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ALABAMA REGISTERED TRADE MARK

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Easy Sand, suitable for all classes of Work  
Core Compound and Foundry Supplies  
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TRADE MARK  
THE ROYAL OIL CO.  
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VOL. 38. TORONTO, APRIL 21, 1899. No. 8.


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OAK EXTRA TANNED EST. 1856  
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ELECTRIC HYDRAULIC STEAM HAND-POWER  
All made of the best material and finest workman-ship.  
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**Walkerville Malleable Iron Co., (Limited)**  
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REFINED AIR FURNACE  
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Owen Sound Portland Cement Co. LIMITED OWEN SOUND, ONT.

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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.

Twines, Lampwicks, Webbing, Etc.

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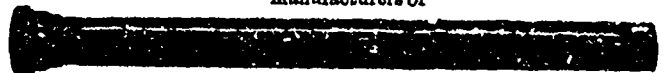
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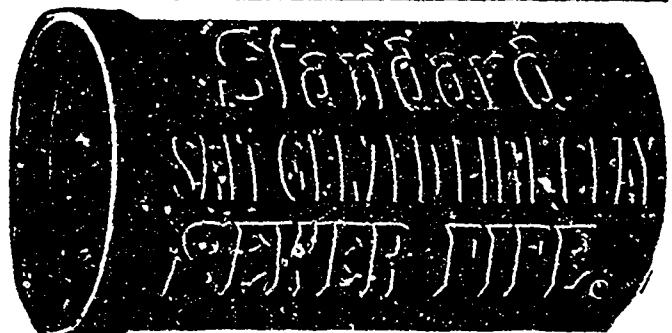
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"Specials," Hydrants, Valves, Etc.

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Manufacturers of Salt Glazed Vitrified Sewer Pipes, Double Strength Railway Culvert Pipes, Inverts, Vents, and all kinds of Fire Clay Goods.

The Standard Drain Pipe Co. of St. Johns, P.Q., Ltd. W. C. TROTTER President.

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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.

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Should see that his power does not cost him more than is necessary. A word to the wise is sufficient. Our engines, the **WHEELLOCK** AND **IDEAL**, are noted for their great economy in fuel. Write to us for more particulars on the subject and we will mail you a handsome catalogue and give you any other information on power plants.

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**The Canadian Manufacturer,**

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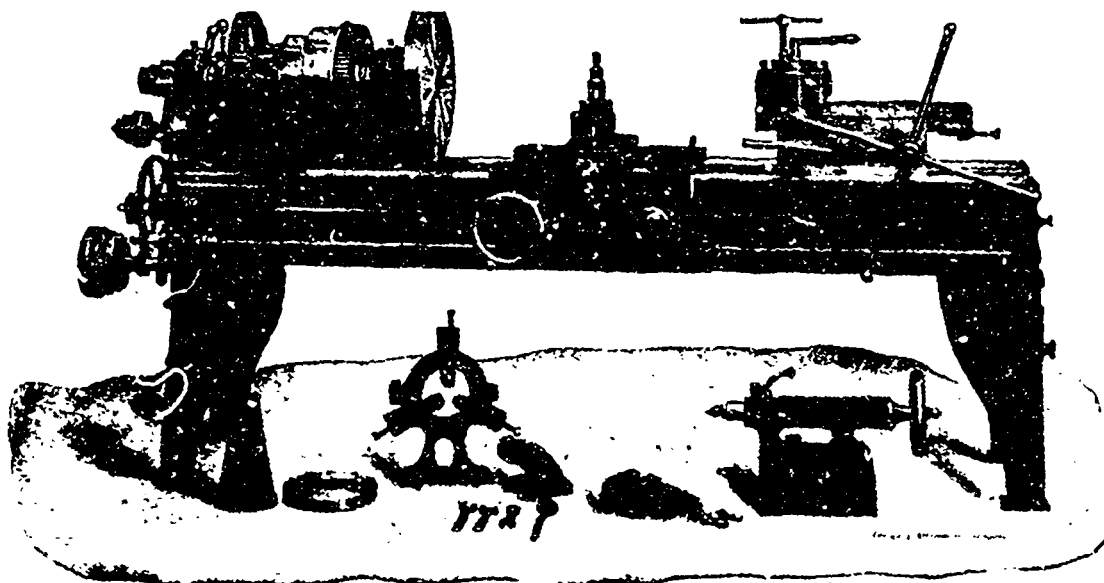
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To clear out Stock quickly.

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

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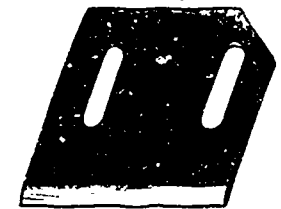
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Quality Guaranteed. Special Knives Made to Order. Send for Price List

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Steel Bridges for Railways and Highways,  
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A large Stock of **ROLLED STEEL BEAMS, JOISTS, GIRDERS, CHANNELS, ANGLES, TEES, Z BARS and PLATES**

Tables, giving Size and Strength of Rolled Beams on application

**ALWAYS ON HAND** IN LENGTHS TO  
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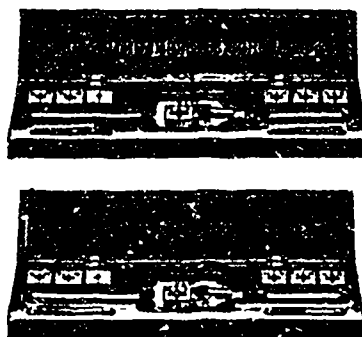
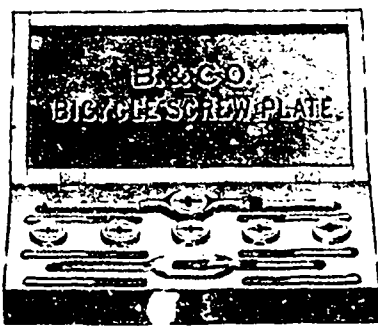
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STEEL STEAM VESSELS OF EVERY DESCRIPTION. STEAM YACHTS AND LAUNCHES.

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Manufacturers of the well-known

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## Galvanizing

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**Wheels, Wheel Materials, Shafts, etc.**

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 FINE BANK OFFICE, CHURCH & SCHOOL FURNITURE  
 COURT HOUSE & DRUG STORE FITTINGS.  
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# WEBSTER VACUUM Feed Water Heater

IN PROPORTION

MAXIMUM EFFICIENCY  
 ECONOMY  
 DURABILITY  
 CONVENIENCE  
 SIMPLICITY

To the extent that Feed Water Heaters in general are investigated and understood the more the WEBSTER VACUUM FEED WATER HEATER and PURIFIER is appreciated.

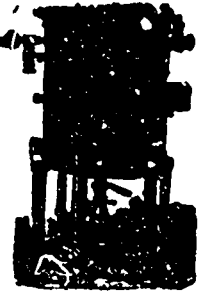
MINIMUM ATTENTION  
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Particular experience for ten years in this department of engineering, and the fact that over 1,000 Webster Heaters are in use is self-explanatory.

Satisfying particulars, embracing details of construction, materials, operation, and exclusive results will be sent on application. Built in several types and construction for special needs and service.



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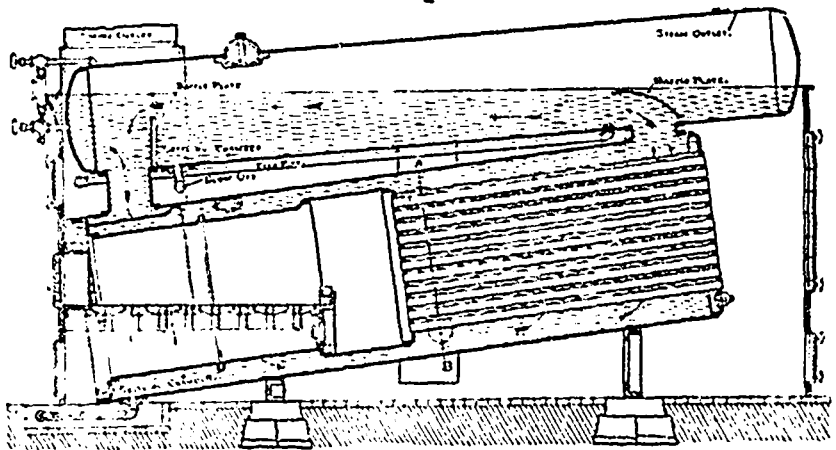
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MAKERS OF

# Lamps and Transformers

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

# Mumford's Improved Boiler.



Usually built with a sheet steel case, but, if preferred, the case may be left off and brick-setting substituted.

**HIGH ECONOMY** is obtained on account of being internally fired, and having perfect water circulation, as shown in cut.

**TWO SETTLING CHAMBERS** are provided for catching deposits of scale, and every part of the Boiler is accessible for cleaning.

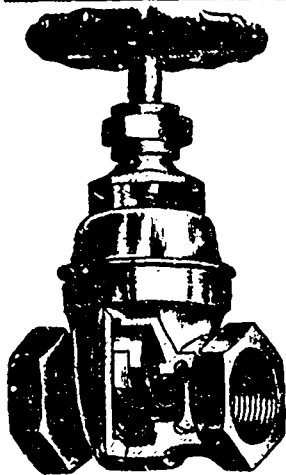
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Oakey's Flexible Twilled Emery Cloth.  
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Prize Medal and Highest Award Philadelphia, 1876, for Superiority  
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Manufacturers **JOHN OAKEY & SONS, LIMITED,** *Wellington Mills,  
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## The WEBBER Patent **STRAITWAY VALVE**

For  
...Steam, Water or Gas...  
**EVERY VALVE TESTED.**

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*WALKERVILLE, ONT.*  
Sole Manufacturers for Canada. Send for  
Price List.

# The CANADIAN RUBBER COMPANY

OF MONTREAL



Manufacturers of  
**RUBBER BELTS**  
FOR ALL PURPOSES,  
**RUBBER HOSE**

This is a facsimile of the Brand  
upon our Fast-running  
ELECTRIC BELT.

OF ANY DESCRIPTION,  
AND  
A FULL LINE OF

## **.. RUBBER GOODS ..**

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Western Office.... **TORONTO, ONT.**

## S.K.C. Two-Phase Alternators

Incandescent Light, Arc Light and Power from same Dynamo and Circuit.

