \$3,109,000 in 1897. Great Britain took of the salmon pack \$3,239,000, and Australia comes next with \$177,600 worth.

A considerable falling off is shown in the exportation of sawlogs, owing to the manufacturing restriction of the Province of Ontario. The exportation amounted to \$1,800,000 in 1898, as against \$2,126,000 in 1897. Practically the whole exportation of pine logs went to the United States. The sale of lumber abroad declined from \$23,871,000 in 1897 to \$19,372,000 in the following year, due to the \$2 duty of the United States. The falling off is principally accounted for in the item of planks and boards, the sale of which was reduced from \$10,832,000 to \$5,625,000. Of this quantity the United States took \$3,707,000. The exportation of all products of the forest was reduced from \$31,432,000 to \$27,043,000.

Of animals we sent abroad in 1898 \$11,914,000 worth, as against \$10,263,000 in 1897. The exportation of cattle increased from \$7,128,000 to \$8,621,000. Of butter Canada sold, chiefly in Great Britain, \$2,523,000 worth, as compared with \$2,253,000 in the previous year. The exportation of cheese increased from \$15,062,000 to \$18,486,000, the quantity exported last year being 208,094,410 pounds.

Last year we sold eggs to the value of \$1,255,000, compared with \$387,000 in 1897. The sale of meats abroad increased from \$6,719,000 to \$8,860,000, the principal advance being in the article of bacon, of which we exported in 1898 \$7,294,000, as compared with \$5,060,000 in 1897. Wool declined from \$1,444,000 to \$201,000. There was a falling off in the exportation of apples from \$2,503,000 to \$1,207,000. The total fruit exportation declined from \$3,154,000 to \$1,779,000.

# CANADIAN MANUFACTURERS' ASSOCIATION.

<p>President: <b>J. F. ELLIS.</b></p> <p>First Vice-President: <b>JAMES KENDREY, M.P.</b></p> <p>Second Vice-President: <b>P. W. ELLIS.</b></p> <p>Treasurer: <b>GEORGE BOOTH.</b></p> <p>Chairman Executive Committee: <b>R. W. ELLIOT.</b></p> <p>Chairman Tariff Committee: <b>W. K. McNAUGHT.</b></p> <p><i>The Executive Committee meet on the Second Tuesday of each month.</i></p>	<p>OFFICES</p> <p><b>McKinnon Building,</b></p> <p><b>TORONTO.</b></p> <p>Tel. 1274.</p> <hr/> <p><b>J. J. CASSIDEY, - SECRETARY.</b></p> <hr/> <p><b>THE OBJECTS OF THIS ASSOCIATION ARE:</b></p> <p>To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.</p> <p>To enable those in all branches of manufacturing enterprises to act in concert, as a united body, whenever action in behalf of any particular industry, or of the whole body, is necessary.</p> <p>To maintain Canada for Canadians.</p> <p>Any person directly interested in any Canadian manufacturing industry is eligible for membership.</p>	<p><b>CANADIAN INDUSTRIAL LEAGUE.</b> President, . . . . . <b>JAS. KENDRY, M.P.</b></p> <hr/> <p><b>WOOLEN MANUFACTURERS' ASSOCIATION,</b> President, . . . . . <b>BENNETT ROSAMOND, M.P.</b></p> <hr/> <p><b>KNIT GOODS MANUFACTURERS' ASSOCIATION,</b> President, . . . . . <b>JOHN PENMAN.</b></p> <hr/> <p><b>CARPET MANUFACTURERS' ASSOCIATION,</b> President, . . . . . <b>J. P. MURRAY.</b></p> <hr/> <p><b>GLOVE MANUFACTURERS' ASSOCIATION,</b> President, . . . . . <b>A. R. CLARKE.</b></p> <hr/> <p>REPRESENTATIVES TO <b>TORONTO INDUSTRIAL EXHIBITION ASSOCIATION.</b></p> <p><b>R. W. ELLIOT.</b>                      <b>GEORGE BOOTH.</b> <b>W. K. McNAUGHT.</b>              <b>A. E. KEMP.</b> <b>J. J. CASSIDEY.</b></p>
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### CANADA'S COMMERCIAL AGENTS.

Following is the correct official list of Canada's Commercial Agents in Great Britain, British Possessions and foreign countries.

**J. S. Larko**, Sydney, N.S.W., agent for Australasia.  
**G. Eustaco Burko**, Kingston, Jamaica, agent for Jamaica.  
**Robert Bryson**, St. John, Antigua, agent for Antigua, Montserrat and Dominica.  
**S. L. Horsford**, St. Kitts, agent for St. Kitts, Nevis and Virgin Islands.  
**Edgar Tripp**, Port of Spain, Trinidad, agent for Trinidad and Tobago.  
**C. E. Sontum**, Christiania, Norway, agent for Sweden and Denmark.  
**D. M. Ronilo**, Buenos Ayres, Argentine Republic, agent for Argentine Republic and Uruguay.

In addition to their other duties, the undermentioned will answer inquiries relative to trade matters, and their services are available in furthering the interests of Canadian traders.

**J. G. Colmer**, 17 Victoria Street, London, S.W., England.  
**Thomas Moffat**, 16 Church Street; Cape Town, South Africa.  
**G. H. Mitchell**, 15 Water Street, Liverpool, England.  
**H. M. Murray**, 40 St. Enoch Square, Glasgow, Scotland.  
**Harrison Watson**, Curator Imperial Institute, London, England.

**IMPORTANT.**—An enquiry addressed to **J. J. Cassidey, Secretary Canadian Manufacturers' Association, Toronto, Canada,** will place you in communication with the leading Canadian Manufacturers of the articles you mention. Merchants and Importers in all parts of the world are invited to make free and full use of the facilities afforded by this Association when they desire information about anything produced in Canada. No charge whatever for answering inquiries.

The exportation of grain was almost doubled, being \$33,783,000 in 1898, as against \$17,432,000 in 1897. Wheat advanced from \$9,265,000 to \$21,933,000. Great Britain took \$20,966,000, of which \$16,477,000 was the produce of Canada. The sale of flour and meal advanced from \$2,201,000 to \$6,016,000; oats advanced from \$1,835,000 to \$3,320,000, and Great Britain took of the produce of Canada \$2,472,000. The insignificant place now occupied by Canadian barley as an article of production and export is shown by the fact that we only sent abroad last year \$199,000 worth, as against \$566,000 worth in 1897. In the list of manufactures, sole and upper leather comes first and agricultural implements second. Of the former Canada exported in 1898 \$1,515,000, as against \$1,444,000 in 1897; of the latter she exported \$1,444,000 in 1898, as against \$762,000 in 1897. Cotton exports declined from \$924,000 to \$527,000, while iron and steel manufactures increased from \$607,000 to \$784,000. A considerable increase in the exportation of wood manufactures took place, that of wood pulp having advanced from \$741,000 to \$1,210,000.

### CANADIAN RAILWAYS.

The report of the Department of Railways and Canals for the fiscal year ended with June 30, 1898, has been published.

When Canadian railways are mentioned the names of the three great trunk lines, the Canadian Pacific, Grand Trunk

and Intercolonial, suggest themselves to the mind, but a reference to the official figures shows that there are no less than 146 railways in actual operation. Some of these are amalgamated or leased, but after allowing for these and excluding the Government railways, there are eighty-four controlling companies in active existence. With all these separate interests it might be expected that the people of Canada would enjoy the boon of competitive rates, but the truth of the statement that competing railways do not compete has been learned to the sorrow and financial loss of many. The completed mileage is 16,870 miles, an increase of 183 miles during the year. This total does not include 2,248 miles of sidings. The magnitude of Canadian railway interests is indicated by the following figures:—The paid up capital amounted to \$941,297,037, an increase of \$19,439,805. The gross earnings amounted to \$59,715,105, an increase of \$7,361,829, and the working expenses aggregated \$39,137,549, an increase of \$3,968,884, compared with those of the previous year, leaving the net earnings \$20,577,556, an increase of \$3,392,945. The number of passengers carried was 18,444,049, an increase of 2,272,711, and the freight traffic amounted to 28,785,903 tons, an increase of 3,485,572 tons. The total number of miles run by trains was 50,658,283, an increase of 4,977,432. The accident returns show five passengers killed.

The Government expenditure on railways prior to and since the date of Confederation (1867) amounts on capital account

to \$123,551,091 (including a payment of \$25,000,000 to the Canadian Pacific Railway Co.), and for railway subsidies charged against the consolidated fund, the further sum of \$17,619,222.11, making a total expenditure of \$140,834,731.29. In addition there has been an expenditure since Confederation, for working expenses, of \$73,029,631.74, covering the maintenance and operation of the Government roads, or a grand total of \$213,863,363.03, all of which, with the exception of \$13,881,460.65, has been expended on railways during the past thirty-one years. The revenue derived from the Government roads during the same period amounts to \$64,510,650.18.

The Canadian Pacific Railway had under traffic during the year 6,334 miles of road. Its gross earnings were \$25,470,796.18 (against 6,314 miles of railway and earnings of \$21,242,638.75 the previous year). The total expenditure for working expenses was \$14,684,790.65, making the net earnings \$10,786,005.53, an increase of \$2,120,167.20 over the net earnings of the previous year. The company carried 3,327,368 passengers and 5,493,030 tons of freight.

#### CANADIAN CANALS.

The following facts having reference to Canadian canals are taken from the report of the Department of Railways and Canals for the fiscal year ending June 30, 1898, just issued:—

The expenditure charged to capital on the original construction and the enlargement of the several canals of the Dominion up to June 30, 1898, was \$72,504,401. A further sum of \$15,067,096 was expended on the repairs, maintenance and operations of these works, making a total of \$87,571,498. The total revenue derived, including tolls and rentals of lands and waterpowers, amounted to \$11,710,240. The expenditure for the fiscal year ending June 30, 1898, was as follows:—On construction and enlargement, \$3,207,249, and a further sum of \$624,755 for repairs, renewals and operation, making a total for the year of \$3,832,005. The net revenue for the year was \$407,662, an increase compared with the net revenue of the previous year of \$22,882. The net canal tolls amounted to \$344,057, an increase of \$22,429, and the rents received to \$44,050, a decrease of \$549. The total expenditure on canal staff and maintenance, repairs and renewals amounted for the year to \$624,755, a decrease of \$8,520, and the total net receipts amounting as above to \$407,662. The amount of expenditure in excess of receipts was \$217,093, compared with an excess expenditure the previous year of \$248,495. The following features of the principal canal traffic during the season of navigation of 1897 will be of interest:—On the Welland Canal 1,274,292 tons of freight were moved, a decrease of 5,595 tons; 1,050,093 tons passed eastward and 224,199 westward; 1,244,750 tons were through freight, of which 1,026,458 tons passed eastward. Of this through freight Canadian vessels carried 345,977 tons, an increase of 4,847 tons, and United States vessels 898,773 tons, a decrease of 3,693 tons. The quantity of grain passed down the St. Lawrence canals to Montreal was 560,254 tons, an increase of 99,205 tons compared with the previous year; of this 89,659 tons were transhipped at Ogdensburg, as against 461,049 tons carried down in 1896, of which 77,355 tons were transhipped at Ogdensburg. The further quantity of 43,023 tons of grain passed down the St. Lawrence canals only to Montreal, making the total 603,277 tons. Seven cargoes of grain, aggregating 2,324 tons, were taken down direct to Montreal through the Welland and St. Lawrence canals.

On the Sault Ste. Marie Canal the total movement of freight was 4,947,063 tons, an increase of 369,660 tons, carried in 4,268 vessels, the number of lockages being 2,604. Of wheat 17,924,802 bushels, and of other grain 3,253,405

bushels were carried; 1,093,456 barrels of flour, also 3,572,854 tons of iron ore and 7,799,156 feet, board measure, of lumber; all these items show a considerable decrease. The total traffic at the point accommodated by the two canals, the American and Canadian, amounted to 18,986,689 tons, an increase of 1,730,266 tons, carried in 17,080 vessels, a decrease of 1,497. The total quantity of wheat carried was 55,931,779 bushels, a decrease of 7,532,097; and of other grain 24,968,136, a decrease of 2,747,129. Of lumber the total was 802,210,156 feet, board measure, an increase of 113,366,356. As having an interesting bearing on the question of canal versus railway transport of grain from the west, it may be noted that whereas grain and peas passed down to Montreal through the St. Lawrence canals to the extent of 560,254 tons, an increase of 64,386 tons over the previous year, the quantity carried to Montreal via the Canadian Pacific and G.T.R. amounted to 228,586 tons, an increase of 74,869. The quantity of grain carried to tidewater on the New York State canals was 569,362 tons, a decrease of 183,677 tons, while the quantity carried by the railways of the State to tidewater amounted to 4,132,740 tons, an increase of 267,980 tons.

Mr. Collingwood Schreiber, the Chief Engineer of Railways and Canals, reports a marked improvement in the manner in which the St. Lawrence Canal deepening works are being carried on. The necessity for fulfilling the wishes of the Government, and the general expectation that the canals should be opened for a fourteen-foot navigation next spring has been strenuously urged upon the contractors from time to time, and they have responded by the increase of their plant and the extension of their organizations—as required of them—putting forward every effort to place their respective sections in a condition for operation by the desired date.

#### CANADIAN GLUCOSE.

In a recent issue of this journal—that of February 3rd—mention was made of the fact that when Lord Strathcona, Canadian High Commissioner in London, was recently in Ottawa, he offered a number of suggestions to the Deputy Minister of Trade and Commerce which, if acted upon, might, he thought, result in the establishment of new lines of commerce between Canada and Great Britain. Among them his Lordship mentioned glucose, saying there was no reason why the manufacture of that article in Canada should not be brought to a high state of development, as all the natural conditions were favorable. Our criticism of this statement was to the effect that Indian corn, the raw material mostly used in making glucose, is grown only in inconsequential quantities in Canada, that the article is admitted duty free, that it had long since been demonstrated that glucose could not be made to advantage in this country, and that jam makers and confectioners have found it to their advantage to use American glucose.

Upon further investigation of this subject we learn that for the past two or three years at least, one Canadian concern, the Edwardsburg Starch Company, have regularly supplied some of the leading confectioners of the Dominion with glucose, manufactured by them at Cardinal, Ont., which is giving good satisfaction, and that where the price is kept down to the level of the American article, or slightly lower, the Canadian article is used nearly every time.

The Edwardsburg Company have on several occasions made trial shipments of their glucose to Great Britain with great success as far as the quality of the goods is concerned, and they would undoubtedly have no difficulty in finding a market there for any quantities that they might be disposed to

send, but the margin of profit abroad is so narrow that there would be no adequate encouragement to engage in the traffic.

The conclusion in this matter is that under the National Policy of tariff protection the glucose industry in Canada has been well established, that it is capable of supplying the home demand, that the article is first-rate and unexceptionable in every particular, that it is in large and growing demand by Canadian confectioners, and that it can be sold at as low price as that made in the United States.