**Highest Efficiency**

**Best Regulation**

**Slow Speed**

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**No Collector**

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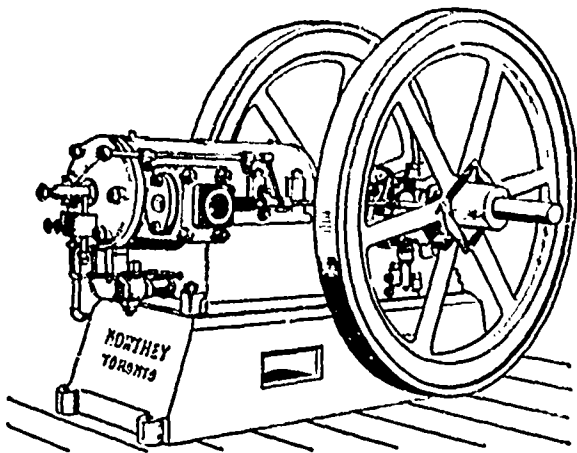
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S.K.C. 50 Kilowatt Two-Phase Generator

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4 TO 100 H. P.

It is CHEAPER than any other power, whether you want 4 h.p. or 200 h.p. It is replacing even Water Power. Let us hear from you as to your power needs. We furnish SMALL POWERS, geared to Electric Plants, for factory and house lighting.

**Northey Mnfg. Co., Limited,** 1000 King St. W.  
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Manufacturers of STEAM AND POWER PUMPS OF ALL KINDS.

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Advertise in Trade Journals ? - - -

We can Supply You with Artistic and Mechanically Correct

**PHOTO ENGRAVINGS, WOOD CUTS,**  
*ELECTROTYPES, ZINC ETCHINGS, ETC.*

OF ANYTHING THAT YOU MAY DESIRE.

FIRST-CLASS IN EVERY PARTICULAR.  
AT PRICES THAT DEFY COMPETITION. ASK FOR ESTIMATES.

The Canadian Manufacturer Publishing Co., Limited, - Toronto, Can.

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**IMPERIAL LAMPS  
ARE GOOD  
LAMPS.**

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We have very close connections, and can sell ELECTRIC SUPPLIES, HOUSE GOODS, etc., at bottom prices.

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Official Organ of the Canadian Manufacturers' Association.

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**LE GRAND BENEDECT,** 23 Park Row New York, Sole Agent for  
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**J. D. MORRISON, Jr.,** Winthrop Building, Boston, Mass., Sole  
Agent in New England States, Philadelphia, Penn.,  
and Baltimore, Md.

**O. A. G. BROWNE,** 145 Fleet St., London, E.C., Eng., Sole Agent  
in Great Britain.

**TWENTY-FOURTH ANNUAL MEETING**

OF THE

**Canadian Manufacturers' Association.**

**REPORT OF PROCEEDINGS.**

The twenty-fourth annual meeting of the Canadian Manufacturers' Association was held in their offices in McKinnon Building, Toronto, Tuesday, April 18, 1899.

John F. Ellis, Esq., the President, occupied the chair, J. J. Cassidey, Secretary.

Among those present were:

- George Booth, Booth Copper Co., Toronto.
- J. F. Ellis, Barber & Ellis Co., Toronto.
- P. W. Ellis, P. W. Ellis & Co., Toronto.
- J. J. Cassidey, Secretary.
- W. K. McNaught, American Watch Case Co., Toronto.
- R. E. Menzie, Menzie, Turner & Co., Toronto.
- J. P. Murray, Toronto Carpet Mfg. Co., Toronto.
- G. W. Parsons, E. B. Shuttleworth Chemical Co., Toronto.
- George Smith, Smith Woolstock Co., Toronto.
- J. M. Taylor, Dominion Radiator Mfg. Co., Toronto.
- A. W. Thomas, Copp, Clark Co., Toronto.
- A. E. Kemp, Kemp Mfg. Co., Toronto.
- Alfred Burton, Merchants' Dyeing & Finishing Co., Toronto.
- J. H. Paterson, Toronto Hardwre Mfg. Co., Toronto.
- J. F. Wildman, Office Specialty Mfg. Co., Toronto.
- W. B. Rogers, Chas. Rogers & Sons Co., Toronto.
- Chas Boeckh, jr., Boeckh Bros. & Co., Toronto.
- S. H. Chapman, Ontario Wind Engine & Pump Co., Toronto.

- R. W. Elliott, Elliott Mfg. Co., Toronto.
- Samuel May, Samuel May & Co., Toronto.
- J. O. Thorn, Metallic Roofing Co., Toronto.
- J. Alexander, jr., Canadian Photo Engraving Bureau, Toronto.
- P. H. Burton, Merchants' Dyeing & Finishing Co., Toronto.
- J. W. Cowan, Cowan Co., Toronto.
- John Taylor, John Taylor & Co. Toronto.
- W. K. George, Standard Silver Co., Toronto.
- E. C. Boeckh, Boeckh Bros. & Co., Toronto.
- H. P. Coburn, Sawyer & Massey Co., Hamilton, Ont.
- C. R. H. Warnock, Galt Knitting Co., Galt, Ont.
- Wm. Thoburn, Almonte, Ont.
- J. Hewton, Kingston Hosiery Co., Kingston, Ont.
- G. H. Lees, G. H. Lees & Co., Hamilton, Ont.
- A. G. Booth, Toronto Steel Clad Bath & Metal Co., Toronto.
- C. G. Pease, Toronto.
- And many others.

The minutes of the last regular meeting, held April 12, 1898, and of a special general meeting held March 2, 1899, were read and approved.

**PRESIDENT'S ADDRESS.**

President Ellis delivered an address which appears elsewhere in these proceedings.

**TREASURER'S REPORT.**

Treasurer Booth presented his annual financial statement for the year 1898, which was read and adopted. It showed the Association to be in a sound financial condition, and that the roll of membership was well maintained.

**SECRETARY'S REPORT.**

Secretary Cassidey made his report, showing the conditions and circumstances that surround the Association, which appears elsewhere in these proceedings.

**ELECTION OF OFFICERS.**

The following officers were elected for the ensuing year:—

- President . . . . . J. F. Ellis
- First Vice-President . . . . . P. W. Ellis
- Second Vice-President . . . . . R. E. Menzie
- Treasurer . . . . . Geo. Booth
- Secretary . . . . . J. J. Cassidey

The following committees were selected, of which five form a quorum:—

**EXECUTIVE COMMITTEE.**

**CHAIRMAN.**

R. W. Elliot, Elliot Mfg. Co., Toronto.

**EX-OFFICIO.**

- J. F. Ellis, Barber & Ellis Co., Toronto.
- P. W. Ellis, P. W. Ellis & Co., Toronto.
- R. E. Menzie, Menzie, Turner & Co., Toronto.
- George Booth, Booth Copper Co., Toronto.
- W. K. McNaught, American Watch Case Co., Toronto.
- J. J. Cassidey, Secretary, Toronto.
- P. H. Burton, Merchants' Dyeing and Finishing Co., Toronto.
- W. B. Rogers, Chas. Rogers & Sons Co., Toronto.
- Edward Boisseau, E. Boisseau & Co., Toronto.

J. P. Murray, Toronto Carpet Mfg. Co., Toronto.  
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 Matthew Langmuir, M. Langmuir Mfg. Co., Toronto.  
 A. G. Feacey, Minerva Mfg. Co., Toronto.  
 F. H. Wright, Aug. Newell & Co., Toronto.  
 Thomas Roden, Roden Bros., Toronto.  
 T. A. Staunton, M. Staunton & Co., Toronto.  
 F. B. Hayes, Toronto Carpet Mfg. Co., Toronto.  
 James Kendrey, Auburn Woolen Co., Peterborough, Ont.  
 John Milne, Burrow, Stewart & Milne, Hamilton, Ont.  
 W. E. Blanford, Brown, Boggs & Co., Hamilton, Ont.  
 F. W. Fearman, Hamilton, Ont.  
 S. O. Greening, B. Greening Wire Co., Hamilton, Ont.  
 C. S. Wilcox, Ontario Rolling Mill Co., Hamilton, Ont.  
 Hon. W. E. Sanford, W. E. Sanford Mfg. Co., Hamilton, Ont.  
 E. P. Hawkins, Bell Organ & Piano Co., Guelph, Ont.  
 D. F. Burke, Port Arthur, Ont.  
 J. R. Barber, Georgetown, Ont.  
 T. D. Craig, Wm. Craig & Sons, Port Hope, Ont.  
 W. J. Crossen, Crossen Car Mfg. Co., Coburg, Ont.  
 L. H. Laine, Carrier, Laine & Co., Levis, Que.  
 G. H. Clare, Clare Bros. & Co., Preston, Ont.  
 Geo. Pattinson, Geo. Pattinson & Co., Preston, Ont.  
 John Baillie, Dominion Oilcloth Co., Montreal, Que.  
 B. McNally, St. Lawrence Sugar Refining Co., Montreal.  
 J. C. Watson, Watson, Foster & Co., Montreal, Que.  
 C. R. H. Warnock, Galt Knitting Co., Galt, Ont.  
 A. M. Newlands, A. M. Newlands & Co., Galt, Ont.  
 F. Hurtubise, Plessisville, Que.  
 G. C. W. Lang, Lang Tanning Co., Berlin, Ont.  
 R. McLaughlin, McLaughlin Carriage Co., Oshawa, Ont.  
 E. C. Walker, Walker Sons, Walkerville, Ont.  
 John Penman, Penman Mfg. Co., Paris, Ont.  
 John Hewton, Kingston Hosiery Co., Kingston, Ont.

#### TARIFF COMMITTEE.

##### CHAIRMAN.

W. K. McNaught, American Watch Case Co., Toronto.

##### EX-OFFICIO.

J. F. Ellis, Barber & Ellis Co., Toronto.  
 P. W. Ellis, P. W. Ellis & Co., Toronto.  
 R. E. Menzie, Menzie, Turner & Co., Toronto.  
 George Booth, Booth Copper Co., Toronto.  
 R. W. Elliot, Elliot Manufacturing Co, Toronto.  
 J. J. Cassidey, Secretary, Toronto.

A. R. Clarke, A. R. Clarke & Co., Toronto.  
 J. W. Cowan, The Cowan Co., Toronto.  
 J. W. Flavell, The Wm. Davies Co., Toronto.  
 Oliver Newcombe, O. Newcombe & Co., Toronto.  
 F. A. Ritchie, Ritchie & Ramsay, Toronto.  
 E. A. Simpson, Joseph Simpson's Sons, Toronto.  
 Alfred Burton, Mer. Dye. & Fin. Co., Toronto.  
 E. G. Gooderham, Toronto Silver Plate Co., Toronto.  
 James Kendrey, Auburn Woolen Co., Peterboro', Ont.  
 A. W. Porte, Toronto Biscuit & Confectionery Co., Toronto.  
 Geo. Smith, Smith Woolstock Co., Toronto.  
 C. J. Osmond, Albert Mfg. Co., Hillsborough, N.B.

H. J. Bird, Bracebridge, Ont.  
 L. J. Breithaupt, Breithaupt Leather Co., Berlin, Ont.  
 T. H. Smallman, Canada Chemical Mfg. Co., London, Ont.  
 S. E. Garnet, Canada Axe & Harvest Tool Co., Cote St. Paul, Que.  
 John Turnbull, Cornwall Mfg. Co., Cornwall, Ont.  
 W. H. Rowley, E. B. Eddy Co., Hull, Que.  
 G. D. Forbes, Hespeler, Ont.  
 J. T. Montgomery, Guelph Woolen Mills Co., Guelph, Ont.  
 G. H. Ives, G. H. Lees & Co., Hamilton, Ont.  
 C. S. Wilcox, Ontario Rolling Mills Co., Hamilton, Ont.  
 P. Hobson, Hamilton Blast Furnace Co., Hamilton, Ont.  
 C. J. Armstrong, McKinnon Dash & Hardware Co., St. Catharines, Ont.  
 Thomas Cantley, Nova Scotia Steel Co., New Glasgow, N.S.  
 G. E. Drummond, Canada Iron Furnace Co., Montreal, Que.  
 F. W. Thompson, Ogilvie Milling Co., Winnipeg, Man.  
 E. G. Swift, Parke, Davis & Co., Walkerville, Ont.  
 E. H. Clement, Page Wire Fence Co., Walkerville, Ont.  
 D. W. Robb, Robb Engineering Co, Amherst, N.S.  
 N. Curry, Rhodes, Curry & Co., Amherst N.S.  
 W. H. Storey, W. H. Storey & Co., Acton, Ont.

Representatives to Toronto Industrial Exhibition Association:—

R. W. Elliot,	Geo. Booth,
W. K. McNaught,	A. E. Kemp,
J. J. Cassidey.	

#### RESOLUTIONS.

The following resolutions were read, discussed and adopted:—

##### THE TARIFF.

Moved by Mr. W. K. McNaught.

Seconded by Mr. J. P. Murray.

Whereas, from the position and environment of Canada, its prosperity depends largely upon its tariff policy, and

Whereas, the formation of enormous industrial trusts in the United States in almost every branch of manufacture will make the competition with that country even more severe and unfair than heretofore; therefore,

Resolved, that this Association desires to again place itself upon record that in its opinion the prosperity of this country imperatively demands the continuance of a fixed and definite policy of protection, from the general principles of which there shall be no deviation, in order that our agricultural, mining, commercial and other industrial enterprises may participate in the general prosperity.

##### DISCRIMINATION IN RAILWAY FREIGHTS.

Moved by Mr. A. E. Kemp.

Seconded by Mr. George Booth.

That the Executive Committee be requested to investigate the question of railway freight rates as they may discriminate against the interest of Canadian manufacturers, and to report at a subsequent meeting of this Association.

##### DOMINION INSOLVENCY ACT.

Moved by Mr. J. P. Murray.

Seconded by Mr. C. R. H. Warnock.

Resolved, that in the opinion of this Association it would be in the interest of Canadian manufacturers and merchants,

and the community generally, to have upon our Statute books a Dominion Insolvency Act, which, while affording the same measure of protection to creditors and relief to debtors, would do away with the unfair system of preferential assignments, which at present obtains in some of the Provinces.

Resolved, that the Secretary be instructed to transmit a copy of this resolution to Sir Wilfrid Laurier, Premier of Canada.

#### TECHNICAL EDUCATION.

Moved by Mr. P. W. Ellis.

Seconded by Mr. P. H. Burton.

Whereas, the Canadian Manufacturers' Association is an organized channel of industrial public opinion;

Whereas, in addition to supplying the home market, our manufactured products now form an important part of the exports of Canada, and enter into open competition with similar products of other industrial centres in the markets of the world;

Whereas, all large industrial centres are awaking to the importance of commercial and technical education, and a better appreciation of the real underlying influences that assist trade and industry;

Whereas, this Association recognizes the importance of Canadian youth being scientifically and practically educated, so that upon completion of the educational curriculum prescribed they should find themselves fairly well endowed with special information regarding whatever calling they may have elected to adopt;

Whereas, the keen and growing competition of industrial centres of other countries make it of the utmost importance that energetic action be taken to establish commercial and technical schools throughout Canada;

Whereas, legislation and appropriations in support of such education are regarded as non-contentious measures,

Resolved, that this Association, through its Secretary, address the Ministers of Education of the different provinces of the Dominion, expressing the hope that they will take all steps necessary to as promptly as possible establish commercial and technical schools, and that their efforts in this direction may be characterized by the same energy and earnestness of purpose as that which has perfected our present admirable school system.

#### PRISON LABOR.

Moved by Mr. E. C. Boeckh.

Seconded by Mr. Geo. Smith.

Whereas, while it is the duty of the Government of Canada and of the different provinces to always legislate in favor of domestic interests and home industries, it is also the duty of those Governments to refrain from enacting any legislation which will in any manner injuriously affect any of those interests;

And whereas, free Canadian labor, especially when employed in manufacturing industries, is injuriously affected when brought into competition with prison labor; therefore

Resolved, that this Association deprecates and protests against the employment of prison labor in any manufacturing industry where the product of that labor is brought into competition in the open market with the product of free labor.

Resolved, that the Secretary be instructed to transmit a copy of these resolutions to Sir Wilfrid Laurier, Premier of Canada, and to Hon. A. S. Hardy, Attorney-General of Ontario.

#### IMPERIAL PENNY POSTAGE.

Moved by Mr. H. P. Coburn.

Seconded by Mr. John Hewton.

Resolved, that the Canadian Manufacturers' Association recognizes the great importance of cheap, rapid and adequate mail facilities as a means of opening up new markets and of enlarging and extending the possibilities of Canadian manufacturing and industrial enterprises. Therefore the Association has pleasure in recording its warm approval of the work done by Hon. William Mulock, Postmaster General of Canada, which has not only given us cheaper domestic postage but which has resulted in the adoption by the British and the Dominion Governments of what is known as Imperial Penny Postage now existing throughout the greater portion of the British Empire.

Resolved, that the thanks of this association are due to Hon. Mr. Mulock for the successful efforts he has made towards the accomplishment of this much desired result.

Resolved, that the secretary be instructed to transmit a copy of these resolutions to Hon. William Mulock.

#### RAPID TELEGRAPHIC COMMUNICATION.

Moved by Mr. John Hewton.

Seconded by Mr. J. M. Taylor.

Resolved, that this Association, appreciating the great practical importance of land telegraph lines and sub-marine cables in facilitating manufacturing and commercial transactions, congratulates the Dominion Government on the completion of arrangements which will secure the laying of a Pacific sub-marine cable to Australia, and it also highly approves of the Government's policy of building an overland telegraph line connecting the Yukon country with the rest of the Dominion.

Resolved, that the enterprising action of the Canadian Pacific Railway Company, who have recently, at great expense, completed the equipment of their transcontinental telegraph line with heavy copper wire, by which messages may be transmitted most speedily and without delay, deserves our admiration and appreciation.

#### HON. N. CLARKE WALLACE.

Moved by Mr. A. W. Thomas.

Seconded by Mr. R. W. Elliot.

Resolved, that the thanks of the Canadian Manufacturers' Association are due to Hon. N. Clarke Wallace for the service he has rendered it in connection with the International Commission appointed to adjust matters in dispute between Canada and the United States, and to procure, if possible, closer trade relations between the two countries. In rendering this service Mr. Wallace gave much valuable time in attendance upon the Commission, both at the City of Quebec and the City of Washington, freely and without reward, save the sense of having performed a patriotic duty; and it is pleasing to know that the intimate knowledge of tariff details, and of the manufacturing industries of Canada

possessed by Mr. Wallace, was freely availed of by manufacturers and others who found occasion to state their cases to the Canadian members of the Commission. Although Mr. Wallace in complying with the request of this Association to attend the meetings of the Commission, expressly reserved to himself the right to speak and act as an independent member of the Parliament of Canada, his utterances and expressed views were so entirely in accord with the sentiments of this Association, that we feel we owe him our most hearty thanks for his able exposition of the principles we advocate.

Resolved, that the Secretary be instructed to transmit a copy of this resolution to Hon. N. Clarke Wallace.

THOMAS COWAN.

Moved by Mr. George Smith.

Seconded by Mr. George Booth.

Whereas, since the last regular meeting of this Association, Mr. Thomas Cowan, a former president and always one of its most ardent supporters, has been called away by death.

Resolved, that in the death of Mr. Cowan this Association sustains a great loss, and that it desires to hereby record its sincere and heartfelt sorrow thereat.

Mr. Cowan was a typical native Canadian. In 1874 he engaged in a manufacturing industry in the town of Galt, Ont., which became known as "The Galt Foundry, Engine and Machine Works," and with which he maintained a business connection to the time of his death. He was a representative to the Dominion Board of Trade in 1874 in which year a session was held in St. John, N.B., and in 1875 when a session was held in Ottawa. As an outgrowth of the agitation of the tariff question in 1875 Mr. Cowan took a prominent part in organizing what is now The Canadian Manufacturers Association, and became very active in advocating the adoption of tariff protection to Canadian manufacturing industries. In 1886 he was elected president of this Association, succeeding Mr. R. W. Elliott, and was in turn, in 1887, succeeded by Mr. W. H. Storey.

In 1888 Mr. Cowan was appointed postmaster at Galt, in which position he remained until his death.

Mr. Cowan was a gentleman of most pleasing and genial manners, and one of the most engaging, logical and seductive orators who ever advocated a righteous cause. Every one with whom he came in contact became his friend, and he has left behind him a host of those who admired him for his noble and generous qualities.

Resolved, that the Secretary be instructed to place these resolutions in the Minute Book of the Association, and to transmit a copy of the same to his family.

JOSEPH SIMPSON.

Moved by Mr. Samuel May.

Seconded by Mr. P. H. Burton.