We are informed that during the past year the Edwardsburg Company have very considerably enlarged and improved their works at Cardinal, and have put in new and improved machinery, not so much to engage in export trade but to keep the standard of their goods up to the highest level, and to give Canadian consumers the very best quality of goods that can be made.

#### BRITISH-CANADIAN TRADE.

The following enquiries have been received at the office of the High Commissioner for Canada in London, England.

NOTE.—Those who may desire to correspond with any of these enquirers can obtain their names and addresses by applying to THE CANADIAN MANUFACTURER, Toronto. No charge for giving information. When writing refer to the numerals opposite the enquiries.

1. A London firm, besides desiring to be placed in communication with exporters of canned and evaporated apples, wishes to correspond with a few Canadian exporters of dried plums and kindred fruits.

2. A firm in Liverpool is desirous of being brought into touch with exporters of tinned goods, such as vegetables, fruits, meats, salmon, etc.

3. One of the largest importers of American notions in Scotland will be glad to be placed in communication with manufacturers of corn brooms, wooden pails and other household utensils.

4. A London merchant and agent will be glad to hear from Canadian houses in want of a buying agent for drugs and chemicals (heavy or fine). He is also open to undertake selling agencies.

5. A Glasgow merchant and manufacturers' agent is open to represent reliable firms shipping wood pulp (mechanical and chemical), asbestos, chrome ore, mica, iron ore, oils, oak extract, etc.

6. A wholesale cabinet maker in Glasgow desires to be placed in communication with dealers in walnut and birch, either in logs or dressed. Also with exporters of Canadian furniture.

7. The proprietors of a cycle lubricating oil, lamp oil, chain dressing, metal and furniture polishes, etc., wish to appoint a firm in Canada to act as agents.

8. A well-known firm of produce brokers in Bristol, who do a large business in food products of all kinds—cheese, butter, flour, oatmeal, etc., desire to have the agency of a good packing house and to introduce their brands.

9. A London firm with a large connection, and who can do a first-class business in wood pulp is anxious to secure the agency for one or two Canadian mills.

10. A Staffordshire firm manufacturing sewing silks, machine and silk twists, braids, etc., wish to arrange with a reliable firm to take up their representation, and if necessary to hold stock for them on terms to be arranged. They prefer a firm in a leading city which works all the large towns.

11. A German glass, porcelain and earthenware manufacturer wishes to appoint an agent in Canada, who is well up in those lines.

12. An enquiry has been received from Liverpool for the names of reliable shippers of Canadian chopped baled hay.

13. The manufacturers of a well-known wall decoration wish to correspond with a Canadian firm who would be prepared to act as buying agent.

14. A firm of nurserymen and seedsmen desire to appoint agents in Canada for their goods, which include horticultural tools and appliances.

15. Suitable firms in Montreal, Halifax, St. John, Victoria and other points where there is a demand for imported beer are required to act as agents on consignment for a firm exporting bulk and bottled ales and stout.

16. An Irish manufacturer of Donegal tweeds enquires whether a good market exists for such goods in the Dominion. He desires to get into communication with Canadian buyers.

17. An important firm of manufacturers of wooden shoes—sabots—in Belgium, wish to import Canadian basswood, suitable for making their goods. The timber must be white, soft and easy to split.

#### FOOD SUPPLY IN SOUTH AFRICA.

Consul General Stowe at Cape Town writes:—

“The question of removing the duty on meat and wheat and animals admitted for slaughter is now before the parliament of this colony. A bill has been introduced and will probably be passed, but can not take effect until similar action is taken by the four other states and colonies composing the customs union. The present high price of meat and the loss of cattle and sheep in South Africa from various causes, are the reasons for the introduction of the bill.

“In the year ended May 31, 1898, the loss of cattle from rinderpest in Cape Colony was 410,000 head; drought, 40,800. In Bechuanaland, a dependency of this colony, in the two years from September, 1896, to April, 1898, the loss was 174,614. Adding the territories, a total of 1,400,000 were lost. As to sheep, in the period from May, 1897, to May, 1898, the total loss in Cape Colony was: From drought, 873,000; lack of food, 426,500; wild animals and theft, 142,000; total, 1,895,000. Adding those lost in the dependencies of this colony, the loss came to nearly 2,086,000.

“In many districts, the drought has become graver since the returns in May, 1898. The number of merino sheep had decreased from 8,900,000 in 1894 to 7,187,000 in 1898. Cape sheep had been reduced from 1,700,000 to 1,300,000, and lambs from 2,700,000 to 2,300,000. Goats are being slaughtered, owing to the scarcity of food, and (with the exception of Angora goats, which increased by 350,000 in the four years) the reduction in goats in this period was from 1,800,000 to 1,637,000. Last year alone, from drought and exposure, the loss was 124,000 in the colony proper.

“All over the country farmers are selling their breeding stock for slaughter, and so depleted of meat stock has the land become, and so high are the prices, that the sale of this breeding stock threatens to bring about a meat famine. The price of beef in the cities ranges from 10d. to 1s. 6d. (20 to 40 cents) per pound, and the price for mutton is about 10d. (20 cents) per pound. It was claimed in parliament that mutton can be delivered here for 2½d. (6½ cents) per pound, which, with the duty, would make 4½d. (10½ cents) per pound. Government cold-storage plants are being advocated, although some contend that the municipalities should erect them.

“In reference to wheat and flour, it was stated in the debate that in America wheat was \$1.86 and flour \$2.61 per 100 pounds; that a large fall in price was expected; and that American flour was being adulterated.

“As an example of the present high cost of living here, it was said that an employe of the railroad, married and with three children, draws £12 (\$58.40) per month; that he was obliged to expend for food not less than £7 10s. (\$36.50) per month, and for rent a minimum of £4 10s. (\$26.50) per

month, thereby using up all his wages, leaving nothing for clothing or education.

"Flour is coming in now from the United States; the quotation for the imported article is 17s. 3d. (\$4.27), and that of local manufacture 18s. 3d. (\$4.58) per 100 pounds. Three steamers are just in. Corn meal is also arriving from the United States. This latter article, now regularly imported, is in heavy demand, with inadequate supplies. Shipments on the sea are sold, and this month's imports are large. Quotations are 18s. (\$4.58) per sack of 196 pounds. Samp is arriving this month, and is quoted at 15s. 6d. (\$3.78) per sack. Two ships are now discharging corn and bran from Argentine."

#### EDITORIAL NOTES.

It is announced as a "fact" by The Monetary Times that it "has more readers in more places throughout Canada than any other trade publication." Such a meretricious claim is exceedingly undignified, and we are more than surprised that so eminently respectable a journal should have made itself ridiculous by putting forth a declaration that it is impossible for it to substantiate. No one would be inclined to dispute that it has a large circulation, but our valued contemporary should not attempt to boost itself upon a claim to a superiority that it cannot possibly prove.

The bill appropriating \$500,000 for a national building and exhibit at the Pan-American Exposition to be held in Buffalo in 1901 passed both branches of Congress at Washington, and was signed by the President. The bill passed at Albany setting aside \$300,000 as the State's share in the Exposition has been signed by Governor Roosevelt. These two amounts added to the local subscriptions bring the total already raised for the Exposition to \$2,300,000.

A question and its answer. From The Toronto Globe:—

John Burns, the British Labor representative, says the world moves on its stomach, and it seems that the pinch of hunger is really necessary before injustices can be removed. The people of the German cities are feeling the want of food, and the demand now so modest, if stimulated by hunger, may lead to a removal of the whole protection system. Will the people of the United States wait for widespread want before removing their self-imposed burdens?

President McKinley in his speech to the Commercial Club, of Boston, on February 17th said:—

We have quit discussing the tariff and have turned our attention to getting trade wherever it can be found. It will be a long time before any change can be had or any change desired in our present fiscal policy, except to strengthen it. The differences on this question which existed have disappeared. We have turned from academic theories to trade conditions and are seeking our share of the world's markets.

Is the Globe answered?

The members of the National Association of Manufacturers of the United States are very appreciative of the benefits which they derive from their Association and very much in earnest in supporting it. Before the adjournment of their annual convention that was held in Cincinnati a few days ago, a very practical step was taken intended to increase their membership, and more than fifty of them then present pledged themselves informally to add at least two members each before next October, or in default of this to pay into the treasury of

the Association an amount equal to the dues of two additional members. The form of pledge of those who obligated themselves in this manner at the convention is as follows:—

We, the undersigned hereby pledge ourselves that we will secure at least two new members to this Association between October 1, 1899; failing in doing so, that we will contribute now and to the treasury of this Association the sum of \$50 for either or both of the members so failing; that this amount shall be paid into the treasury without any commissions, reductions or expenses to the Association.

This action of the members in pledging themselves to add new names was wholly informal and not the official act of the Association. It was a spontaneous outburst of enthusiasm and indicated the deep interest taken in the welfare of the Association by those who attended the convention.

The Secretary of the Canadian Furniture Manufacturers' Association has received a letter from Mr. James George Jardine, a member of the Dominion Board of the Paris Exposition, desiring to know what the Association proposes to do in respect to an exhibit. The letter states that the Advisory Board of Commissioners are anxious to have the co-operation of the Furniture Association in preparing the furniture exhibit for the Paris Exposition, and perhaps later on for Glasgow. One thousand square feet of space is to be the limit for household and art furniture, and the manufacturers will have to do the best they can in that space. In the British colonial building, about going up in the Trocadero Gardens, perhaps the best part of the exhibition gardens, the Dominion has 27,000 feet of space, out of 36,000 feet, and in addition 12,000 feet in the main building. The cost of space, transportation from the seaboard, the placing and care of the exhibit in Paris, is to be borne by the Dominion Government.

The model bill for the incorporation of electric railway companies, which Hon. Mr. Dryden has submitted to the Committee on Railways of the Ontario Legislature, is intended to form the basis upon which all companies of this nature may in the future obtain incorporation in the province. The first section of the bill is devoted to a description of the company and its members, who are constituted by section 3 a provisional board of directors. The second clause authorizes the company to construct and operate an electric railway between certain specified points, and to carry it or any part of it along any public highway as may be authorized by the corporations having jurisdiction, subject to the provisions of the electric railway act and to any agreements between the company and the Councils or road companies interested, power being given to make such agreements subject to the provisions of the electric railway act and the municipal act. Section 4 locates the head office of the company, section 5 prescribes the amount of the capital stock, and section 6 fixes the date of the annual meeting. The number of the board of directors and manner of election is set forth in section 7, and the succeeding clause empowers the board to issue bonds up to a specified amount and applies certain sections of the electric railway act. Section 9 provides for the general application of the electric railway act, and the next and last clause revokes the powers granted unless the railway is commenced and completed within a specified time.

Persons who have insisted, in season and out, that Protection is the father of trusts will be bothered to explain how trusts continue to flourish in Great Britain. Another of these combinations of capital is in process of formation among the dyers in the Bradford district, and at last accounts only one large dyeing firm was standing out. The fact is that trusts are born of strenuous competition, and if, as is taught by economists of the Manchester school, competition is whetted by Free-Trade, Great Britain should be a natural home for trusts. Certainly no conditions should be more favorable to growth of trusts than those produced in Great Britain by the intense industrial rivalry that country is meeting, both at home and abroad, from the United States and Germany. Greater economy in production is an industrial necessity for the United Kingdom.—New York Commercial Advertiser.

"You never find a travelling salesman but you find a warm advocate of advertising," observed a well-known salesman. "No man can go on the road to sell goods and watch the trend of affairs without being brought to a quick realization of the fact that the man who is representing a line that is well advertised in the trade papers has a decided advantage over the man who is representing a line that is not advertised. Walk into a country merchant's office, or more correctly speaking, his store, and find him perusing the pages of a trade paper in which you know your goods are not represented, but are equally sure your keenest competitor has an attractive ad., right then and there your enthusiasm begins to wilt, and while you may put up a good talk about your goods being so well known that they don't need to be advertised, and all that sort of stuff, you know at the same time that all the good it will do is that possibly the prospective customer will let you down as easy as he can. This is no longer a theory, but an actual condition that daily confronts every traveller representing lines that from bulkiness or other cause prohibits the carrying of samples. This is an age of newspapers and the business man or politician who ignores his paper is doomed to take a back seat sooner or later."

#### LITERARY NOTES.

Ian Maclaren, the author of "Beside the Bonny Brier Bush," who is now lecturing in the United States, has engaged to write a series of articles for The Ladies' Home Journal, the first of which

will appear in the May issue of that magazine. The general topic upon which he has agreed to write is of the pastor and the congregation. He will emphasize the relation that should exist between a minister and his congregation, how one can aid the other, and other similar phases of church work. Being, as is well known, pastor of a large church in Liverpool, and one of the most popular ministers in England, Dr. Watson is in position to speak by the light of successful experience, and his articles will be read with keen interest.

Scribner's Magazine for April is an Easter number with a special colored cover. It contains a poem for Good Friday, by Mrs. Dorr, with decorations by Henry McCarter; "Easter in Town," a poem with a picture, and a story with a great deal of religious feeling entitled "A Lover of Music." A literary feature beginning in this number is the first serial story in an American magazine by Quiller-Couch, with the poetic title, "The Ship of Stars." The scene of the story is the Cornish coast. Colonel Roosevelt reaches the climax of his narrative of the Rough Riders in the description given in this number of the battle of San Juan Hill. This was the culmination of the Santiago campaign, and Colonel Roosevelt has spared no pains to embody in it every fact of importance in regard to the action of the cavalry in that battle.

The Feilden Publishing Co., Temple Chambers, Embankment, London E.C., England, announces that they are about to publish Feilden's Magazine which will be an important Anglo-Saxon Industrial Engineering Magazine of a unique nature, which will have a prestige and backing second to no other industrial journal. It will combine all that is best, most original and practical in its literary columns with the advantages possessed by securing in its production all that the highest skill in typography, engraving, and paper making can devise, one of the salient features in its programme being the fostering and developing of the cordial relations now happily existing between the English speaking peoples on both sides of the Atlantic.

In the Methodist Magazine and Review for April are six well-illustrated articles. The first is a paper that will attract much attention, "Among the Filipinos," by one of themselves—Ramou Reyes Lala. "The Saint of the Wartburg," by Prof. Wallace, tells the touching story of Princess Elizabeth of Hungary. "A Colonial Pilgrimage," by the Editor, recounts the memories of the Mayflower and the Pilgrim Fathers. "The lepers of D'Arcy Island," is a graphic account of the leper settlement in British Columbia. "A Jew in Jerusalem on Easter Eve," is by the famous Jewish writer, Israel Zangwill. "What Charles Dickens Did for Childhood," by James L. Hughes, throws new light on the spirit of that great novelist. The popular science article is on "Liquid Air." Britain's Naval Leadership of the world is cleverly illustrated.