Whereas, God in his providence has removed from our

midst Mr. Joseph Simpson, for many years a most valued and active member of this Association, therefore be it

Resolved, that in his death we have suffered a great and irreparable loss.

Mr. Simpson was born in Charleston, South Carolina, in 1825, and came to Canada, settling in Toronto in 1863, where, in 1865 he embarked in the manufacture of underwear. His first business location was in what is now known as Dundas Street, but finding his quarters there too contracted he purchased land on Berkeley Street, near the Esplanade, where he built a large and commodious factory, which has been enlarged as the requirements of his business demanded, and which he occupied to the time of his death.

Mr. Simpson was always a most enthusiastic supporter of the policy of tariff protection to Canadian manufacturing industries, and was one of the most active workers of the band that organized and put into active existence what is now the Canadian Manufacturers' Association. He was always an ardent worker in it and for it. His presence at all important meetings might be depended upon, and his counsel and advice was always that of experience and prudence.

Resolved, that the Secretary be instructed to spread this resolution upon the minute book, and to transmit a copy thereof to the family of our deceased friend and co-worker, with the assurance of the esteem in which he was held, and the unfeigned sorrow we feel at his loss.

#### PRESIDENT'S ADDRESS.

*Gentlemen of the Canadian Manufacturers' Association:-*

It is with pleasure, and yet with diffidence, that I address you at this, the twenty-fourth annual meeting of our Association. From such a large constituency as the manufacturers of Canada, our organization should be so large and powerful as to command the respect of the community, and it should be able to bring such weight to bear on its conclusions as would ensure its recommendations most careful attention.

It is well for us to remember the objects of this Association which were so tersely expressed by my predecessor last year.

1st. To ensure by all legitimate means the aid of both public opinion and government policy in favor of the development of home industries, and the promotion of Canadian manufacturing enterprises.

2nd. To enable those in all branches of manufacturing enterprises to act in concert as a united body, wherever action on behalf of any particular industry, or of the whole body is necessary.

3rd. To maintain Canada for the Canadians. This in a word is the National policy.

Free trade in theory is very fine, but when it is not fair trade it is another matter. To quote the words of Lord MASHAM, "In Great Britain the manufacturer is called upon to fight hostile tariffs with free imports, to fight the closed door with the open, and no nation can do this without the most serious consequences, the certain loss of its trade. Trade returns confirm this in reference to Great Britain. In 1883 her exports of manufactured goods was £214,000,000,

and in 1898 £198,000,000, a decrease of £16,000,000 in fifteen years, and her imports of foreign manufactured goods increased in the same period from £68,000,000 to £103,000,000, showing that if you put the decreased exports and the increased imports of manufactured goods together, the trade of the country has gone to the bad over £50,000,000 in fifteen years.

While this is the case with Great Britain, we find that Germany has increased her export trade of manufactured goods to Great Britain from 1891 to 1897, six years, £21,000,000; and what does Mr. Stuart Mill say is the remedy for this? "A country cannot be expected to renounce the power of taxing foreigners, unless they will in return practise towards itself the same forbearance;" and Lord Salisbury says, "I would impress upon you that, if you intend in this conflict of commercial treaties to hold your own, you must be prepared, if need be, to inflict upon the nations which injure you the penalty which is in your hands—that of refusing them access to your markets."

It is, I think, a sign of the times and worthy of notice, that India has enacted countervailing duties with respect to bounty-paid sugar, and India is controlled, I may say, almost directly from Downing street.

It is gratifying to hear on all sides the general expression of satisfaction at the result of the past year's operations in all lines of manufacture in Canada, and the outlook is most promising for the year on which we have entered. Our domestic trade is in a most healthy state, and our exports of manufactured goods for 1898 show a very large increase over the previous year, the total exports being over one and a half million dollars over 1897; and I notice that the current year is likely to show a still greater increase, as the returns for the port of Toronto for the month of March show an increase of over one hundred thousand dollars. I find that the exports of Canadian manufactured goods have, in the past ten years, increased over one hundred and fifty per cent., while the increase in the United States for the same period has only been one hundred per cent.

This record will, I think, convince the most sceptical that our manufacturers are capable of taking care of the home market, and competing successfully in the foreign field. They are, in this competition, placed on the same footing as those who are seeking the trade in agricultural products; and as the prosperity of a country is gauged by its exports, our foreign trade in manufactured goods will become of increasing importance to the country's progress.

The whole Dominion, and manufacturers in particular, have watched for the past six months, very closely, the deliberations of the International Commission that has been trying to settle all matters of difference between Canada and the United States; and your Association, in order that manufacturers might be able to place their views before the Canadian Commissioners, requested the Hon. N. Clarke Wallace, M.P., to act as its representative before them, which he kindly consented to do. He was courteously received by the Commission, and from his wide experience and knowledge of the wants of manufacturers generally, gave valuable assistance to those who required his services. The thanks of this Association are due him.

It is to be regretted that no agreement could be arrived at

in many of the matters that were under discussion. As far as manufacturers are concerned they heard of the adjournment with relief, as many of them entertained fears that our Commissioners, in their anxiety to secure a treaty, would make undue concessions in the duty on manufactured goods, in order to secure reductions in the United States duty on agricultural products. I am glad to see that our Commissioners admit they have no hope of securing a reciprocity even on these terms, and I hope, while convinced of this fact, our Government will lose no time in placing an export duty on pine and spruce logs. In my opinion, if this were done, Canada would, in a very short time, be one of the greatest countries in the world in the production of pulp and paper, and what would more profitably advertise Canada in England than the fact that its daily papers, in its great centres of population, were printed on Canadian-made paper.

One of the greatest factors in increasing our foreign trade is cheap and quick transportation. It is to be hoped that the Government may continue the work of deepening our waterways, so that the largest class of vessels may have every facility in reaching our ports, and that a fast Atlantic service may soon become an assured fact. The citizens of St. John, N.B., are to be congratulated on the success that has crowned their efforts in making it a winter port, and the amount of the traffic to and from that city has increased so rapidly as to alarm the people of both Portland and Boston. I think it is our duty as Canadians to encourage this enterprise by encouraging shipments, particularly during the winter months, via St. John and Halifax.

I am glad to notice that our Government have completed arrangements for laying a Pacific cable, and are about constructing a telegraph line to Dawson City.

The reduction in the rate of postage has been hailed with satisfaction by all classes of the community, and the Hon. Wm. Mulock, the Postmaster-General, has deservedly received many complimentary notices for his activity in bringing this event to a successful issue. Would it not be well for him to go a step further and extend the parcel post system, by introducing in Canada the same regulations that are in force in Great Britain. It would not only be a great boon to the community, but very materially add to the revenue.

It is admitted on every hand that for a country to excel in any line of manufacture, skilled artisans are necessary. At present Canada has to rely almost entirely on other countries to fill this want, and manufacturers are willing to pay very large salaries for this class of labor. It is high time that the youth of our artisans should be able in our own country to fit themselves for the most important positions in our factories. In order to do this technical schools are absolutely necessary. This is admitted on all sides to be the principal cause of the wonderful development of manufacture in Germany. Technical school education there has attained a greater degree of perfection than in any other country in the world. The Ontario Government is on record as prepared to assist in this direction, and I trust that Toronto may take immediate steps to increase the facilities of the present technical school, so that we may not be behind any other city on the continent, but rather in advance. Other manufacturing centres in Ontario are alive to the

necessity of these places of training, and are taking steps in that direction.

In the year 1900 two important exhibitions will be held. The one at Paris is likely to eclipse all of its predecessors, and it is the duty of our manufacturers to see that the Canadian exhibit of domestic manufactures is a credit to our country. This can only be done by a large and varied exhibit in every department of manufactured goods. Our sister city, Buffalo, is also making a determined effort to have a Pan-American Exhibition next year, that may be a credit to her and to the State of New York. It is to be hoped that our manufacturers may be represented there in force, and thus give our neighbors a fair idea of what we are doing.

The Canadian Manufacturers' Association, with its large constituency, should be and is a most important agency for promoting the growth of manufactures in this country. There are also a number of other similar associations that devote some of their attention to matters that are of interest to this association, and I submit that much more could be accomplished if there were greater unity of action between them. Some practical plan should be devised by which all these bodies could work together for the common good.

The interests of Canadian manufacturers are so intimately involved in any tariff legislation that may be under consideration by the Dominion Government at Ottawa, that this Association should have its representative there whenever necessary to watch legislation, and lay before the Government and the members of Parliament the views of manufacturers on all questions that may come up for discussion, in which they are interested. This representative should also be required to visit all the important centres of industry, and by interviews and public meetings impress upon the public the vital necessity of the continuance of the policy of tariff protection to our home industries.

In order to extend our influence would it not be well for this Association to hold its annual meetings alternately in Montreal, Toronto, and other manufacturing centres, and in this way induce the manufacturers in them to take greater interest in our Association.

In conclusion, gentlemen, the events of the past year have convinced me that in order to make the work of this Association more effective, a greater membership and greater financial resources are necessary. It would only require comparatively small effort to increase the membership to two or more thousand. This would give us a revenue with which we could set agencies at work that would be a benefit to every manufacturer in the Dominion, and I take this opportunity now to appeal to every manufacturer, with all the emphasis I can command, to make the interests of the Association their own. The officers of this Association receive no remuneration for their services; allow them to have the satisfaction of feeling that their efforts to advance the interests of the Association have the full support and co-operation of its members.

#### SECRETARY'S REPORT.

*Gentlemen of the Canadian Manufacturers' Association:*

Since your last annual meeting many events have occurred, the tendency of which is to most vitally affect not only the various interests you represent, but also the interests of the

whole country. Perhaps the most important of these was the assembling and organization of the International Commission at the City of Quebec, appointed to consider and if possible amicably adjust all questions of disagreement existing between Canada and United States, and to effect an arrangement looking to closer trade relations between the two countries. The Executive Committee of your Association considered this latter feature of the matter to be of such great importance that they invited Hon. N. Clarke Wallace, M. P., to attend upon the Canadian Commissioners to the Convention and tender to them the use of his knowledge of the operations of the tariff as affecting the manufacturing and industrial interests of Canada, and of his experience gained while Commissioner of Customs of the Canadian Government. As is well known to you, Mr. Wallace was in attendance upon the Canadian Commissioners both at the City of Quebec and the City of Washington, and it gives me pleasure to inform you that your Secretary received a letter from Sir Wilfrid Laurier, Premier of Canada, and one of the Commissioners, expressing his gratification at the action of your Executive Committee in making available to him and his confreres the knowledge and experience possessed by Mr. Wallace.