Outing for April appeals to a soft spot in the heart of the sportsman and the lover of nature. Among its contributions are "Five Weeks Awheel in France," "Ducking in Comfort," "The Hurlingham Club of Buenos Ayres," "Baits and Still Fishing," "An April Fishing Camp," "A Quiet Nook for Anglers," "Staging Through Mountain and Desert," "Spring-Time Rambles in Birdland," "Aquatics' Claims," "Duty and Discipline Afloat," "Four Months on Board the Yankee," by the "Man on the Bridge," and "The Brockville Rowing Club," whilst fiction is superbly represented by the late John Heard's, Jr., story of "The Maid of Tirol." The illustrations are numerous and of the highest artistic merit.

# Transfer Ornaments, AMERICAN MADE.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

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

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## CAPTAINS OF INDUSTRY.

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

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

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

Messrs. Frank Broderick & Co., manufacturers of clothing, etc., who have been located at Chatham, Ont., have removed their business and headquarters to 109 Kingstreet West, Toronto.

Mr. J. R. Booth, of Ottawa, has closed a contract with the Canadian General Electric Company, by the fulfilment of which the machine shops and new car works of the Canada Atlantic Railway, in Ottawa, will be supplied with electrical power generated at the Chaudiere Falls. The electric company will install two three-phased generators, each of which will be of 200 h.p. capacity. The power will be transmitted to the works, three and a-half miles distant, by an overhead line. Besides furnishing power for the car works and the machine shops, this energy will operate the locomotive transfer tables, the travelling cranes and the entire lighting system of the different works and adjoining yards. For the latter purpose 100 enclosed arc lamps will be put in service. It is estimated that this power can be furnished at about one-half the cost of the present motive force.

The town of Palmerston, Ont., has guaranteed the debentures of the Farmers' Co-operative Pork Agency Co., to the extent of \$25,000 in consideration of the company erecting a pork factory in that place.

The Robert Simpson Co., Toronto, who operate a large departmental store, and who occupy one of the finest store buildings in Canada, have acquired the adjoining property at the intersection of Yongo and Richmond streets, including an area of about 6,000 square feet, upon which they will erect an

addition to their present premises and which will be entirely similar in all points of construction.

The Consumers Cordage Co., of Montreal, are fitting out their entire factories with electric power and have placed their order with the Royal Electric Company for two fifty h.p. "S. K. C." synchronous motors. The current for these motors is to be furnished by the Chambly Mfg. Co., as soon as they have their current in the city, which is expected about the first of May.

Messrs. Shurly & Deitrich, of St. Catharines, Ont., manufacturers of saws, will make a considerable addition to their works, which will be transferred the plant they now operate at St. Catharines, Ont., for the manufacture of iron bedsteads.

The Dominion Oilcloth Co. of Montreal, have placed an order with the Royal Electric Company for the complete equipment of their factory with "S. K. C." motors, aggregate over 150 h.p., the different units as required throughout the building in the different departments.

The Toronto office of the J. C. McLaren Belting Co., Montreal, has been removed from Bay Street to 50 Colborne street, continuing under the management of Mr. A. D. MacArthur.

The Esquimalt & Nanaimo Railway Co., who are opening up their coal mines at Oyster Harbor, B.C., have decided to operate the entire mining and hauling apparatus by electricity, and for this purpose have placed their order for two direct connected units of 150 h.p. each, with Ideal engines and two

forty h.p. mining locomotives with switchboards and all the necessary supplies for the complete installation, with the Royal Electric Co. of Montreal. This is the second order that the Royal Electric Company have received for mining locomotives and apparatus on Vancouver Island.

Messrs. Innes, Homeon & Co., Liverpool, N.S., are building a large rotary saw mill, the engine, boiler and other machinery for which have been ordered from the Robb Engineering Co., Amherst, N.S.

Messrs. John J. Keller & Co., 104-106 Murray St., New York, have sent us a circular informing us that they have opened a branch office at 18 Pryor Street, Kumball House Building, Atlanta, Ga., under the management of Mr. Robert Johnson. This old and well known concern now maintain offices in New York, Philadelphia, Boston and Atlanta. They handle aniline colors, dyewood extracts, sumac, nutgall extracts, and all fast colors for wool dyeing. One dip cotton colors, novelties and specialties for calico printing, etc.

The spice and cocoa mills and warehouse of Todhunter, Mitchell & Co., Toronto, was destroyed by fire February 20th. Loss about \$10,000.

The North American Fence Supply Co., Toronto, has been incorporated with a capital stock of \$40,000 to manufacture machinery and material for fencing, etc.

The Voelker Light Company, of Toronto, has been incorporated with a capital stock of \$40,000 to manufacture devices for illuminating and heating purposes.

The Montreal Cotton Co. will enlarge their factory at Valleyfield, Que., increasing the size of the old picker room to make room for four hundred looms in addition to those which are to be placed in the new buildings.

The de Laval Manufacturing Co., Montreal, has been incorporated with a capital stock of \$10,000 to manufacture centrifugal cream separators, etc.

The Lynn Shoe Co., Montreal, are applying for incorporation with a capital stock of \$30,000 to manufacture boots and shoes.

The Acton Hydraulic Power Co., Acton, Que., are applying for incorporation with a capital stock of \$15,000, to acquire water power at and near that place, to be converted into electric energy for commercial purposes.

The factory occupied by the R. Greeno Manufacturing Co., London, Ont., manufacturers of clothing, etc., was destroyed by fire March 19th. Loss about \$5,000.

## INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET **Air Compressors** STRAIGHT LINE  
 DUPLEX and  
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

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

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Mr. J. R. Booth, of Ottawa, will utilize the sawdust that has hitherto gone to waste at his mills on the Chaudiere, near that city. A large sawdust elevating machine has been put in place, and over 100 tons of the material is being taken out of the river daily. Mr. Booth has not fully decided in what manner the sawdust will be used, but in all probability a plant for the manufacture of carbon will be established.

The galvanizing and sheet metal works of Messrs. Douglass Bros., and the paper box factory of Messrs. Elliott & Brooke, Toronto, were gutted by fire March 22nd. Both these concerns were under one roof at No. 122 Adelaide street west. The estimated aggregate loss is about \$40,000.

The corporation of the town of Joliette, Que., are extending their arc system and have placed an order with the Royal Electric Company for one of their fifty light, 2,000 c.p., T.H. Royal arc machines with a full equipment of lamps. This is an addition to their recent purchase of a 120 k.w., S.K.C., generator, with transformer, etc., which was started in operation two weeks ago.

Messrs. Hamelin & Ayers, manufacturers of tweeds, blankets, flannels, stuffs, weaving and knitting yarns, Canadian woolens, etc., Lachute Mills, Que., inform us that during last year they had occasion to double the capacity of their works, and that at this time, finding this increased capacity inadequate to

meet their requirements, are preparing to make yet further enlargements. They make a specialty of felts for pulp mills, having a capacity to produce a thousand pounds of it per day. It is woven endless and without a splice.

The Becker Name Plate Co., 34 Oliver street, Boston, Mass., inform us that they are very rapidly increasing their Canadian business. Mr. August Becker, the head of this concern, has been long and most favorably known to the trade as a manufacturer of artistic and beautiful name plates for dynamos, motors, and all types of electrical apparatus, and for all kinds of machinery.

The Fairbanks Company, Montreal, inform us that they have taken the exclusive Canadian agency for handling the Yale & Towne differential duplex and triplex blocks and other goods manufactured by that concern, a full stock of which will be carried in the Montreal warehouse. The Fairbanks Company are also Canadian agents for the vises and other tools manufactured by the Prentiss Vise Co.

The B. Greening Wire Co., Hamilton, Ont., have just closed a contract for the erection of a new wire cleaning house, which will enable them to greatly increase the output of their wire drawing mill. During the building of this addition they will add thirty feet to their smoke-stack, it being their intention to increase the power by the addition

of 100 h.p., either electric or steam, as may be decided within the next few days.

The Riordon Paper Mills Co., of Hawkesbury, Ont., are lighting their plant throughout by electricity. An order has been placed with the Royal Electric Company, of Montreal, for one of their twenty-five k.w., "S.K.C.," two-phase generators, wound to deliver 110 volts. There will be 200 incandescent lamps installed from this throughout their mills, as well as ten alternating enclosed arc lamps. This is the fifth large mill or factory in which, within the past year, has been installed alternating current apparatus of the "S.K.C.," two-phase type. The company say that this shows the trend toward alternating current apparatus for all purposes; and their opinion is that before many months we will have alternating current street railway apparatus in use in Canada. It is already extensively used in Europe, especially in Switzerland, and the larger companies in the United States are experimenting with it and have already built a new road entirely equipped with alternating current apparatus which is giving perfect satisfaction. We may therefore expect in the near future to have the alternating current in use in every new installation, be it factory lighting, central station or street railway apparatus, it having been shown that it is equally applicable to all three systems at work.

## THE WM. HAMILTON MNFG. CO., LIMITED,

Engineers and Builders

# MODERN MINING and MILLING MACHINERY

## "Gyrating Vanner"

SHAKES LIKE A PAN—SEND FOR SPECIAL CIRCULAR



Department "E"



Contractors for the Design and Construction of Complete Stamp Mills, Concentration, Chlorination, Cyanide, and Smelter Equipments....



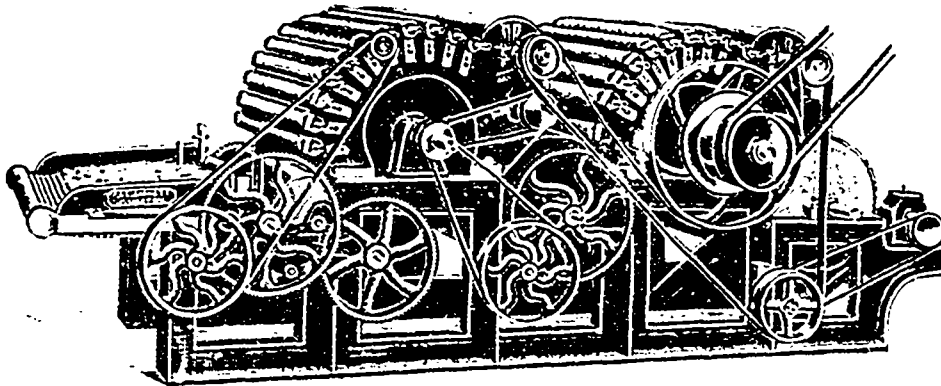
PETERBOROUGH, ONT., or VANCOUVER, B.C.

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# P. & C. GARNETT, Limited

CLECKHEATON, YORKS, ENG.

TELEGRAMS, - GARNETT, CLECKHEATON.



THESE Machines have a world-wide reputation. They are made in various widths up to 60 inches on the wire and with one, two, or three swifts. They can be clothed as fine as 24 rows per inch so as effectually to open the finest threads.

Waste Opener or Garnett Machine, for Opening Hard Twisted Woolen and Worsted Waste.

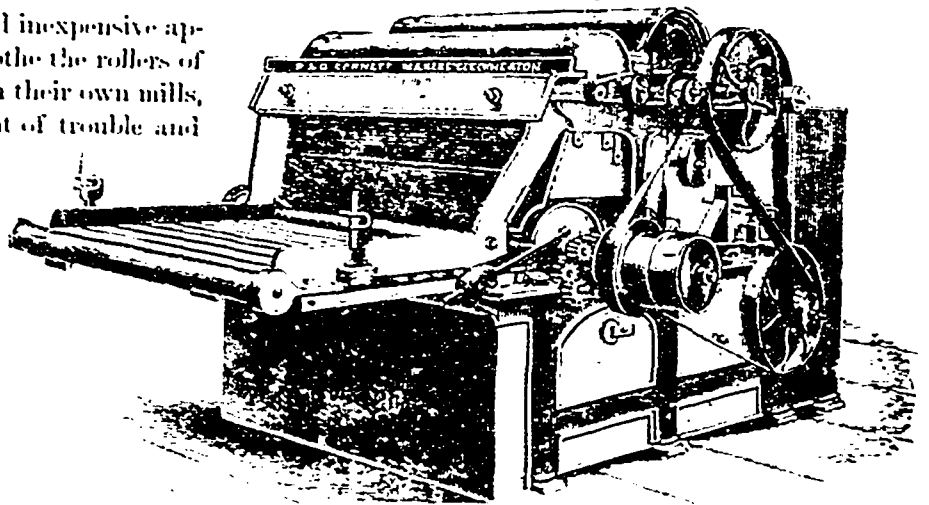


Garnett Wire.

Garnett Wire, or Metallic Card, made with any form of tooth, in Swedish Charcoal Iron or Cast Steel, with points hardened by electricity. This Wire is used for covering iron rollers, breasts of woolen cards, lichen of cotton cards, comber doffers, etc.

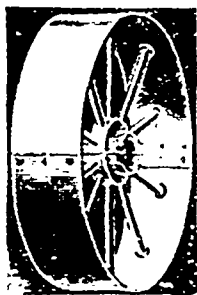
## Patent Garnett Clothing Apparatus

BY means of this simple and inexpensive apparatus parties can re-cloth the rollers of their waste-opening machines in their own mills, and so save an immense amount of trouble and expense in sending their rollers away to be done.



## WROUGHT IRON PULLEYS

Light, True and Unbreakable.



Cast Iron Pulleys.

Improved Wool Cleaning or Burring Machine.

Capable of cleaning 1,500 pounds of wool per day. The very best and most economical machine made for the purpose.

*Iron and Steel Shafting, Couplings,  
Flummer Blocks, W. I. Collars,  
Hangers, Wall Boxes, etc.*

It is stated that Hon. Mr. Blair, the minister of Railways and Canals, has decided to build a million-bushel elevator at Montreal in connection with the Intercolonial railway, and that he will apply for the necessary plant manufacture of their product, promising if this is done to erect a \$3,000,000 plant during the present session of parliament. If this is carried out, and as the railway must eventually have grain elevating facilities at that port it is not likely to be abandoned. The work may be started this year, immediately after the site is chosen.

The Metal Shingle and Siding Company, Preston, Ont., have just completed the erection of a new building, in addition to their works, 112 x 50 feet, which affords them much-needed facilities for their business. The company intend purchasing a new power plant. They have recently put in the necessary machinery for manufacturing a complete line of metal ceilings, interior decorations, etc., and also corrugated iron and standing seam, and other flat roofing. The season is now here when building operations are being pushed with great vigor, and the Metal Shingle and Siding Company are prepared to fill all requirements for their lines of materials.

Mr. John Patterson, of the Cataract Power Co., Hamilton, Ont., is, it is said, the moving spirit in a plan to consolidate all the radial roads in the neighborhood of that city

and acquire the street railway franchise. Some of the principal stockholders of the Cataract Company are in control of the Hamilton Radial Railway Company. The plan is to get control of these companies, also to build a line to Guelph, Ont., and perhaps to other points, and have them furnished with power by the Cataract Company.