At the recent session of the Ontario Legislature a bill was introduced by Mr. Thomas Crawford, intended to take the place of the present Workmen's Compensation for Injuries Act, under which employers are liable for injuries occurring to their employes. Mr. Crawford's bill did not merely shift the onus of proof from the employe to the employer, but provided that in every case of accident, whether the employer was to blame or not, except where it could be shown that the accident was wilfully caused by the employe, the employer was liable. Your Executive Committee considered this bill of such importance that they called a special general meeting of your Association to consider it. The meeting was held on March 2, at which a deputation was appointed to wait upon Hon. A. S. Hardy, Premier and Attorney-General, to protest against the passage of it; and it affords me pleasure to inform you that Mr. Crawford's bill did not become law. Mr. Hardy, however, introduced a bill that was passed, and is now law, which provides that where the machinery or plant of a factory is required to be guarded or enclosed, on any trial under the bill the burden of proof that the machinery or plant was thus guarded rests on the employer.

Acting under instructions of your Executive Committee I have put myself in communication with a number of bodies and associations somewhat similar to your own, all having an object in promulgating the principle of tariff protection to home manufacturing industries. Among these are the National Association of Manufacturers, of the United States; the Home Market Club, whose headquarters are at Boston, Mass., and the American Tariff League, whose headquarters are at New York. The first mentioned of these associations is formed on lines very similar to those of the Canadian Manufacturers' Association. In its membership are included the names of hundreds of the largest and most important manufacturing concerns in the United States, who have invested their money freely in organization work that tells very effectively in educating workmen and the public generally in questions regarding political economy, and in creating and extending foreign markets for American manufactured products. Other associations with which we are in sympathetic touch are The



# CANADIAN MANUFACTURERS' ASSOCIATION.

<p><b>President:</b> <b>J. F. ELLIS.</b></p> <p><b>First Vice-President:</b> <b>P. W. ELLIS.</b></p> <p><b>Second Vice-President:</b> <b>R. E. MENZIE.</b></p> <p><b>Treasurer:</b> <b>GEORGE BOOTH.</b></p> <p><b>Chairman Executive Committee:</b> <b>R. W. ELLIOT.</b></p> <p><b>Chairman Tariff Committee:</b> <b>W. K. McNAUGHT.</b></p> <p><i>The Executive Committee meet on the Second Tuesday of each month.</i></p>	<p><b>OFFICES</b> <b>McKinnon Building,</b> <b>TORONTO.</b> 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> <i>President, . . . . .</i> <b>JAB. KENDREY, M.P.</b></p> <hr/> <p><b>WOOLEN MANUFACTURERS' ASSOCIATION,</b> <i>President, . . . . .</i> <b>BENNETT ROBAMOND, M.P.</b></p> <hr/> <p><b>KNIT GOODS MANUFACTURERS' ASSOCIATION,</b> <i>President, . . . . .</i> <b>JOHN PENMAN.</b></p> <hr/> <p><b>CARPET MANUFACTURERS' ASSOCIATION,</b> <i>President, . . . . .</i> <b>J. P. MURRAY.</b></p> <hr/> <p><b>GLOVE MANUFACTURERS' ASSOCIATION,</b> <i>President, . . . . .</i> <b>A. R. CLARKE.</b></p> <hr/> <p><b>REPRESENTATIVES TO</b> <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. Eustace Burke**, 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. Ronnie**, 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.

National Anti-free Imports League, of London, England; The National Bacon Curers' Association of Great Britain and Ireland; The United Empire Trade League, of which Sir Howard Vincent, M.P., is Corresponding secretary; The Fair Trade and Home Defence League, of Warminster, Eng.; The National Industrial Association, Islington, Eng.; Fair Trade Club, London, Eng., and the Tariff Reform Association, Chesterfield, Eng.

An important feature of the work being done by your Association is the publication of Bulletins generally having reference to the possibilities of Canadian trade in foreign countries. The information is obtained chiefly from official documents issued from time to time by the Governments of Canada, United States, Great Britain, France, Germany and other countries; and the fact that the export trade of Canada in manufactures is growing rapidly and has already reached large proportions is exceedingly gratifying.

In the month of September last, on the occasion of the usual annual fair of the Toronto Industrial Exhibition Association, a special general meeting of this Association was held on the Fair Grounds, at which addresses were delivered by Hon. William Paterson, Minister of Customs, Geo. H. Bertram, Esq., M.P., Hon. N. Clarke Wallace, M.P., and other distinguished gentlemen.

It affords me much pleasure to inform you that the membership of your Association is more numerous at this time

than it has been for several years, and that important accessions are constantly being made to it, recruited from the ranks of the most enlightened and enterprising manufacturers of Canada.

### ACCESSIONS TO MEMBERSHIP.

Before the close of the meeting the President, Mr. Ellis, suggested that as many of the members present as might choose to do so pledge themselves that before the end of the current year they would guarantee to induce other manufacturers who are not now members to join the Association, in default of which they would pay to the Association the sum of \$10 each for new members so promised. A number of the members so pledged themselves, none of whom promised less than two additional members, the result being that the membership of the Association will be, by this means, increased by more than fifty.

### FROM LABOR TO REFRESHMENT.

At the conclusion of the meeting the members went to the Rossin House in a body for dinner. For the afternoon they were the guests of H. A. Lozier & Co., manufacturers of the Cleveland bicycle. At 2.30 p.m. special cars took the party for a ride to the Cleveland Works at Toronto Junction. Manager E. R. Thomas, Superintendent Hass and Mr. McNamara took them in hand and an interesting hour was



spent in the various departments of the works. Great surprise was expressed at the minuteness of each department of the big factory and the wonderful detail of the manufacture of a bicycle. The Cleveland wheel in its varying stages, from cold steel to the finished article, was examined in process of construction, and the unique machinery necessary for the manufacture of the various parts was closely scrutinized. The visitors saw all parts of a bicycle being made excepting the rims and the tires. The two latter are the only portions of a bicycle not manufactured in the works of the H. A. Lozier Company at Toronto Junction. A subject of much favorable comment was the thorough neatness and cleanliness of the factory, as well as the amply sufficient amount of room allowed each man to work in, and there was evidence of a thorough system for regulating the labor of the 400 employes.

Mr. Thomas treated his guests in a royal manner. On the cars refreshments were supplied, and after the factory had been thoroughly inspected the visitors came on an unexpected department where there were numerous tables containing all the nice things that go to make a substantial cold lunch.

Mr. John F. Ellis, President of the Association, proposed the health of the H. A. Lozier Company and Mr. Thomas. It had given him much pleasure to see the Cleveland wheel in course of construction and the wonderful machinery and clever men it took to make it.

Mr. Thomas, who is a member of the Association, said he was delighted to have this visit from Canadian manufacturers. He extended a most hearty welcome to them, and in his remarks stated that ninety-six per cent. of all the machinery and appliances in the factory was made in Canada and was the handiwork of Canadian skilled labor.

Mr. P. H. Burton said he took a pride in such an industry as he had just seen. It was Canadian—that was right. Such industries should and must be encouraged in this country. This factory showed that anything could be made in Canada as well as anywhere else. Thousands of men were employed in big industries in Canada, and these men must go elsewhere if such industries were not here. This factory showed that industry, education, pluck and stickativeness, all of which were Canadian characteristics, could overcome all difficulties that might arise.

Mr. W. K. McNaught proposed in complimentary terms the health of Superintendent Hass and Mr. McNamara. Both these gentlemen expressed their pleasure at having an opportunity to show such a representative gathering how the Cleveland wheel was made. The Company, they said, was most gratified to have the honor of the visit.

Mr. Hewton, of Kingston, said he thought he was justified in moving that every member should have a wheel, and his motion carried.

Mr. P. W. Ellis made a few remarks, pointing out that manufacturers were not always competitors, but were always a unit in pushing for our country. The men who were working in the Cleveland factory as producers were no doubt consumers of the product of a dozen or more other factories. His speech was a strong one for protection.

Other speakers were Messrs. George H. Leas, of Hamilton; Wm. Thoburn, of Almonte; and C. R. H. Warnock, of Galt. The outing was a very enjoyable one, and the party were brought back to the city before six o'clock.

### THE MINES OF CENTRAL ONTARIO.

During a visit to the Hastings, Ont., gold district last fall Mr. J. T. Donald, the well-known mining engineer of Montreal, is reported to have said that the mines of that district were about to enter upon a period of long delayed prosperity. This prediction is now beginning to be verified, for two English companies, who have been working on the gold ores of that district for some time and have spent a large amount of money in development work, are beginning to get returns.

The Deloro gold mines, belonging to the Canadian Fields, Limited, are situated about three miles east of Marmora village, their property containing several well defined veins of mispickel (arsenical pyrites), carrying gold. It has been known for a long time that these ores contain gold, but being different from ordinary gold bearing ores, and the arsenic making them refractory, a new method had to be adopted for treating them. A great deal of careful investigation had to be made and experiments carried on with the view of saving not only the gold but the arsenic in these ores, and at last it was believed this was accomplished by the bromo-cyanogen process, which was recently installed in the township of Marmora. Unfortunately, however, these works were last year destroyed by fire, entailing a great loss on the company; but with commendable pluck they soon commenced to rebuild, and during the past winter completed a new ten stamp mill and have again commenced to produce gold bricks. They have now about seventy-five men employed and intend shortly to enlarge their mill.

The Belmont gold mines property, known as the Carscallen mine, is about eight miles west of Marmora and is owned by The Cordova Mining and Development Company, an English concern. They, too, have a ten stamp mill with all the latest improvements, and are regularly producing gold bricks said to be worth about \$1,000 per week, from their free gold, besides their concentrated sulphurets which are being laid aside for further treatment as they are also rich in gold. At present The Cordova Company have 100 men at work under the able management of Mr. Kerr, from Glasgow. An air compressor has lately been installed and the mill is now being enlarged to include forty stamps, as the large quantities of ore on the property warrant the mines being worked on a large scale. Everything here is done in a thorough, workmanlike manner, the buildings being of a most substantial character.

The ore of the Carscallen mine, as well as that of the Ledyard gold mines adjoining, is not arsenical, but consists of quartz with some free gold but with a considerable quantity of iron pyrites, also auriferous. In fact, some of these sulphurets have assayed very richly, some samples from the Ledyard mines which show no free gold assaying from \$100 in gold per ton to over \$900. The size of the gold bearing veins on these two properties are remarkable.

There is one feature in which the Ledyard and the Carscallen mines are unique, in that they are in close proximity to the Belmont iron mine on the adjoining property, which is a large bed of magnetic iron ore of high grade, Bessemer quality, and so free from impurities that it is suited to make the finest steel. Geologists consider this large iron deposit a most favorable feature as it shows a highly mineralized zone

and the very large size of the gold bearing veins and the quantities of auriferous sulphurets they contain may have been influenced by the iron. The surroundings are indicative of large deposits of iron ore. These mines can be worked very cheaply as they are in a well-settled district, close to several lines of railway, with one running through the properties. Labor and supplies are cheap, there is plenty of water, and wood is to be had for the cutting. There is no part of America where mining and milling can be carried on more cheaply, and as there is now no doubt of large quantities of ore, there should be no doubt of the future prosperity of this district.

The existing activity in the iron and steel trades has given an impetus to iron mining. The Wallbridge mine, near Madoc, is producing 100 tons per day of high grade hematite ore for the furnace at Hamilton, Ont., and the Dufferin mine in the same township is putting out twenty tons a day.

The Belmont iron mine, at the terminus of the Ontario Belmont and Northern Railway, is about to ship a trial lot of ore to England and another to the Deseronto furnace. There are also enquiries for this ore from the United States, choice ores now bringing prices that should make it remunerative to ship this for manufacturing high grade steel.

#### THE OFFSPRING OF HIGH TARIFFS.

Our esteemed contemporary, The Shareholder, is distressed at the recent combination of all the iron and steel companies in the United States with a capital of \$400,000,000 which it says, is similar in character to the Standard Oil Company, and which will, it thinks, use its power with similar perniciousness. The answer to this is that if the Standard Oil Company, having great power, exercises it for its own selfish advantage, it is because it controls the productive capacity of the world, including, perhaps, that of Russia. Not so, however, the new iron and steel combination, for iron ore abounds in every country of the world, and it would be impossible for the American Syndicate to control the production of iron in any other country.

The Shareholder says:—

The recent extraordinary development of the American iron export business will afford an outlet for the surplus products of the various diverse interests united, as these can be manufactured at prices lower than those prevailing in Europe. So far as the United States is concerned, the price of products will be determined solely by the tariff rates imposed upon goods of foreign manufacture. This, no doubt, means that the prices to the United States consumer will be regulated by the protection afforded by the tariff, regardless of those which will prevail in competition in other countries. Other large trusts and huge combinations are in course of organization, and the prospects are that the people will soon awaken to the fact that the tariff is made to enable monopolists to fatten on the consumers. As soon as this result is obtained, the monopoly-breeding duties, which shut out from the United States the produce of other countries, will have to go. Canada should watch the current of events in this respect in the United States and learn wisdom's lesson. The American consumers, as soon as they find out that the high tariff simply robs Peter to pay Paul, will not hesitate to put Paul out of the way, and the Canadians may yet have the same lesson taught them just as pointedly as it is being laid bare to the members of Uncle Sam's family.

This is the old cry that the duty always enhances the price of the article. The fallacy of it has been demonstrated time and again, but The Shareholder, like all other free traders, never learns from either observation or experience.

The history of iron production in the United States, under high protection, and in Great Britain under free trade, is both interesting and instructive.

The Republican party in the United States came into power in 1860, in which year what is known as the Morrill Tariff Act was passed, which imposed an ad valorem duty of 24 per cent on pig iron. In 1861—the first full year under the operation of that tariff—the United States produced 653,164 tons of pig, the average maximum value of which was \$20 per ton; and in that year the production in the United Kingdom was 3,803,390 tons. In 1862 the duty was made specific at \$6.00 per ton, at which it was continued through 1863 and 1864. In this latter year, in which the war of the rebellion was culminating, and in consequence of it, the highest average price ever recorded in that country was \$73.50 per ton, the domestic production amounting to 1,014,284 tons against 4,767,951 produced in Great Britain. In 1865 the duty was increased to \$9.00 per ton, at which it was continued to and including 1870. In 1865, owing no doubt to the effects of the war, the domestic production amounted to only 831,769 tons as against 4,819,254 tons in Great Britain, and 9,250,000 tons in the whole world. In 1870, the last year of the \$9.00 per ton duty, the domestic production was 1,665,175 tons against 5,963,513 in Great Britain, and 11,900,000 in the whole world, the maximum average price in the United States being \$36.25 per ton. In 1871, the duty was reduced to \$7.00 per ton, at which it was continued to and including 1883; and in this latter year the production of pig iron in the United States amounted to 4,595,510 tons against 8,490,224 in Great Britain and 21,000,000 in the whole world, the average maximum price of American pig being \$25 per ton. From 1884, to 1893 inclusive, the duty was \$6.72 per ton. In 1885, the production in the United States was 4,044,526 tons, in Great Britain, 7,250,657, the world 19,100,000 tons, the average value in the United States being \$18.25. In 1890, under the stimulus of protection, although the duty had been slightly lowered, the production of pig iron in the United States was actually greater than that of Great Britain, the production in the former amounting to 9,202,703 tons, against only 7,875,130 tons in the latter, the output of the world being 27,157,000 tons. The production in 1897, the last year for which all the facts are available, was—United States, 8,652,680 tons—Great Britain 8,789,455 tons, the world, 32,938,000 tons, the average maximum price in the United States being \$12.75 per ton.

It was under the protection that prevailed in Great Britain fifty years ago that her great pig iron industry was built up. The country contained an inexhaustible wealth of coal; her shipping was greater than that of the rest of the world combined; she could lay the ore down at the mouths of her furnaces cheaper than could be done in any other country; her artisans and workmen were more skilful than those of any other country; she commanded the markets of the world, and her ship owners, her manufacturers, her merchants and her financial institutions combined to stamp out any competition in any markets where it might venture to show itself.

Such were the conditions under which free trade was inaugurated in Great Britain. To day we see Great Britain receding from this lofty and enviable position, why? The United States, the nation that has adopted high protection as its policy, goes ahead by leaps and bounds, Great Britain that clings to its free trade fallacy very rapidly falling to the rear.

The Shareholder tells us that so far as the United States is concerned the price of (iron) products is determined solely by the duty imposed upon such products, but we are confronted by the fact that our contemporary does not explain, that whereas a few years ago a large proportion of Canada's imports of iron and manufacturers of iron came from free trade Great Britain, at this time the situation is reversed, and our imports from the United States are far in advance in volume and value of those we receive from the Mother Country.

It is like the discordant noise issuing from a violin out of tune, this constant prophesying that because of the injurious effects of protection the people of the United States will soon abandon it. Dear old grandpa Richard Cobden used to say that within fifty years after the repeal of the Corn Laws every nation of the world would have adopted his free trade fad, and strange to say, both The Shareholder and Sir Wilfred cling to the idea yet. But the world does not direct its course along that road, and even Great Britain can see no way out of the dilemma in which she is in to-day except by a return to protection and the imposition of duties upon imports.

We quite agree with The Shareholder in urging that the people of Canada should watch the current of events in this respect in the United States, and learn wisdom's lesson.

The people of the United States are also watching this current and know how to guide their ship of State. They quite agree with the sentiments expressed by President McKinley in his recent speech before the Home Market Club in Boston, when he 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, for the time at least. We have turned from academic theorier to trade conditions and are seeking our share of the world's markets.

THE CANADIAN IRON INDUSTRY.

The Toronto Globe publishes a special telegram from Ottawa to the effect that Toronto is to have the largest blast furnace in Canada, to be conducted by a company now being formed with a capital stock of \$2,000,000. The deal for the purchase of the land upon which the works are to be erected will be, it is said, consummated in a very few days, and it is promised that by the middle of May ground will be broken for the erection of a furnace to have a capacity to turn out 200 tons of pig iron per day. Dependence for ores will be had chiefly upon the deposits of Western Ontario, to be brought over the Rainy River Railroad, which will be completed at an early day, to Port Arthur at the western end of Lake Superior, whence transportation by water is available to Toronto. So thoroughly impressed with the feasibility of this project are the capitalists behind it that they will proceed with the building of the furnace without wait-

ing for the promise of any aid that they are assured the Government will render later on. The Dominion Government now pay a bounty of \$2 per ton for pig iron manufactured in Canada from Canadian ores, and the Ontario Government pay a bounty of \$1 per ton under similar circumstances.

Truly, the seeds of the National policy having been planted in good ground are fructuating and bringing forth good fruits.

THE WAY TO DO IT.

The Toronto World thinks that blast furnaces are not the only industry that we might have in Canada if the Government took proper action. It tells us as follows how certain things might be had for the asking :

There is the nickel industry. A mere proclamation by Sir Wilfrid Laurier would start a refinery, or refineries, in this province, paying millions of dollars in wages annually.

An export duty on rails would set a big steel rail plant a going. This business would make a decent start with over two million dollars output a year.

Paper and pulp mills we might see dotted all over the northern and eastern portions of the country if Sir Wilfrid Laurier would only have the nerve to act upon the authority vested in him by section I of the Act respecting export duties.

Ocean shipbuilding is a possibility for Canada if the Government will act upon Mr. Bertram's advice, and make the construction of the fast Atlantic fleet in this country a condition of the proposed subsidy.

Canada might have several beet sugar factories if the Government would encourage the industry here as the American Government has encouraged it in the United States.

Dozens of smaller industries might be created or extended in Canada, if the tariff was arranged so as to force the manufacture in this country of even a small portion of the \$80,000,000 worth of products that we import from the United States.

CANADIAN INDIANS.

The Indian population of Canada as shown by the annual report of the Indian Department just issued reached an aggregate of 100,093 souls in 1897-98, as against 99,364 for the preceding year.

The area of land under cultivation during the year aggregated 111,880 acres. The crop of cereals, vegetables and roots harvested in the fall of 1897 amounted to 1,120,900 bushels, and of hay and other fodder 75,458 tons, the increase over the preceding year being 101,500 bushels and 2,164 tons respectively. It is regretted that there was not a proportional increase in the value of farm produce, which in the aggregate only exceeded that of the preceding year by some \$20,000.

The receipts of these Indians from the same sources as were mentioned in last year's reports were for that now under review as follows:—

Value of farm produce .....	\$708,762
Received from land rentals.....	57,998
Wages earned.....	628,941
Earned by fishing.....	380,100
Earned by hunting.....	437,337
Earned by other industries....	420,257
Total .....	\$2,633,395

This amount exceeded by \$167,793.30 that of the year before, which was \$2,465,601.