The Davis Dental Manufacturing Co., Toronto, has been incorporated with a capital stock of \$20,000 to manufacture dental and surgical supplies, etc. Mr. George P. Davis is at the head of the concern.

Messrs. Matthews Bros. & Co., manufacturers of picture frames, etc., whose Toronto factory was recently destroyed by fire, will erect another factory at Toronto Junction.

One not very familiar with the manufacture of leather belting and its uses might be inclined to think that the trade in this line is not very extensive, especially so when it is known that belts made of good leather and properly put together last for so many years. Nevertheless, the output in this particular line is exceedingly large. A representative of THE CANADIAN MANUFACTURER a few days ago incidentally called at the Toronto office of Sadler & Haworth, manufacturers of leather belting, and was shown orders, which have not yet been filled, for double and single leather belting of all widths to forty inches wide, from saw mill owners,

cotton, woolen and flour mill owners, foundries and other factories, for upwards of seventy-five thousand feet. Our representative was informed that this quantity was exclusive of the orders on hand at their Montreal factory. This is certainly an indication of great prosperity among the manufacturers of Canada.

The ratepayers of the town of Midland, Ont., have, as was to be expected, voted almost unanimously for a bonus of \$50,000 to the Canadian Iron Furnace Company who will immediately proceed to the erection there of a modern charcoal iron blast furnace which will cost about \$250,000.

Messrs. J. A. Culverwell and F. W. Barrett, of Toronto, and associates have formed themselves into the Burleigh Falls Lindsay-Peterborough Electric Syndicate, and have acquired the Burleigh Falls, near Lindsay, that has, it is claimed, a minimum capacity of 3,000 h.p., and a contiguous and available reservoir equivalent to 1,500 h.p. It is the purpose of the syndicate to put in machinery, and to transmit 1,500 h.p. to Lindsay for lighting and other commercial purposes, leaving a balance of 3,000 h.p. available for use in Peterborough for similar purposes.

The Beaver Manufacturing Company, Hamilton, Ont., has been incorporated with a capital stock of \$20,000 to manufacture shirts, white wear, etc.

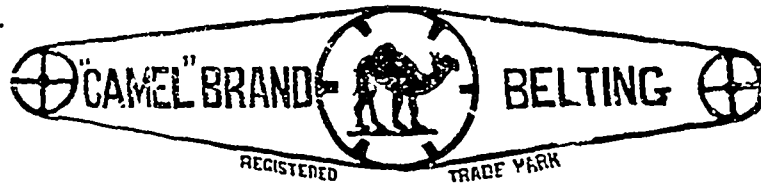
**REDDAWAY'S ORIGINAL**

**CAMEL BRAND HAIR BELTING**

**STRONGEST BELT MADE. NO STRETCHING.**

NOT AFFECTED BY DAMPNESS.  
HEAT OR STEAM.

WRITE FOR PARTICULARS. LARGE STOCK ON HAND.

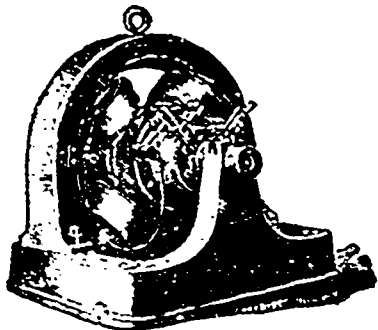


Fire Hose, Steam Hose, General Mill Supplies.

**W. A. FLEMING & CO.,** SOLE AGENTS FOR CANADA, 57 St. Francois-Xavier St., Montreal.

**Toronto and Hamilton  
ELECTRIC CO.**

(Late KAY ELECTRICAL MANUFACTURING CO.)



**ELECTRICAL MACHINERY  
HIGH-CLASS ONLY.**

**255-7 James St. N., HAMILTON.  
Phone 958.**

**To Lease.**

Two Large Four-Story Factories. One

140 x 40 ft.

The other 90 x 60 ft.

**RENT, \$1,500 EACH PER ANNUM.**

Well Lighted. Shipping facilities the very best by both rail and boat, premises being situated on water front at corner of

Esplanado and Jarvis Streets,  
**TORONTO.**

Possession Immediately.

Apply to

**TORONTO CARPET MFG. CO.  
TORONTO.**

**The Electrical Construction  
Co. of London, Limited.**



**MULTIPOLAR MOTORS & DYNAMOS**

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

HEAD OFFICE AND FACTORY

No. 90 YORK STREET, London, Canada.  
50 Main St., Winnipeg.

12 York St., Toronto. 141 Grayville St., Halifax.

The Wellington Opera House at Nanaimo, B.C., was destroyed by fire March 18th. Loss about \$20,000.

The Quebec Electric Railway Company is busy making arrangements for applying electric power to the entire sixty miles of its road. At present it employs electric power only in the city of Quebec. During the year it is to be applied also to the railway to La Bonne Ste. Anne. The right of way has also been acquired for the new road to be built and operated by the company from Quebec to the Falls of Montmorency, parallel with the turnpike road through the village of

Beauport. A good portion of the \$1,500,000 of new bonds issued by the company will be used in these works.

The Hamilton Brass Manufacturing Company, Hamilton, Ont., have sent us their new catalogue having reference to some of the machinists' supplies manufactured by them. Mention is made of wood plug oilers—an automatic oil cup for machinery and shafting bearings in which the feed starts when the machinery starts, and stops when the machine stops; Jenkins' globe and angle valves, check valves, "T.J.C." swing check valve, steam cocks, compression and

register gauge cocks, compression air valves, safety valves, steam whistles, combination whistle chimneys, flue cleaners, water gauges, sight feed lubricators, "T.J.C." injector, etc. Mr. I. J. Carroll, the manager of the Hamilton Brass Manufacturing Co., is the inventor of many of the goods alluded to. The letters "T.J.C." always being synonymous of articles long and favorably known on the Canadian market.

The Odd Fellows of Goderich, Ont., will erect a fine large building in that place, in which will be included an opera house, Masonic and Odd Fellows' lodge rooms, etc.

# SADLER & HAWORTH

Manufacturers of

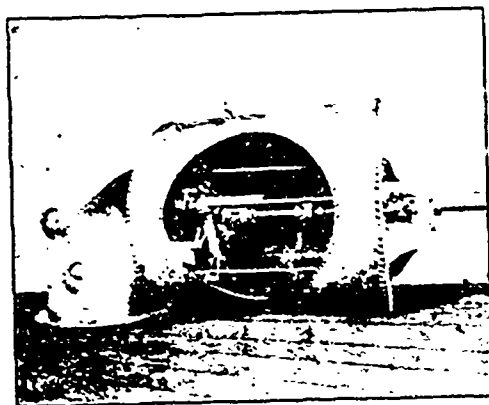
## OAK-TANNED LEATHER BELTING

MONTREAL AND TORONTO.

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

# The Crocker Patent Turbine

WE MAKE A SPECIALTY OF SUPPLYING



35-inch Crocker Wheel in Horizontal Setting, for Shipton Electric Light and Power Co., Danville, Que.

**COMPLETE  
WATER POWER  
PLANTS**

Designed to meet the working conditions in each instance, and to yield the highest efficiency obtainable thereunder. Every detail constructed in a thorough and substantial manner, and the whole equipment installed on the site by our own workmen, especially skilled in this class of work.

If you are interested in water power in any way, we should take pleasure in supplying you with information regarding our work in the above line.

Catalogue Free on Request. Correspondence Invited.

## The JENCKES MACHINE CO.

42 Lansdowne St., Sherbrooke, Que.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

**CONVEYING APPARATUS.**

The New Conveyor Company, engineers, iron founders and millwrights, Smethwick, England, have sent us a brochure entitled "Labor Economy," a paper written by Mr. Archie S. B. Little of that company, and recently read before the Birmingham Association of Mechanical Engineers. To illustrate the advantages to be derived from the use of the conveyors made by this company, we clip a paragraph from Mr. Little's paper which says:—

The difficulty experienced in describing and illustrating examples of successful installations of conveying machinery lies in the infinite number and variety of such plants, which are to be found in nearly every kind of shop and warehouse, dealing with almost all classes of materials and substances, including bottles and bolts, coal and cocoa, sugar and sand, starch, corn-flour, olives and fish, tin cans and boxes, tobacco and tea, and phosphates and pulp, ice and hot coke, guano and clay, gold quartz and rags, nails and pins, newspapers and salt, and, in fact, nearly every known article.

**CAST IRON PIPE.**

The Gartshore-Thomson Pipe and Foundry Company, Hamilton, Ont., manufacturers of cast iron pipe from three to sixty inches diameter for water, gas, culvert and sewer;

and also of all kinds of special castings, hydrants, valves, etc., have sent us an exceedingly neat and useful vest pocket edition of standard weights of cast iron pipe, giving internal diameter, weight per foot in lengths of twelve feet and six feet, which weights, they say, can be varied to suit requirements, a table of approximate weights of different sizes of tees and crosses, also of caps, bends, reducers, sleeves and plugs.

Regarding the business facilities of this old and well-known concern they say:—

We have first-class facilities for making pipes, having a switch right into our yard.

We can ship by Grand Trunk Railway, Canadian Pacific Railway, Toronto, Hamilton and Buffalo Railway.

We melt fifty tons of iron per day.

We can fill orders on shortest notice.

We manufacture all sizes of flexible pipes, either in twelve-foot lengths or simply the joint—also flange pipe and specials.

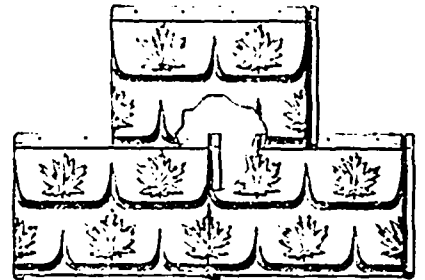
Although we make a specialty of water-works supplies, we are ready to bid on all kinds of castings, also hydrants and valves.

**THE ACETYLENE MANUFACTURING COMPANY.**

The Acetylene Manufacturing Company, of London, Ont., is being organized with a capital stock of \$300,000, for the purpose of acquiring the business, plant, patents, etc.,

**IF PEOPLE ONLY KNEW**

the advantages of using metal roofing constructed on our patent "SAFE-LOCK" principles they would not accept a substitute.



**OUR "SAFE-LOCK" SHINGLES**

interlock each other on all four sides—leaving no openings for snow or rain to get in. They are easily put on by anyone—are practically fire and lightning proof and give a building a neat finished appearance. We can tell you more. Ask for free catalogue and samples.

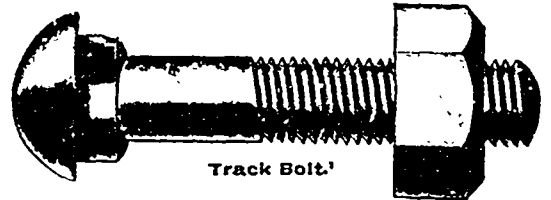
**THE METAL SHINGLE & SIDING CO. (LIMITED)**

**PRESTON, - ONTARIO.**

**WE**

**MANUFACTURE**

*Track Bolts and Nuts,  
Bridge and Roof Rods,  
Wrot and Cast Washers,  
Railroad and Contractors' Supplies,  
Carriage, Machine, Plow and Special Bolts,  
Bridge and Boiler Rivets,  
Drop Forgings of all Kinds.*



Track Bolt.

SEND FOR ILLUSTRATED CATALOGUE.



Coach Screw.

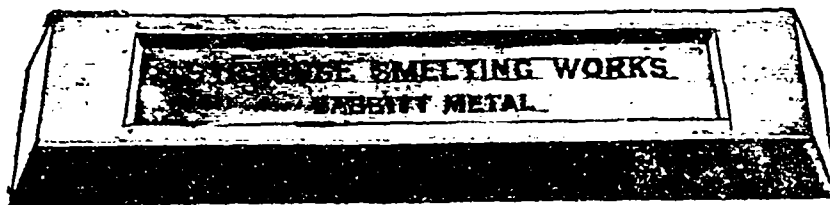
**The SWANSEA FORGING CO., Limited,**

**SWANSEA (NEAR TORONTO).**

**Use Syracuse Babbitt Metal**

IT IS THE BEST AND CHEAPEST FOR

**WORKS:**  
332 WILLIAM STREET,  
MONTREAL,  
Canada  
AND  
SYRACUSE,  
N.Y., U.S.



Paper and Pulp Mills. Saw and Wood Working Machinery, Cotton and Silk Dynamos, Marine Engines and all kinds of Machinery Bearings.

Pig Tin, Lead Ingot, Copper, Brass, Aluminum, Zinc, Spelter, Antimony, etc., furnished promptly.

**SYRACUSE SMELTING WORKS.**

AGENTS IN CANADA:—A. R. WILLIAMS MACHINERY CO., Toronto; MECHANICS SUPPLY CO., Quebec, JOHN J. BARRY, St. John, N.B., H. H. FULLER & CO., Halifax, N.S.

**USE THE**  
**..CHICAGO..**  
**NUMERICAL OR AUTOGRAPH**  
**TIME RECORDER**

**For Keeping Time of Employes.**

The Record becomes visible the instant you register, thus producing an

**ABSOLUTELY INDISPUTABLE and LEGAL RECORD.**

The Only Recorder possessing this feature.

What users say of this feature :

We would not have a Time Recorder that did not possess this feature. A. BOLTHER'S SONS, Chicago, Ill

We would rather retain the old system than use a Time Recorder where this is not possible. A. S. KLEIN CO., Chicago, Ill.

We give a 30 days trial free of charge. Send for Circular or notify our Agents and they will call.

**CHICAGO TIME REGISTER CO., CHICAGO, ILL.**

SOLE AGENTS FOR CANADA:

**W. C. BULLOCK & CO.,**

42 York Street, TORONTO, ONT.



Numerical (or Key) Recorder

of the Acetylene Lighting Company of that city, and continuing the same on an enlarged scale. The original company went into business in November, 1897, and for a while had all their acetylene lighting machines made for them with the usual unsatisfactory results, and at the beginning of the current year they started up their own factory, in which they have been producing large numbers of their Sun Lighting Machines which have given great satisfaction to all who use them, the machines being made under what is known as the Stinson patent.

A circular of this new company informs us that one of the largest fields for the use of acetylene gas is for cooking purposes when used in connection with the lighting apparatus, and that Stinson's patent duplex machine is adapted for supplying both heat and light; and the company propose to manufacture a line of gas stoves and ranges for use with this machine.

The company will also manufacture an apparatus for lighting railway coaches and locomotive headlights, which will supply a light equal to that supplied by a house-lighting machine, and always at a uniform pressure. They also manufacture special photographic apparatus for photographing without the use of sunlight.

The company announce that they will manufacture the Crescent acetylene gas

**..TO LEASE..**

....OR....