#### MUST PROVIDE VESTIBULES.

There is a by-law of the City Council of the City of Toronto, that the Toronto Street Railway Company shall, during the months of November, December, January, February and March, maintain vestibules upon their cars for the protection from the inclemencies of the weather of those who have charge of them. The company placed vestibules upon the front ends of their cars, but not upon the rear ends, contending that that was all that was required by the law. A few weeks ago an action was brought against the company before a police magistrate to compel the placing of vestibules upon the rear ends of the cars, and a judgment was rendered against the company imposing a fine and costs for the delinquency. An appeal was taken by the company to the Divisional Court to set aside the judgment, but Judge Macdougall has just handed down his decision sustaining the lower court, and dismissing the appeal. By this decision the company will be obliged to provide all cars with closed vestibules on the rear end as well as in the front during the months mentioned in the by-law.

His Honor said that the question he had been required to decide was whether the defendants, according to the by-law, were bound to provide a vestibule for each end of the cars, and to protect, by a vestibule, the conductor as well as the motorman. Evidence as to the convenience of vestibules on the rear end of cars has been offered, but it was beside the mark as far as his jurisdiction was concerned.

Referring to the contention that the Toronto railway was a Dominion concern, and in consequence not bound to submit to any other authority than the Dominion Government, his Honor said that the objection could not be sustained.

As to the merits of the case, his Honor held that the language of the by-law forbade the operation by the company of any street car unless it was supplied with proper and sufficient vestibules. That meant that there must be two vestibules, not "a vestibule."

The defendants had argued that the words motorman and other persons in charge of the car while engaged in operating the car did not include the conductor. His Honor was of the opinion that the conductor was in charge of the car within the ordinary and common sense meaning of the expression, and

had it been meant other wise the statute would read to protect "the motorman in charge of the car." The conductor gave the signals by which the car started and stopped, and was consequently the person in charge of the car, the duties of the motorman being much the same as those of a locomotive driver on a steam railway. He thought that without a doubt both the conductor and motorman were engaged in operating the cars, and in support of that quoted a judgment of Chancellor Boyd.

The conclusion his Honor arrived at was that the meaning and interpretation of the by-law was plain, and that the conviction should be affirmed.

#### 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.

18. A gentleman at present buying Russian fir cask staves wishes to import similar goods from Canada if satisfactory prices are quoted. The sizes required are  $4\frac{1}{2} \times 9-16$ ths  $\times 2\frac{1}{2}$  6, and 27 in.  $\times \frac{3}{4} \times 3-7$ .

19. The agent of the Government at Cardiff has received an enquiry in reference to raspberry pulp, from a large firm who prepare raspberry juices and essences. For a good sample they are prepared to guarantee a good minimum price.

20. A Glasgow firm are open to import broom handles on commission or to buy such goods outright, by arrangement. They also enquire for shippers of seeds and peas.

21. The patentee of an enamel for refixing dental plates wishes to correspond with buying agents and wholesale chemists in the Dominion who would be open to do business in this line.

At the annual meeting of the Dominion Cotton Company, held in Montreal, April 13th, the president's report showed that the profits for the past year had been \$435,888 or an increase over the previous year of \$129,000 and that the sum of \$148,000 had been carried forward. Out of this, of course, the dividend and interest on bonds had been paid. The assets of the company were \$8,000,000, the capital \$3,000,000 and ten per cent. had been earned and six per cent. paid. The company sold during the year goods to the amount of \$2,325,000. The statement also showed that the company had \$900,000 worth of raw cotton on hand. Mr. A. F. Gault was re-elected president.

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

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

The Ontario Government have made an agreement with the Sturgeon Falls Pulp Company, by which the company must buy out the property of the Ontario Company, and produce 5,000 tons of pulp per annum. The company, which is composed of English capitalists, must erect a paper mill to cost \$1,000,000, turn out 30,000 tons of paper a year, and employ 240 people. Of the amount to be expended \$250,000 must be expended in eighteen months, and \$500,000 in twenty-four months, and the rest in three years. In return the Government gives the company the right to cut and remove spruce, poplar, tamarack and jackpine along Sturgeon river and tributaries. The company pay the Government twenty cents per cord for spruce, and ten cents for hardwood.

Mr. R. M. Springer, of Edmonton, N. W. T., is the inventor of a new scheme for gaining access to the Klondike. A company has been formed under the title of the Chicago and McKenzie River Valley Transportation, Trading, and Mining Company, with a capital stock of \$1,000,000, who promise trips from Chicago to the Klondike in a sleeping car, with a diner attached. The company proposes to run a train of cars from Athabasca Landing, 100 miles north of Edmonton, to Fort McPherson, far above the Arctic circle. The chain of lakes and rivers will furnish a roadbed of ice for seven months in the year. It is expected to make the trip, which is over 1,800 miles in length, in ten days. The cars will be boat shaped, so they will float if the ice breaks, and so that in summer they may be lifted from the runners and used as boats. The company, it is said, has been granted a

site at Edmonton and bonus of \$10,000 as an object to build the shops there. The first train of an engine and three cars will be built in Chicago and shipped north. The company expects to have it in readiness when navigation closes next fall. The engine to haul this train will be built with drive wheels eight feet in diameter. They will be but two inches thick at the circumference, growing thicker towards the hub. The wheels will cut down through the snow, and a rough will give them a grip on the ice. The cars will be built like railway coaches, except they will hang in a frame, which will allow them to swing so they will remain level if one side of the road bed should be higher than the other. The Chicago men who have organized the company are W. H. Bond and Joseph Hopp, and the inventor, R. M. Springer.

The Dominion Steel and Iron Company, composed chiefly of H. M. Whitney, of Boston; Almeric Paget and H. F. Dimock, of New York, have made an important move before the Legislature of Nova Scotia. The men who control the Dominion Coal Company are practically the same as those in this Steel and Iron Company. The Government of Nova Scotia levies on the coal company a royalty of 12 cents per ton on all the coal they raise in the province. The new Dominion Steel and Iron Company have asked the Nova Scotia Government to remit the royalty for five years on all coal used in the manufacture of their product, promising if this is done to erect a \$3,000,000 plant in Cape Breton, commencing work before August 1st. The Government have declined

to grant the exemption as requested, but agree to remit half the royalty for the longer period of eight years. Mr. Whitney's company proposes to manufacture steel and iron in competition not merely for the Canadian market, but for the United States and Europe.

Mr. Fred Halliday, Crown Lands timber agent at Parry Sound, Ont., says that lumbering is done for the season in his district, and the operators are all out of the woods. The Michigan firms which have been operating on Crown lands limits have submitted to the new law against exportation, and Mr. Halliday hears that one firm, Turner and Fisher, of Bay City, Mich., have made a contract with Chew Brothers of Midland, Ont., to saw eighteen million feet. That includes the cut of the past season, and part of the cut of the season before. The regulations with regard to the employment of aliens have been strictly enforced, and the consequence is that none but Canadian shantymen have been cutting in the bush.

It is stated that Messrs. Peter Ryan, and Mackenzie, Mann & Co., Toronto, have purchased the Inverness and Richmond Railway in Nova Scotia, and in connection therewith what is regarded as the largest single coal-bearing area in Canada, embracing about sixty square miles in Inverness County, in the localities of Port Hood, Broad Cove and Chimney Corner. The company will go extensively into coal mining in rivalry to the Dominion Coal Company. Arrangements are understood to have been completed for a fleet of coalers to carry coal to Boston, Prince Edward Island and Montreal. The harbors at the company's termini, which will be the shipping ports of the new concern, are Cheticamp, on the north, and Hastings, and Cariboo Cove on the south, which ports are nearer the various market points than Sydney or Louisbourg, at present the important coal ports in Nova Scotia.

The Charles Rogers & Sons Co., Toronto, have been awarded two important contracts for interior woodwork. One is for the grand staircase of the new Telegram building, corner of Melinda and Bay streets, and the other for the mahogany office fittings of the new branch of the Ontario bank to be opened at the corner of Yonge and Richmond streets.

A man who carries on his business without advertising is like a man sitting in a street car and winking at a pretty girl through a pair of green goggles. He may know what he is doing, but no one else does.

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When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Niagara Falls Planing Mills Co., Niagara Falls, Ont., has been incorporated with a capital stock of \$3,500 to operate a planing mill and manufacture lumber, etc. Mr. J. J. C. Thompson is at the throttle.

Mr. R. M. Jaffray, of London, Eng. was in Toronto a few days ago in the interest of a syndicate who propose to consolidate the Canadian bicycle manufacturers under one management. All the larger bicycle companies, he states, have joined the combination, and in a week or so application will be made to the Dominion Government for letters of incorporation. The concern will be known as the Canadian Bicycle Company, Limited, with a total capital stock of \$3,000,000, in one hundred dollar shares. Half of the stock will be preferred and half common stock. The plants and business of the companies now doing business will be purchased, with stock, and the working capital will be supplied by the sale of the balance of the stock, all of which, Mr. Jaffray says, has been underwritten. He states also that the object of the combine is not to raise the price of wheels, but to manufacture a line of bicycles that can compete successfully with the cheap grades now imported from the States. Heretofore, he says, Canadian manufacturers have devoted themselves almost entirely to high grade wheels and left the market for cheap lines to the Americans. He says that more bicycles are imported than

are manufactured in Canada, and the imported wheels are all of the cheaper grades. The greater portion of the bicycle works will be removed to Toronto after consolidation is obtained.

An electrical siren is an invention that has recently been perfected in Ottawa, by Mr. A. E. Trudeau, which may take the place of electric bells, and which will no doubt be used as a fog signal at sea and along the shores where fog signals are now in use. It can be placed at a point inaccessible to the ordinary steam plant now used in fog signalling, and can be operated by wires connecting the power at almost any distance. The sound is produced by the vibration of a diaphragm at the base of the horn. This new device, it is expected, will be adopted by the Dominion Government to take the place of the rather cumbersome steam plant required for signaling stations.

The Toronto City Engineer, has submitted his estimates to the city council for necessary expenditures for the ensuing year. They call for an aggregate of \$1,250,070, of which \$859,143 is for maintenance of the water works system, including additional pumping machinery, and \$390,927 for general purposes. A number of special services are included, as, for instance, \$337,350 for tunnel and pipes under the bay, \$173,652 for new water mains, \$55,000 for new pumping engine, \$20,000 for concreting Ross Hill

reservoir, \$10,000 for waste prevention, Humber bridge \$13,000, and \$10,000 for preparing plans, etc., for sewage disposal. Besides these, \$16,000 more is asked for macadam roadways than was expended last year, \$15,000 more for repairing track allowances, \$17,000 for repairs to main pumping station, \$5,000 for dredging slips, and \$3,000 for a new road roller.