**FOR SALE**

**LARGE THREE-STORY BRICK FACTORY**

Formerly occupied by Cobban Manufacturing Company, corner Trauley and Hayter Streets, Toronto. Over 10,000 square feet flooring, Boilers, Engine, etc., also yard accommodation.

W. & E. A. BADENACH,  
 15 and 17 LEADER LANE, TORONTO.



**HAIN'S LATEST IMPROVED WATCHMAN'S TIME DETECTOR**

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

For Circulars, prices and further information address

**A. NANZ & CO., 115 Chambers St., NEW YORK**

This Clock received the First Prize at World's Fair

**NAME PLATES FOR**

WRITE FOR PRICES.

**BECKER NAME PLATE CO.,**

34 OLIVER STREET. - BOSTON, MASS.

**DYNAMOS, MOTORS, ANY TYPE OF ELECTRICAL APPARATUS AND ALL KINDS OF MACHINERY**

**THE TORONTO PATENT AGENCY, LIMITED**

TORONTO, CAN.

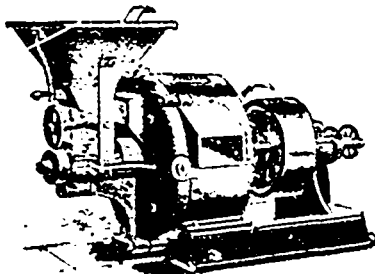
Head Office, 79, 89, 91 Confederation Life Building.  
 CAPITAL, \$25,000.00.

Patents obtained. Patents sold on commission. Provincial rights sold. Most actual sales. Best results. Quickest work. Honest Treatment. Oldest company. Reliable references. All patent business promptly attended to. Valuation and prospectus of any patent furnished on application.

**Pipe and Boiler Coverings, Engine Packings,**

LUBRICATING OILS, GREASES, AND BOILER COMPOUND, COTTON WASTE, ETC.

**EUREKA MINERAL WOOL and ASBESTOS CO., 136 Bay Street, - Toronto.**



**ROCK**

CRUSHERS

**EMERY**

**MILLS**

AND

**MILLSTONES.**

FRENCH BUHR AND ESOPUS STONES. *Send for Circular.*

**STURTEVANT MILL CO.**

BOSTON, MASS.

burner. As far as our information goes no acetylene burner is manufactured in Canada, and no doubt this new Canadian product will supply a large proportion of the home demand for the article.

It is claimed that acetylene gas can be used to good advantage in supplying power for automobile carriages, delivery wagons, etc., and that it will supplant gasoline as a motive-power in machine shops, etc. The company will be in a position to profitably undertake the manufacture of engines of this type.

They also propose to manufacture calcium carbide, which, they say, can be produced at a cost of about \$20 per ton—less than one-third of the present market value of the article.

The Ontario Wind Engine and Pump Company have recently made a shipment of four windmills for Cyprus, and they are in

receipt of a letter from Her Majesty's representative there, stating that the previous outfits were giving every satisfaction. This is very gratifying, not only to the firm, but to the country at large. The company are looking for a large increase in this trade in the near future, as their 1898 export trade was a growing one.

**NEW INDUSTRIAL COMPANIES IN ONTARIO.**

The following companies have been granted charters by the Ontario Government—  
The Parry Sound Copper Mining Company, Limited, with a capital of \$5,000,000. The head office of the company will be at Parry Sound and the provisional directors are Messrs. Frank Johnson and associates.

The Carman Natural Gas Company of Ontario, Limited, capital \$30,000; head office, Petrolia. The provisional directors are Francis J. Carman and associates.

Woodstock Express Printing Company, capital \$25,000. Provisional directors—D. W. Kern, Arthur B. Lee and associates.  
Prince Edward Peat Fuel Company, capital \$20,000. The provisional directors are Richard Hadden and associates, of Hal lowell, Ont.

Baxter & Galloway Company, millers. Head office, Burlington; capital \$20,000. Provisional directors—Richard G. Baxter, Frederick W. Galloway and associates.

Copper King Mining Company; capital \$150,000; head office, Windsor. Provisional directors—Henry O. Walker and associates.

Reeves Pulley Manufacturing Company, capital \$10,000; head office, Toronto. Provisional directors—Daniel T. McNeil of Ann Arbor, Mich., Arthur W. Johnston and associates, of Toronto.

Messrs. John Wright & Sons, flour millers at Owen Sound, Ont., have recently added much new and improved machinery.

# Shafting, - Hangers, - Pulleys.

## WE MANUFACTURE

And carry a full line of the above requisites for Factory and Mill purposes. Send us your specifications! Our prices will surprise you! Afterwards our goods and prompt shipment will please you.

We issue a 270 Page Catalogue FREE for the asking.

## DODGE MANUFACTURING CO. of Toronto, Limited,

Works, Toronto Junction. Office, 74 York St., TORONTO.

Headquarters in Montreal—LAURIE ENGINE CO., 321 ST. JAMES STREET.



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

Wire Screens for Every Class of Material.

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

Special Attention given to Miners' Requirements.

## TO MANUFACTURERS...

Bar Iron, Steel, Boiler Plate,  
Rivets, Tube Expanders,  
Hammers, Metallic Letters  
and  
Figures for Patterns.

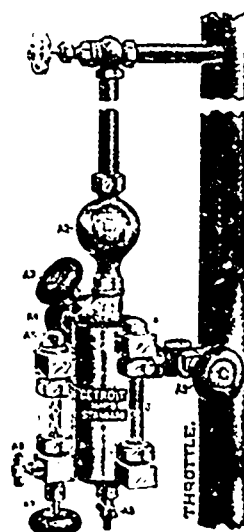
## RICE LEWIS & SON

(LIMITED)

COR. KING AND VICTORIA STREETS, TORONTO.

ADVERTISE IN THE CANADIAN MANUFACTURER.

SEND FOR RATES.



## THE BEST JUDGES OF ENGINES

THOSE WHO BUILD HIGH-GRADE ONES  
ALL USE

## The Detroit Sight-Feed Lubricators

This is equally true of Canadian as of American engine builders. They know that the valve friction must be overcome if their engines are to work at their best. They know from experience that the Detroit Lubricators do this, and where so much is at stake they want only the best. It should be the same with all engine owners. The saving our Lubricator effect will pay for themselves very soon.

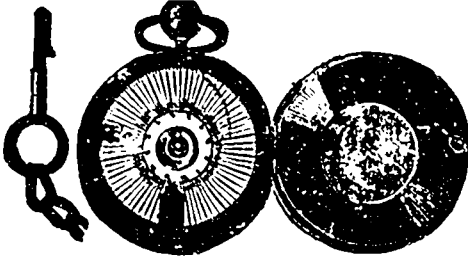
Send for Catalogue and Prices.

**Detroit Lubricator Co.,**  
DETROIT, MICH.



**HAHN'S WATCHMAN'S TIME DETECTOR.**

The accompanying illustration is of Hahn's Watchman's Time Detector with Safety Lock Attachment, for which Messrs. A. Nanz & Co., 115 Chambers St., New York.



are sole agents for Canada and the United States.

The clock consists of a movement, revolving a dial, which is supplied with an independent spring, so that it cannot be turned back; is divided into hours and minutes, and when operated with the keys it records the fact upon the dial, and also the time at which the watchman made his rounds.

One of the great advantages of this clock is that the registering is done by numbers

ranging from 1 to 6, 1 to 12, and 1 to 18, instead of, as in the old style time detectors, marking only either by holes or by an impression on the dial, which is the same for all stations.

The movement is separate from the recording mechanism, full jewelled, lever movement, and will run about sixty hours.

The keys should be fastened by staples driven through the link of the safety chain to which they are attached at the different stations the watchman has to visit.

The clock has to be provided daily with a new dial, on which the date of the night should be written, after which it should be wound up and locked before giving to the watchman.

The recording is done by inserting the keys into the clock and turning them to the right once, which perforates the dial with the number of the station.

The case of the clock is brass, heavily nickel-plated, also the keys.

On the delivery of the clock in the morning it can be seen at once how often, and at what time, the rounds have been made during the night, how long the watchman stayed at the station, and whether all the stations—even the most isolated ones—have been visited on each round; in short, the

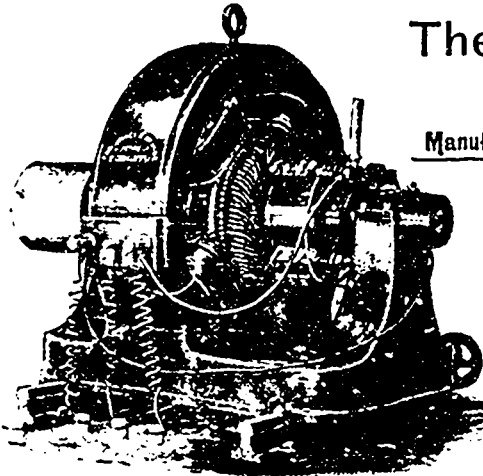
marked dial tells the exact history of the night's doings.

For further information apply as above.

The McCloskey Wire Fence Co., Windsor, Ont., has been incorporated with a capital stock of \$40,000 to manufacture fence-making machinery, tools, supplies, etc.

Mr. S. R. Ickes, of Harrisburg, Penn., was in Woodstock, Ont., a few days ago, negotiating with the town council with a view to establishing a line of street railway there. Mr. Ickes represents an American street railway syndicate, and according to his statement they are not looking for any financial assistance. All they want is a franchise. The syndicate proposes to connect Woodstock and Ingersoll, Ont., with a service in both towns, the powerhouse to be erected midway, at Beachville.

Messrs. J. M. Wilson, George Monzies and W. E. Todd, of Owen Sound, Ont., have associated themselves together as the Owen Sound Iron Works Company, and have commenced business as general iron founders, etc., in the shops formerly occupied by Messrs. Geo. Corbett & Sons.



## The Jones & Moore Electric Co.,

Manufacturers and Contractors

All Work Fully Guaranteed

ELECTRIC LIGHT and  
POWER PLANTS a Specialty

A Few Second-Hand A 1 Machines  
For Sale Cheap

20 and 22 ADELAIDE STREET WEST  
TORONTO

ESTABLISHED 1823.

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

# WILSON BROS. BOBBIN CO.

(LIMITED)

CORNHOLME MILLS, TODMORDEN, ENGLAND.

BOBBIN AND SHUTTLE MANUFACTURERS.

THIRTY PRIZE MEDALS AWARDED.

HIGH-CLASS WORKMANSHIP. SEVENTY YEARS' REPUTATION.

LARGEST BOBBIN MAKERS IN THE WORLD—(Over 1,200 Workmen).

ADDRESS—

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BRANCH ESTABLISHMENT:

ATLAS BOBBIN WORKS, GARSTON, LIVERPOOL.

OFFICE AND SHOWROOMS

14 MARKET PLACE, MANCHESTER

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Engine Packing,

Magnesia Pipe Covering

Lubricating Oils

and Grease.

The

**William C. Wilson Co.**

Limited

24 FRONT STREET EAST  
TORONTO, ONT.

**JNO. R. CASSIN CO'Y.**

Spokane, Washington.

**MINE PROMOTERS  
and ASSAYERS.**

Reports made on Mining Properties,  
and advice given on the merits of  
Mining Stocks and Properties.

CHARLES F. CLARK Pres. JAMES CHITTENDEN, Treas.  
ESTABLISHED 1819.

### THE BRADSTREET MERCANTILE AGENCY

THE BRADSTREET COMPANY, Proprietors  
346 & 348 Broadway, NEW YORK.  
Offices in the principal cities of the United States, Canada, the European Continent, Australia, and in London, England.

The Bradstreet Company is the oldest and financially the strongest organization of its kind—working in one interest and under one management—with wider ramifications, with more capital invested in the business, and it expends more money every year for the collection and dissemination of information than any similar institution in the world.

TORONTO OFFICES:  
McKinnon Bldg., Cor. Jordan & Melinda Sts.  
THOS. C. IRVING, Superintendent.

### THE CLIFF-WARDLAW GENERATOR.

The Safety Light and Heat Company, Dundas, Ont., manufacturers of Cliff-Wardlaw Acetylene Gas Generators, inform us that last week they sent three of their generators to Calcutta, India; one to Philadelphia, Pa., one to Toronto, two to St. John, N.B., and one to Gananoque, Ont.

This company are in receipt of a large number of testimonials from parties who are using this generator, some of which are as follows:—

The Vernon News Publishing Company, Vernon, B.C., Feb. 25, 1899.—The 10-light Safety Acetylene Gas Machine purchased from your Mr. Sparling has been in use in the office, composing and press rooms of the Vernon News since the beginning of the year, and it is giving excellent satisfaction. The light is clear, strong and much easier on the eyes than other forms of artificial light, and is admirably adapted for our pur-

pose. The machine is easily operated and requires little attention. The automatic device for removing the ash from the carbide works to perfection. We find that there is no over-generation of gas, and consequently no waste. The ash is always dry when removed. Considering the volume of light we find it more economical than coal oil, and we can confidently recommend the Safety generator as a very excellent machine.

Mr. George R. Hawkins, Seeley's Bay, Ont., Feb. 22, 1899:—The 15-light machine put in by you in my premises is perfectly satisfactory. I also find that in lighting my store it is cheaper than coal oil. I would not have it taken out and do without it for twice what it cost.

Mr. James D. Torrie, Hillsburg, Ont.:—The light is fine and very cheap, not costing more than one-half the price of coal oil.

Rev. F. W. Murray, 'The Manse,' Milltown, N.B.—The machine placed in our church by your agent works perfectly, doing exactly what you claimed. The light is far superior to anything we have yet seen, being exceedingly free from any tendency to irritate the eye. The cost is far below that of any illuminant we know of.

Messrs. J. & E. Lyons, North Bend, B.C.:—We are using your machine for some time. It works like a charm. It is everything you claim it to be. We will recommend it to all merchants in British Columbia, as it is far superior to other machines which we have seen.

Lancaster Machine Works, Lancaster, Ont. Enclosed please find cheque to cover account. We have set up the machine, and it is giving good satisfaction.

Wm. Urie, Chairman Board of Managers, Carluke, Ont.:—The Acetylene Gas Machine purchased from you for St. Paul's Presbyterian Church, Carluke, continues to give good satisfaction.

W. F. Cameron, merchant, Vernon, B.C.:—You are quite right in saying that a boy of fourteen could run one of the machines. I find it less work than keeping one Rochester lamp in order. I have the machine in the



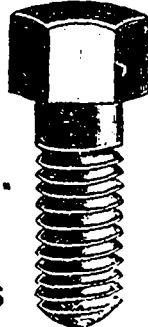
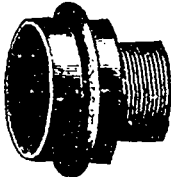
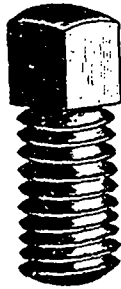
## WATER WHEELS

For Heads of 3 Feet to 2000 Feet.

ADAPTED TO MILLING AND ALL POWER PURPOSES.

Recent tests at Holyoke enable us to guarantee:  
*The Largest Power ever obtained from a wheel of the same diameter. The highest speed ever obtained for the same power. The highest mean efficiency ever obtained when running from half to full gate. We guarantee also: A runner of the greatest possible strength. A gate unequalled in quickness and ease of opening and closing.*  
Write for pamphlet, stating your Head.

JAMES LEFFEL & CO., Springfield, Ohio, U.S.A.



The Diamond  
Machine & Tool Co.

TORONTO, ONT.

Manufacturers of...

Machine Screws

OF EVERY DESCRIPTION.

SEND FOR  
CATALOGUE  
and  
PRICE LIST.

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Leather Belting,  
Lancashire Hair,  
English  
Card Clothing,

D. K. McLAREN

Head Office and Factory—  
VICTORIA SQUARE, - MONTREAL  
Stock Depots—Ottawa, Galt.

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WESTERN TRADE:—Toronto Stock Depot.

69 BAY STREET.

Phone 374.

## STORAGE BATTERIES

THE LIGHTEST. THE STRONGEST. THE BEST.

If you use Electricity wo Batteries Repaired and Recharged  
can save you Money. at Reasonable Rates.

The Croftan Storage Battery Co.

W. M. H. NELLES. CANADIAN BRANCH. REIN WADSWORTH.  
22 Sheppard Street, Toronto, Ont.

THOMPSON & CO., Manufacturers  
of  
BOBBINS and SPOOLS

FROM SELECTED STOCK.

Correspondence Solicited  
Orders Promptly Filled..... • SHERBROOKE, P. Q.

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CORRUGATED SHUTTLES  
FOR WEAVING FROM COP?

WE MAKE THEM.

Write for Prices and Samples.

JOHN HOPE & CO., LACHUTE SHUTTLE and  
BOBBIN WORKS,  
LACHUTE, QUE.

collar in an air-tight room, with a window that I open when charging it, so that my arrangements are about perfect.

Mr. P. C. Campbell, Caledon East, Ont.—Enclosed please find express order in settlement of my account in full. The machine is giving perfect satisfaction.

Price Ellison, Esq., M.P.P., Vernon, B.C.:—The 15-light machine purchased from your Mr. Sparling has been in use in my home for over two months, and is giving excellent satisfaction. It is the very model of simplicity, and is very easy to operate. There is no waste from over-generation of gas, and the light is at all times clear and steady.

C. W. Pabst, Esq., Seaforth, Ont.—I have had a 25-light Safety in use in my store for the past nine months and I am very well pleased with it.

J. S. Wardlaw, M.D., Galt, Ont.—I am very much pleased with the machine you put

in my house and office, the light is excellent for my purpose. It has been in use steadily for over a year.

F. J. Fowke, Esq., Mayor of Oshawa, Ont.:—The machine placed with me by your Mr. Borsbery is quite satisfactory, the light is beautiful.

A. S. Chrystal, Esq., Goderich, Ont.:—The 80-light machine installed in the North St. Methodist Church is giving every satisfaction. The church was never so brilliantly illuminated before, and the congregation is satisfied.

The Metropolitan Electrical Company, of Ottawa, organized for the purpose of supplying electric light and motive power to Ottawa and the surrounding district, which includes many growing and prosperous towns, has issued its prospectus. The company has already been incorporated, and the authorized capital stock is placed at \$500,000. Thomas Lindsay, of Ottawa, is the president of the

company. It is confidently believed that the new company will be successful from the outset, and as Ottawa, with its immense water-power advantages, is fast becoming a manufacturing centre, the prospects for future development are exceptionally bright. The company will obtain its water-power from the Deschene Rapids, near Britannia, about six miles from the city. By estimates obtained from reliable contractors and electrical works in Canada and the United States, the total cost for developing a 5,000 h.p. plant, at this point, fitted with the very latest electrical machinery, with all necessary stations, sub-stations, turbine wheels, generators, transformers, line construction in the city and elsewhere, will be \$350,000.

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**A. R. WILLIAMS MACHINERY CO.**

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Manufacturers of and Dealers in

High-Class Iron Tools,

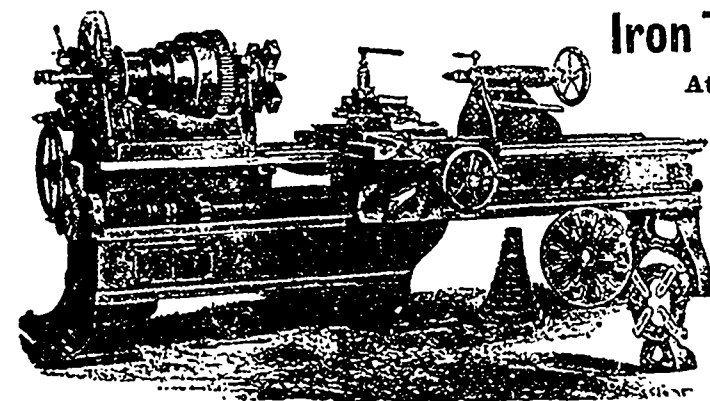
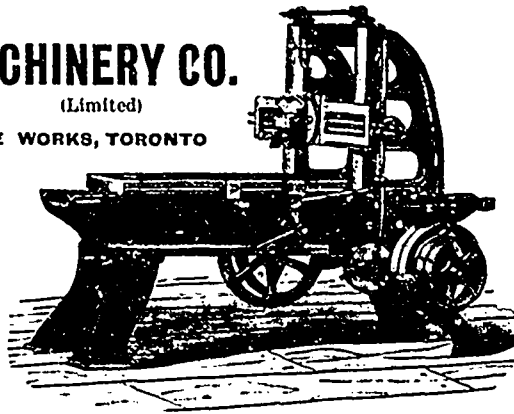
Wood-working Machinery,

Engines, Boilers,

Motors, Water Wheels,

General Machinery

and Supplies.



**Iron Tool Works**

At London.

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193 Colborne St.,  
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345 and 347  
St. James St.,  
MONTREAL

Send for Circulars,  
Referring  
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**ACETYLENE GAS**

**Ideal Generator** the only machine that submerges the carbide.

**No Opening** of generator.

**No Heat** in generator.

**No Overgeneration.**

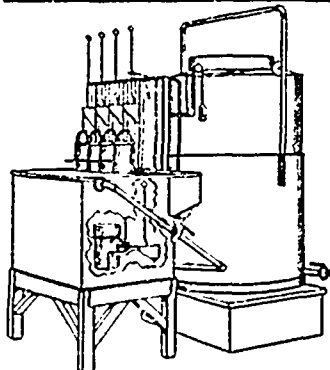
**No Bad Odour** through house.

**No Danger.**

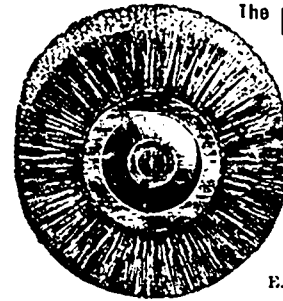
Recognized by all EXPERTS as the PROPER PRINCIPLE  
Town Lighting and Large Plants a Specialty

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Size 4—25 light to 2,600 lights.



The **PRESTON BRUSH**  
**FACTORY**

Manufacturers of  
ALL KINDS  
OF BRUSHES.

ORDERED  
MACHINE  
BRUSHES }  
Specialty

Mail Orders  
Promptly Filled.

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**Dryden, Murney & Co.**

MANUFACTURERS OF

**Hydraulic, Steam,**

**Electric**

**and Hand-Power**

**. ELEVATORS.**

**78 ESPLANADE ST. W.**  
**TORONTO.**

**FRICTION PULLEY**  
**BOARD** If you are not yet using it, send for sample.

The Dominion Leather Board Co.,  
MONTREAL, QUE.

Please mention CANADIAN MANUFACTURER.

**Dominion Oil Cloth Co.**

Manufacturers of....

**OIL-CLOTHS** of Every Description

Floor Oil-Cloth, Table Oil-Cloth,  
Carriage Oil-Cloth,

Enamelled Oil-Cloth,

Stair Oil-Cloth, etc.

Office and Works

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

**CLEVELAND BICYCLES.**

A representative of THE CANADIAN MANUFACTURER was one of a party who were favored by an invitation a few days ago by Mr. E. R. Thomas, manager, to visit and inspect the Toronto Junction factory of H. A. Lozier & Co., manufacturers of Cleveland bicycles. The visitors were under the escort of Mr. H. H. Macnamara, of the Toronto city office, and were taken to the factory in a special street railway car provided for the purpose. On the arrival of the party at the factory they were met by Mr. Thomas and Mr. H. J. Hass, the superintendent of the works, and under the guidance of the above-named officials were shown through the establishment, where they saw the entire process of manufacturing Cleveland wheels. The factory is exceedingly well located, being on high ground overlooking Lake Ontario, a line of the Grand Trunk Railway passing the door, a switch of which enters the premises.

The army of employes find residence in contiguous cottages in Toronto Junction, one of the most important manufacturing towns in Ontario. In the factory are included several large, well-arranged, well-lighted and substantial brick buildings, with an aggregate floor-space of 137,000 square feet, with facilities for turning out an average of 200 bicycles per day.

It would require more space than we have at command to give a technical description of the various tools used in the factory, but we can say that nearly every machine and appliance contained in it were manufactured in Canadian workshops by Canadian workmen. We mention briefly the following facts:—The west end of the ground floor of the main factory is devoted to drilling crank hangers from solid steel forgings, profiling fork-crown forgings and sprocket arms, milling chain blocks, sprockets, etc. It contains twenty-eight milling machines, two profiler, one chain riveter, one rim roller, six punch presses, one three-spindle press, sixteen drill presses, one chain adjuster and one slotting machine.

The east end of the ground floor is devoted principally to assembling and fitting frames and forks, and contains one tube cutter, three drills, one two-spindle drill, one universal drill, lathes, vises, etc.

The north end of main floor contains dynamos for electric lighting, a 200-h.p. Wheelock steam engine made by the Goldie & McCulloch Co., fire pump, blower for hot air system, air pumps, boilers, etc. The grinding room contains eight double lathes, and it is in this department that most of the parts are ground before filing and polishing.

North of the grinding room is a department containing two drop hammers, two trimmers, two punch presses, blacksmiths' forges, swagers, hardening oven and brazing plant.

The polishing room is equipped with sixteen double polishing lathes, and every known appliance for bicycle polishing.

The tool department contains one planer, five shapers, two millers, fifteen lathes, die-sinking machine, vises, grinding machine, drill presses, emery grinders, etc. Thirty-five of the most expert tool-makers are employed making tools for the manufacture of the different parts of the Cleveland bicycle.

The spoke and tumbling department contains spoke header, spoke roller, spoke bender, milling machine, lathes, etc. The lathe department contains twenty-one screw machines, ten lathes, grinders, etc. The tool crib contains all tools not in actual use. The nickel plating department contains a

ROOFS FOR THE KLONDIKE



**ROOFS** must be chosen with care and judgment in any country, and especially so in Canada.

All our products are constructed for use in Canada, and ample provision is allowed for contraction and expansion, and we guarantee them to be water, wind and storm proof.

Information from any dealer, but should he offer you something "just as good," write us.

Pedlar's patent steel shingles are the best, and the best cost no more than the poorest.

Pedlar Metal Roofing Co.  
OSHAWA, CANADA.

**CHEMICAL COMPOUND COMPANY**      **CORRECTLY COMPILED CHEMICAL COMPOUNDS**      **CIVILITY CAREFULNESS COMPLETENESS CONTINUITY**

**DO YOU KNOW**

That you are paying for Boiler Compound all the time whether you use it or not?

**IF YOU DO NOT BUY**

You will pay your coal dealer more than its cost in the extra Coal you burn.

**Zinkolene Saves Money**

**THE CHEMICAL COMPOUND CO., 66 River Street, - TORONTO.**

**ONTARIO GOLD MINING DISTRICT :**

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

**A Few Mines WHO USE**



**BRITISH COLUMBIA :**

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

**CANADIAN RAND DRILL COMPANY, Montreal**

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3,500-gallon dynamo plant, including washing, copper-plating and nickel-plating tanks, etc.

From five to thirty-eight different operations are required on each part of a bicycle. Each part, after each operation, passes through the Inspection Department, where it is gauged and tested by competent, expert workmen.

The automatic screw department contains twenty automatic screw machines, built by Messrs. John Bertram & Sons, Dundas, Ont., and are of the most modern and finest type. These machines seem almost human in their intelligence in performing the different operations.

The enamelling department is equipped with the latest and most approved appliances for enamelling. It contains twelve ovens, heated by fuel oil, and six dip tanks. The

finishing department contains truing jacks, drills, lathes, vises, air pumps, etc. All the bicycles are assembled in this room from finished parts, and are rigidly tested and inspected before being sent to the crating room.

The sanitary and safety appliances of this immense factory, in which about 300 persons find employment, are first-class in every particular, and conform to all the rules and requirements in such cases made and provided. The fire pump, which is always ready for operation, has capacity to deliver one thousand gallons of water per minute, besides which there is a tank located fifteen feet above the highest part of the buildings, which contains 10,000 gallons of water. All the doors communicating with the different rooms and departments are fire-proof and self-closing.

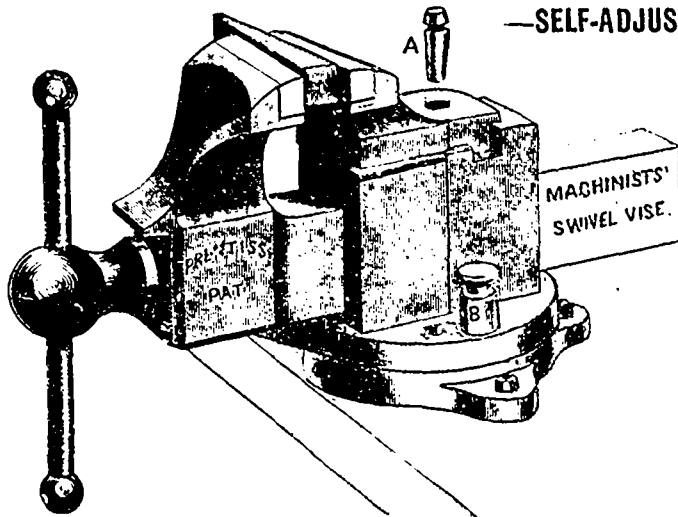
**THE ST. JOHN DISTRICT.**

Reviewing the pulp industry in the St. John section of the Province of Quebec, the Quebec Chronicle says: "This is the district traversed and opened up by the Great Northern and the Quebec and Lake St. John railways. The country along the line of these roads has been transformed from a savage wilderness to a scene of hustling industry, and within a few years."

Among these industries pulp making figures most prominent. The Chronicle mentions the works of the Jacques Cartier Power Company on the Jacques Cartier river. Sixty men are constructing a dam there. Next is the saw mill at Lake St. Joseph. St. Raymond prides itself upon being the busiest parish in the district. It has a pulp mill of its own, that of the St. Raymond

**Prentiss Swivel Bottom....**

**VICES**



—SELF-ADJUSTING JAW—

*For Machinists and Woodworkers*

SEND FOR SPECIAL CATALOGUE

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- COMMON-SENSE SCREW PLATES**
- BAEDER & ADAMSON'S**
- EMERY CLOTH,**
- NORTON EMERY WHEELS.**

**MACHINISTS' SUPPLIES.**

**THE FAIRBANKS COMPANY, 749 CRAIG STREET, MONTREAL.**

**Reduce Your Fuel Bills**  
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BY USING

**The IMPROVED JONES UNDERFEED STOKER**

Guaranteed Increased Economy, from 15 to 50% | Guaranteed Increased Boiler Capacity from 40 to 100%.

**NO ASHES. NO SMOKE. NO TROUBLE. NO MONEY REQUIRED IF GUARANTEES ARE NOT FULFILLED.**

**The First and Only Successful Underfeed Stoker.**

No Underfeed Stoker is successful without infringing our Patents, and the public are warned against importing or using infringing devices.

N.B.—Have you seen our Underfeed as applied to Houses, Schools, Churches, etc.? (Send for Circular).

For Estimates and other Information write

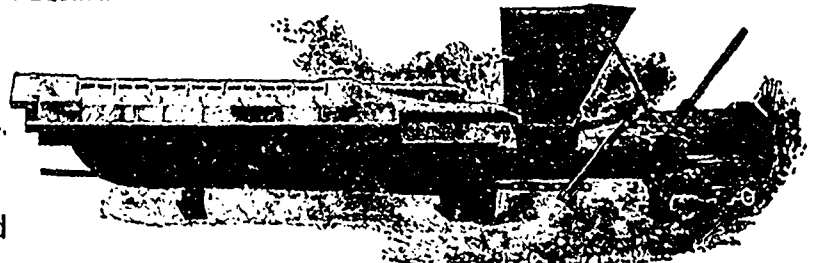
**The General Engineering Co. Limited**

SOLE MANUFACTURERS FOR CANADA,

Head Office ... **80 CANADA LIFE BUILDING, - TORONTO.**

**Montreal—A. TREVETHICK, - Box 1123.**

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Company. A tremendous lot of timber is being got out, too, for the improvements in Quebec harbor and for the works of the Jacques Cartier Power Company, and for other works under construction at St. Gabriel.

Half a dozen miles farther north, at Riviere a Pierre, the Glens Falls Paper Company is getting out 120,000 spruce logs.

The climax is at Grand Mere, where in two years \$2,000,000 has been invested in improvements by the Laurentide Pulp and Paper Company. It employs in one way or other 1,100 hands. A large saw mill is being erected at Grand Mere, capable of cutting 8,000,000 feet of deals and lumber.

At Shawinigan, ten miles west of Grand Mere, a Boston company is spending \$4,000,000 upon works to produce electric power to run pulp and paper mills and other industries. The pulp mill at Chicoutimi is turning out three cars of pulp per day.

**NORTON'S BALL BEARING JACK.**

Mr A. O. Norton, Boston, Mass., and Coaticook, Que., has sent us his 1899 illustrated catalogue of the Norton Patent Ball Bearing Jacks and Sure Drop Track Jacks manufactured by him.

The Catalogue, describing this tool, says:—  
The Norton ball bearing ratchet screw jacks are constructed on an entirely different principal from any other jacks in the world; they have a stationary standard and sliding sleeve fitting over the same. The standard has a removable nut usually Phosphor Bronze fitted within it and resting on a shoulder, in which the screw turns, the standards are hollow, and can be filled with oil thus keeping the screw constantly lubricated. To the upper end of the screw is fastened a steel gear; a hardened tool steel plate encircles the hub, and rests on the body of gear, on which are placed circular trains of hardened steel balls, held in place by rings between the rows. In the top or head of the sliding sleeve, which is bored to fit standard, is placed another hardened tool steel plate with a hole in the centre through which the end of the screw projects.  
When the jack is assembled the sleeve slides down over the screw and standard, the

# Felts for Pulp Mills

20 years in the business—the first to make Felts in Canada; capacity 1,000 lbs. per day. All our Felts are woven endless, without a splice. Our Felts will last longer and make dryer Pulp. All up-to-date mills use our Felts. New mills, when in need, write for samples and prices.

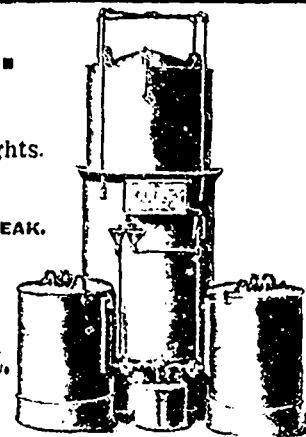
**HAMELIN & AYERS, Lachute Mills, P.Q.**

## ACETYLENE GAS...

**THE SAFETY LIGHT AND HEAT CO.**

Have in successful operation Machines from 5 to 200 Lights.

**SIMPLICITY AND SAFETY** are the leading features. Being deeply water sealed **IT CANNOT LEAK. IT MAKES THE GAS COOL**, washes it twice, and thus makes only **PURE GAS. NEVER CLOGS THE BURNERS.**



**THE SAFETY LIGHT & HEAT CO., Dundas, Ont.**

Sole Proprietors and Manufacturers of the **CELEBRATED CLIFF-WARDLAW GENERATORS.** SEND FOR BOOKLET.

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

Toronto Office, 42 York Street. **MANUFACTURERS OF GENERAL MACHINERY...**

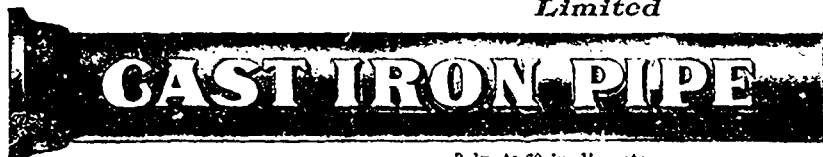
Having recently sold our patterns and plant to the A. R. Williams Co., of Toronto, retaining only such machines as are useful in our business, we beg to say that we are rapidly putting in New Machinery, from new and improved designs, and are now in a position to receive orders for all Standard Tools for Metal Working in all branches. It will be our aim, by personal supervision of the product of works, with expert men of large experience at the head of each department, to turn out nothing but first-class work at moderate prices. And as we intend to deal directly with the manufacturers, they will be enabled to get their machinery at first cost.  
As we shall not be able to personally visit each manufacturer, it is for this purpose that we publish this advertisement. This is our agent who is going about to solicit a share of your patronage. We are thankful for the patronage extended to us in the past, and hope that we may secure an extension of the favors for the future.

- All correspondence relating to the following Tools will be promptly answered, viz.
- LATHES**—Engine, Gap, Break, Turret, Fox, Spinning, Etc.
  - PLANERS**—Standard, Crank, Plate, Etc.
  - DRILLS**—Standard, Sensitive, Multiple, Radial, Etc.
  - MILLING MACHINES**—Lincoln, Plain, Universal, Etc.
  - SHAPING MACHINES**—Whitworth, G. & E. Rack-Driven, Etc.
  - HAMMERS**—Steam, Sandago Drop, Stiles Drop.
  - BULL-DOZERS** for all purposes.
  - PUNCHES AND SHEARS** for Plate, Angles, Channels, Gauges, Etc.
  - PRESSES** for Cutting, Stamping, Drawing, Wiring, Riveting, Etc. We shall also esteem it a pleasure to give quotations on Special and General Machinery in our line.

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

## THE GARTSHORE-THOMSON PIPE & FOUNDRY CO.

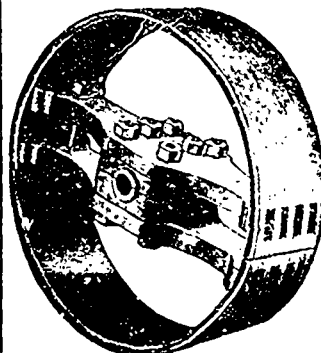
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3 in. to 60 in. diameter.

**For Water, Gas, Culverts and Sewers**

Special Castings and all kinds of **WATER WORKS SUPPLIES** FLEXIBLE AND FLANGE PIPE. **HAMILTON, ONT.**



**BENT WOOD SPLIT PULLEYS, RIM... (REID'S PATENT).**

*The Strongest, Lightest and Best Belt Surface in the World*

No Glue, no Nails in Rim like Segment Rim Pulleys, to be affected by Steam, Dampness or Moist Temperature.

**EVERY PULLEY GUARANTEED.**

**The Reid Bros. Manufacturing Co., of Toronto, 257 King St. West, Toronto.**

## ECO MAGNETO WATCHMAN'S ELECTRIC CLOCK.

Without Batteries.

Write for descriptive circular to

**Eco Magneto Clock Co.,**

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**MONTREAL ELECTRIC CO.,**

1898 Notre Dame Street, (Balmoral Hotel Block).

Agents for Province of Quebec.

**John Starr, Son & Co. (Limited), HALIFAX, N.S.]**

Agents for the Maritime Provinces.

bearing plate in the head resting on the balls on the plate on the gear, so that the whole weight is carried by the balls which act as a thrust-bearing between the screw and head of sleeve reducing the friction and increasing the lifting power of the Jack.

The sleeve which revolves on the standard, allowing the lever to be used from either side, carries the load, and is raised or lowered by the screw, which is turned by means of a gear on the ratchet shaft engaging with the gear on the screw, and operated by a reversible ratchet and lever having the up and down, or pump handle motion. The sleeve at the lower end is provided with a "stop dog" or pawl, which prevents the screw from being run out of the nut.

The advantage of this sliding sleeve cannot be over estimated. It takes all the side strain off the screw, preventing it from bend-

ing, and also protecting all the working parts from sand, dirt and water.

All the Norton Railroad Jacks are steel and malleable iron throughout. The gears in all Ball-Bearing Jacks are cut from solid steel forgings.

**TRANSFER ORNAMENTS.**

The Meyercoed Company, Chamber of Commerce Building, Chicago, Ill., manufacturers of decalcomania transfer ornaments, have sent us a number of specimens of their beautiful work, which are now on view in the office of THE CANADIAN MANUFACTURER. Among these are a design made by the company for a large American agricultural implement jobbing concern who handle farm wagons, carriages, plows, etc., who wanted

a distinctive brand or trade mark to be placed upon every article sold by them. It is made in three sizes—the smallest to be used as a seat riser for their carriages, the medium size for plows, grain drills, etc., and the largest for the sides of farm wagons. These designs are especially appropriate for decorating purposes. The company make inlaid marquetry and pearl decorations for articles that are produced in large quantities, such as sewing machines, typewriting machines, bicycles, carriages and articles of that character; and they are prepared to furnish any conceivable pattern, any size or style of design up to as large as twenty-six by thirty-eight inches, and in any number of colors and combinations of colors. Other purposes for which these transfer ornaments are appropriate include hardware, pottery, furniture, trade marks, name plates, etc.

**JOHN J. KELLER & CO.**

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

**Aniline Colors,  
Dyewood Extracts,  
Sumac and  
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FAST COLORS for Wool Dyeing.  
One Dip Cotton Colors, Novelties  
and Specialties for Calico  
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MANUFACTURED BY  
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BASLE, SWITZERLAND

**LIGHT YOUR  
FACTORY WITH**

**LUXFER PRISMS**

The latest device for

**LIGHTING**

dark rooms and  
offices

By Daylight

For catalogue  
and estimates  
write to

Luxfer Prism  
Co'y, Limited.

58 Yonge Street, - TORONTO.



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OF  
SPECIAL

**MACHINERY**

OF ANY KIND, SEND DRAWINGS  
AND ASK FOR QUOTATIONS.

**G. T. PENDRITH & CO.**

Nos. 73 to 81  
Adelaide Street West

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Telephone 1535.

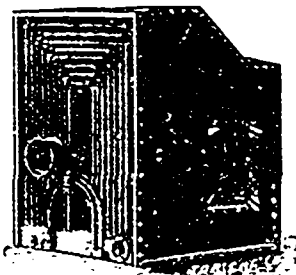
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The Fan System of Steam Heating for Heating  
of Factories and all Classes of Buildings

**DRYING . . .**

Appliances for Drying

Lumber, Brick, Wool, Cloth,  
Hair, Soap, Glue, etc.



Heater and Housing.

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Ventilating Fans for removal of Dust, Foul Air, etc.

WRITE FOR CATALOGUE AND PRICES.



Fan.

**McEachren Heating and  
Ventilating Co., GALT, ONT.**

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**F. E. ATTEAUX & CO.**

53 Colborne Street,  
Toronto.

15 Lemoine Street, Montreal.

Boston, New York,  
Philadelphia, Chicago, and  
Gloversville, N.Y.

**Dyewood Extracts,  
One Dip Alizarines,  
Aniline Colors,  
Dyestuffs and  
Chemicals.**

STEAM TRAPS.

The principle of expansion as applied to Steam Traps has been a fruitful source of experiment for many years, but surprisingly few of the instruments put on the market with this principle as their basis of action have stood the test of time. Delicate diaphragms were found soon to take a permanent set; arrangements of two or more tubes of different metal supposed to expand unequally were found to be "unequal" in a sense their inventors never intended, and the vagaries of these imperfect instruments left a

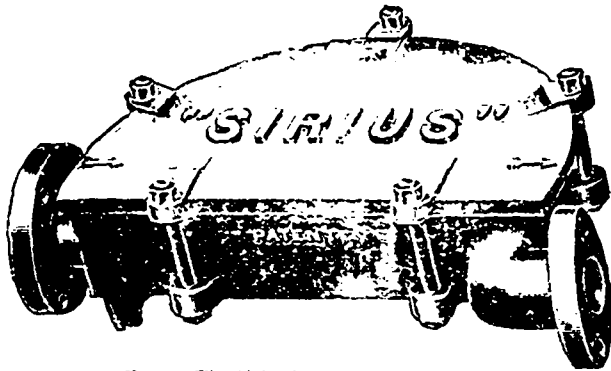


FIG. 1.—The Sirius Patent Steam Trap.

prejudice in many steam users' minds which it has taken the more perfect examples of expansion steam traps long to dispel. One of the most successful steam traps, which has probably a greater sale in Great Britain than any other either float or expansion trap, is the "Sirius." In this instrument the action depends upon the expansion and contraction of an extremely volatile liquid hermetically sealed in a bent tube. This liquid, being protected by the sealed tube, is not exposed to the liability of deterioration like other expanding agents hitherto employed; and it is probably due chiefly to this factor of durability, combined with compact design

and reliable action under a wide range of pressures, that this trap has attained its present wide popularity. As will be seen from our illustration, Fig. 2, a bent tube T carries at one end the valve S of the trap, the valve seating A being fixed in the iron casing B, and readily removable for examination or repair. When the trap is cold the inlet C is open, and the valve S withdrawn to its greatest extent. The outlet D being also open there is a full bore blow-through as soon as steam is turned on. As the warm water comes in contact with the Tube T, the volatile liquid commences to expand, and gradually, as the heat increases, to carry forward the free end, and approach the valve to its seating. So long as the heat of the escaping water is not above 211° F., the valve keeps sufficiently open to allow the water to pass, but immediately steam appears, and the temperature is consequently raised to 212° F., the valve is firmly bedded on the seating by the expansive power of the liquid in the spring tube, and the valve thus closed is securely held against any pressure up to 200 pounds to the square inch. Immediately condensation commences how-

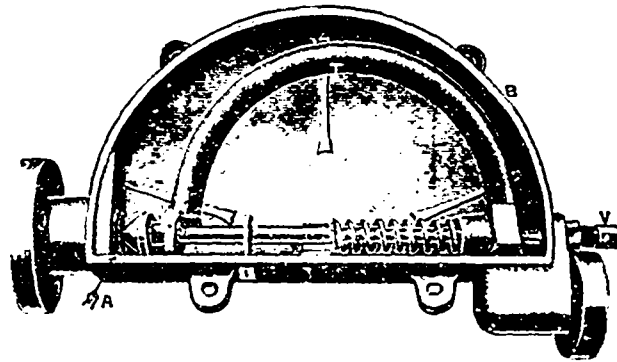


FIG. 2.—Sirius Trap with cover removed.

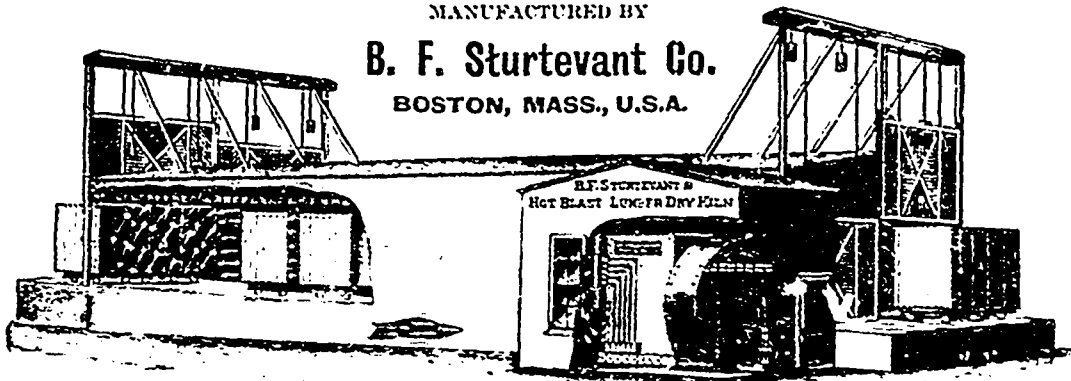
ever, and the temperature drops as little as 10° F., the tube contracts, the valve opens, and water is discharged. Thus by alternate expansion and contraction all water is discharged and no steam wasted.

# The Sturtevant Progressive Lumber Dry Kiln

Complete .  
Plans . .  
Furnished .  
With . .  
Each . .  
Apparatus.

MANUFACTURED BY

**B. F. Sturtevant Co.**  
BOSTON, MASS., U.S.A.

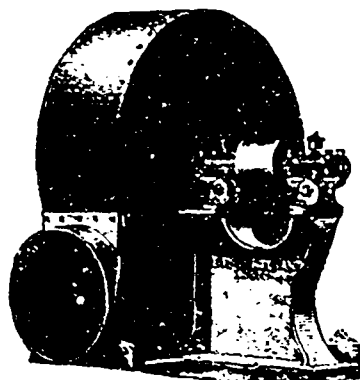


Absolutely  
Safe .

AN A

**FIRE  
RISK**

QUICK DRYING  
Economical in  
use of steam.

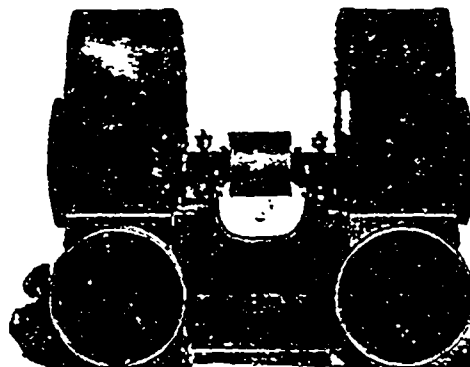


## THE STURTEVANT Steel Plate Exhaust Fans

For Removing Refuse  
from Wood-working Machinery  
SEND FOR CATALOGUES

**A. R. WILLIAMS MACHINERY CO.**

GENERAL CANADIAN AGENTS  
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As steam is never admitted to the interior of the trap there is no danger of explosions, and the closing being accomplished at the first appearance of steam, it is quite independent of the pressure of steam carried in the pipes or vessels to be drained. The remaining parts of the trap are the spring E and the regulating Screw V, the sole function of the spring being to retain one end of tube T against the pivot of the regulating screw. By means of this screw V the position of the valve in relation to the seating is regulated. The regulation is carefully carried out with the trap under steam for several days at the works before sending out and no further adjustment is needed.

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A meeting of prominent manufacturers was held in Montreal last week under the presidency of the Hon. Senator Drummond to consider the provision contained in the new city charter to tax machinery employed in manufacturing concerns. The proposed tax was strongly denounced as tending to prevent the development of manufacturing industries in Montreal, and it was pointed out that if enforced it would likely result in the removal of several big firms from this city. Mr. Ogilvie, of the Ogilvie mills, has already threatened to remove his mills if the tax is put in force. It was decided to petition the city council not to enforce the measure.

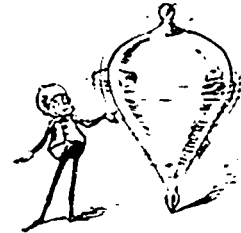
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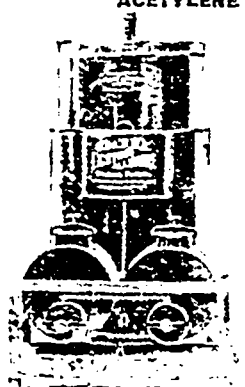
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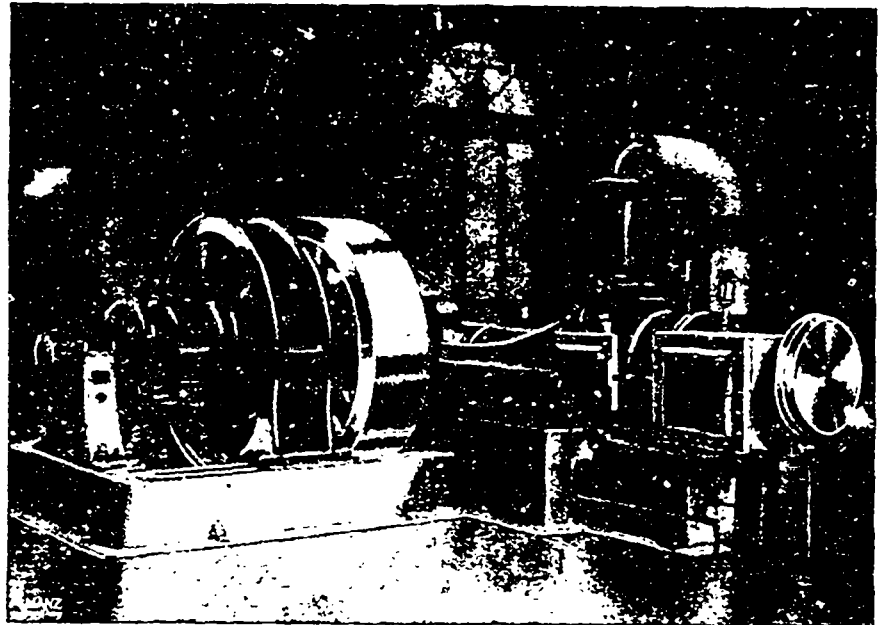
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In October, 1897, contracts were given for the equipment of electric tramways in Barcelona and Madrid, two of the most important cities in Spain. The work was completed a few months ago, and the lines are now in successful operation. Barcelona, with a population of about 600,000, is the largest city in Spain, and is an important seaport and manufacturing centre. It is an ideal city in many respects, but particularly from the standpoint of the owners of the electric railway, as it is well patronized on account of the climate being too warm for much

dynamo direct connected. They were put in principally for lighting the extensive car sheds, and driving the machinery in the workshops connected with the tramway systems, but are also used for running part of the cars late at night, or early in the morning when the main engines are shut down.

The high pressure cylinder of these engines is ten inches in diameter, low pressure sixteen inches in diameter, stroke fifteen inches, and are rated at 115 horse-power each. The valves are controlled by the automatic governor in such a way as to divide the work equally between the two



Robb-Armstrong Engine at Madrid.

walking. Madrid is the capital of Spain, and is nearly as large as Barcelona. It is situated inland, and has many parks, broad streets and fine buildings. In the character of its population it resembles a western American city, as not more than forty per cent. of its residents are natives.

Although these systems are owned by British capital and built by British contractors much of the apparatus was purchased on this side of the Atlantic. The main engines were manufactured in the United States, and three smaller engines were supplied by the Robb Engineering Company of Amherst, N.S. These engines, as shown in the accompanying illustrations, are tandem compound, side crank type, with

cylinders. The crank shaft connecting rod and crank pin are of hammered open-hearth steel. The high pressure cylinder is placed next to the frame, the low pressure in the rear, so that the cylinder heads and pistons can be removed without disturbing the cylinders. The throttle consists of a flat valve rotated through one-half revolution by a lever, and as the valve and seat are protected from the steam, whether open or shut, they can neither wear nor rust. The main bearings have a ring-oiling device, the oil being continuously conveyed from a cavity beneath the bearing to the top of the shaft by metal rings which dip in the oil. All bearings are large, and the parts of the engine few and simple, and as strong as

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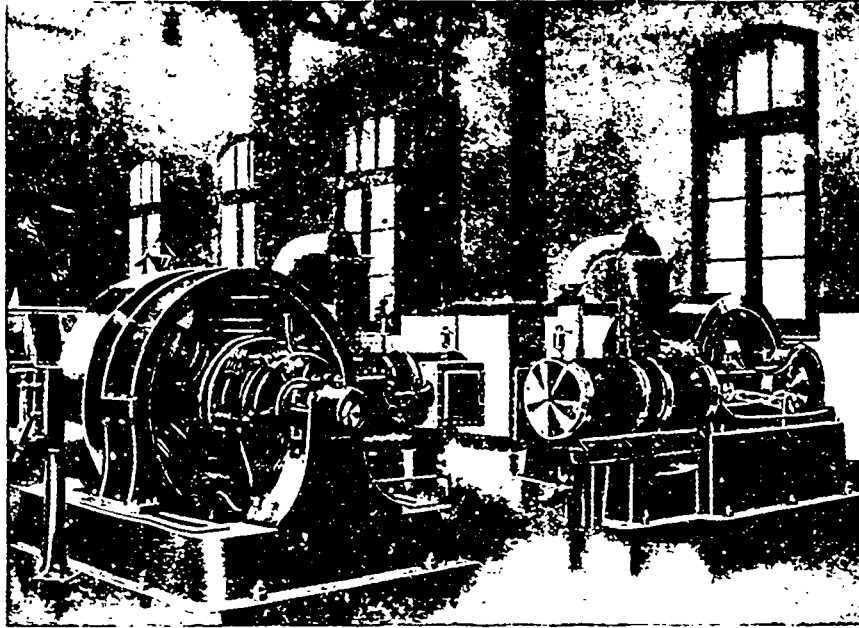


possible, making them well adapted to any service where continuous running and variable or severe work is required.

It is highly creditable to the Robb Engineering Company that their engines were selected as part of these installations, which are said to be the most important undertakings of the kind completed in any part of the world during the year 1898. Their products have been favorably known throughout Can-

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The Fairbank Company, 749 Craig street, Montreal, have sent us an illustrated circular having reference to the Vulcan Chain Pipe Wrench manufactured by J. H. Williams & Company, Brooklyn, N.Y., for which they are the Canadian agents. This wrench is made in seven sizes, with either cable or flat-link chain, and is described as being strong and durable, being constructed wholly of



Robb-Armstrong Engines at Barcelona.

ada for a number of years, and we have no doubt their foreign shipments, which have been quite numerous during the past year, will give us good satisfaction, and lead to a large increase of their business.

The capital stock of the Verity Plow Co., Brantford, Ont., has been increased to \$300,000.

wrought steel. The jaws are of saw temper, and the teeth can only be sharpened by filing. The chain swings from the centre, and can be used on either side of the jaw. The wrench is equally efficient in fittings and straight pipe. Each fits a range of sizes equal to six pairs of common tongs. They are fully guaranteed, and repairs can always be had.

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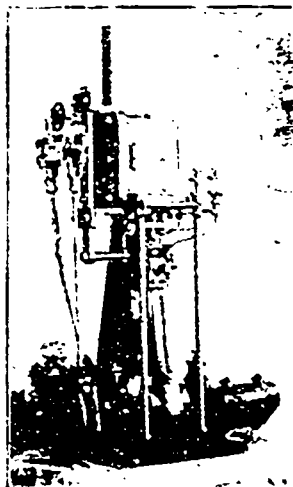
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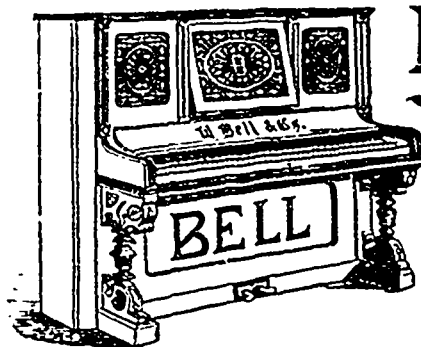
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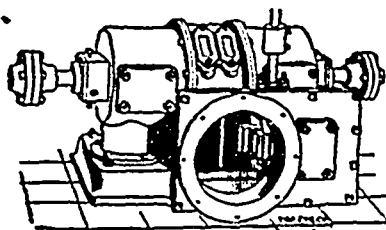
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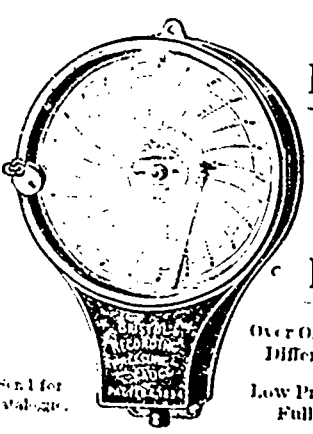
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