The Watrous Engine Works Co., Brantford, Ont., have completed an aerial truck for the Hamilton, Ont. fire department at a cost of \$3,000. It is forty feet over all. The mechanism for elevating the ladder is ball bearing, and improved so that the ladder can be elevated in twenty-two seconds. When extended the aerial ladder reaches sixty-five feet. In addition to this, there are a dozen other ladders, including two pompier and two scaling ladders, the aggregate length of ladders carried being 312 feet. The pompiers are eighteen feet in length, built of steel, and are used to climb from window to window. The wheels are supplied with roller bearings and a steering wheel is affixed to the rear set of wheels to enable the apparatus to turn corners safely at top speed. The wagon is supplied with buckets, pitch forks, fire-extinguisher, pike-poles and hooks. The wood used is principally fine grained Douglas fir from British Columbia, and hickory, the latter being utilized for rungs.

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

Engineers and Builders

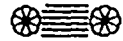
# MODERN MINING and MILLING MACHINERY

## "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.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



The Canadian Pacific Railway Co., will erect a depot at Treesbank, Man.

That portion of the Langmuir trunk factory, Toronto, which was recently destroyed by fire, will be rebuilt immediately.

The Polson Iron Co., Toronto, will erect an additional machine shop to cost \$2,200.

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

The Diamond Light and Heating Company, Montreal, are applying for incorporation with a capital stock of \$200,000 to manufacture burners, radiators, etc.

Stratford, Ont., ratopayers will be asked to vote \$120,000 for the purchase of the waterworks system.

Messrs. E Simpson & Co., of Moose Jaw, Assa., will erect a flour mill at that place.

The Abbott-Mitchell Company will erect a new rolling mill at Belleville, Ont.

The Canadian Rand Drill Co., Sherbrooke, Que., will erect a new machine shop 200x90 feet.

Messrs. Wilson and George have placed the contract for the machinery for the flour mill they are about erecting at Indian Head, Assa., with the North American Mill Building Co., Stratford, Ont. An electric light plant will also be added, to cost about \$8,000.

The Miami Farmers' Elevator Co., Miami, Man., is applying for incorporation with a capital stock of \$10,000.

The Rosebank Farmers' Elevator Co., Rosebank, Man., is applying for incorporation with a capital stock of \$10,000.

The Morley Ladies' College at Huntsville, Ont., was destroyed by fire recently. Loss about \$12,000.

Mr. John Patterson, Toronto, will erect a candy factory and other buildings to cost \$20,000.

The Maple Leaf Rubber Co., Toronto, has been incorporated with a capital stock of \$250,000 to manufacture all kinds of rubber goods.

The Winnipeg, Man., Elevator Co. has been incorporated with a capital stock of \$300,000.

The Victoria Hotel, Virden, Man., was recently damaged by fire to the extent of about \$1,000.

Alluding to what was said in our issue of April 7th, of the Vulcan Chain Pipe Wrench manufactured by J. H. Williams & Co., Brooklyn, N.Y., the inference might be drawn that the Fairbanks Co., Montreal, were the sole Canadian agents. This impression would be incorrect, for the Fairbanks Co. are not and have never claimed to be exclusive agents.

The Fairbanks Co., Montreal, have recently supplied Messrs. John Bertram & Sons, Dundas, Ont., with a compound suspension scale with capacity to weigh 30,000 pounds, to Messrs. Boivin, Wilson & Co., Berthier, Que., a similar machine of 20,000 pounds capacity, and Messrs. I. Matheson & Co., New Glasgow, N.S., one of 10,000 pounds capacity. A compound suspension scale is an essential feature of the equipment of every machine shop handling castings or machinery. Those made by the Fairbanks Co. are very compact and simply act as a part of the chain connecting the crane hook with the thing to be weighed. The company who made these here alluded to, carry sizes of from 400 to 10,000 pounds capacity in stock in their warehouse at 749 Craig street, Montreal.

The Royal Electric Company are installing in the works of the Hamilton Bridge Co., Hamilton, Ont., one of their forty h.p. two-phase induction motors for operating the cranes and machinery. The works are also being lighted throughout by electricity.

The Smart-Eby Machine Co., Hamilton, manufacturers of steam, gas and gasoline engines, boilers, steam and power pumps, impulse water wheels and general machinery are a new concern to which we take pleasure in directing attention. Mr. W. G. Smart, the head of the concern, for the past two years was chief engineer of the Jenckes Machine Co. of Sherbrooke, Que., which position he resigned to take charge of the Smart-Eby Co.

The cars of the Toronto Railway Company are likely to soon be fitted with extra seats, which will mitigate to some extent the overcrowding nuisance. One of the cars has already been supplied with two rows of automatic seats, which can be folded over the ordinary seats when not in use, and which do not in any way interfere with the comfort of the passengers. By the new arrangement, also, the seating capacity of the car will be almost doubled. The new rows of seats run the full length of the car and are raised higher than the ordinary seats. The scheme just now is something of an experiment, and will doubtless prove of great interest to citizens. If it works satisfactorily it will be adopted in all the cars in the company's service.

The Water Commissioners of the town of Fort William, Ont., have purchased from the Royal Electric Co., an additional S.K.C. two-phase Generator, having a capacity of 200 kilowatts. Their demand for lighting has increased so rapidly that the seventy-five kilowatt plant which was put in a year ago, is not sufficiently large to supply it. They are also revamping a portion of the city and extending their lights. About 500 lights capacity of S.K.C. transformers are being put in. The changes will be made and the additional plant put in operation about the middle of June, after which it is proposed to supply the requirements of the C.P.R. in their large passenger station, the elevators, freight sheds, round houses and the Kam-anistiquie hotel at that place. The growth of the lighting has been phenomenal and has been taken care of by Mr. T. Ed. Oakley, Secretary of the Commissioners. The water works and electric light plants are in charge of Superintendent W. H. Smith, formerly of Goderich, Ont.

The Farmers' Friend cheese factory at Ernestown, Ont., was destroyed by fire April 11th, loss about \$2,000. A new factory will be built without delay.

The factory of the Reid Bros. Mfg. Co., 237 King Street West, Toronto, manufacturers of bent rim wood pulleys, etc., was gutted by fire April 14th, loss about \$10,000 covered by insurance. The factory will be in operation again as soon as possible.

### THE TORONTO PATENT AGENCY, (LIMITED).

TORONTO, CAN.

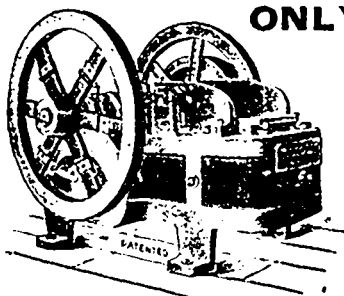
Head Office, 79, 80, 81 Confederation Life Building.  
CAPITAL, \$25,000.00.

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 prospects 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.



ROLL JAW CRUSHER.

ONLY

# FINE CRUSHER

BREAKS LARGE, or when set close  
Reduces to GRAVEL and SAND.

FOR ORES.

STURTEVANT MILL CO., BOSTON, MASS.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

A company in which Canadian capital is largely interested has been incorporated in New Jersey for the manufacture of automobiles, under the patents of Mr. C. E. Woods, which are controlled by the company. Two factories will be established in Chicago, and the company, which is capitalized at \$10,000,000, is known as the Woods Motor Vehicle Company. Mr. H. P. Dwight, President of the Great Northwestern Telegraph Company, is one of the directors, and Mr. Frederick Nicholls, General Manager of the Canadian General Electric Company, is Vice-president of the company.

The Canadian Rand Drill Co., Sherbrooke, Que., are applying by supplementary letters patent to increase their capital stock to \$50,000.

The Simcoe Peat Fuel Co., Barrie, Ont., has been incorporated with a capital stock of \$20,000.

Connell Bros. Limited, Woodstock, N.B., are applying for incorporation with a capital stock of \$60,000, to manufacture electricity for lighting, heating, etc.

Messrs. P. Burns & Co. will erect a large abattoir at Calgary, N.W.T.

The Canadian Engine and Locomotive Works, Kingston, Ont., are just in receipt of an order to build two large eight-wheeled locomotives for the Quebec Central Railway.

The new iron furnace at Deseronto, Ont., are manufacturing ton car loads of charcoal iron for shipment to England.

The Prescott Elevator Co., Prescott, Ont. have made application to the Montreal Harbor Commissioners for a site for an elevator. They propose to build an elevator of one and one-half million bushels capacity, and want a lease of not less than fifty years.

The Toronto City Commissioner has issued permits to the Consumers' Gas Co., to erect a three storey and basement brick and stone office on Toronto street to cost \$20,000, and to the trustees of the Old Folks Home, for a three storey brick building as a home for aged women, on University avenue to cost \$11,000.

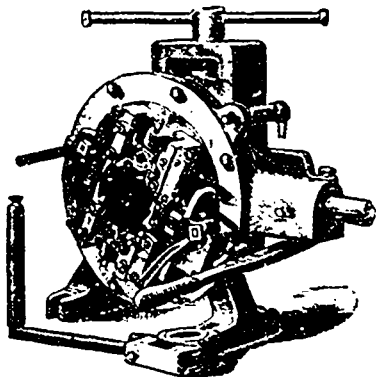
The Expanded Metal Company, Toronto, has applied for incorporation with a capital stock of \$100,000.

The Ottawa Carbido Co., Ottawa, Ont., are applying for incorporation with a capital stock of \$200,000.

If the test of the Crow's Nest coal which is being made on H.M.S. Imperieuse, now on the homeward trip from Victoria, B.C., proves successful the Crow's Nest Company will find a very large customer for the output of their mines in the British navy. It is stated that if the present test proves satisfactory a contract to supply the British North Pacific squadron at Esquimalt will be made with the company. This would not only be a matter of very great profit to the company, but will necessitate the development of the mines and the employment of a very large number of people.

The Gurney-Tilden Company of Hamilton, Ont., are having installed in their works by the Royal Electric Company, one thirty h.p. three fifteen h.p., and one seven h.p. S.K.C. two phase motors, which are to drive the machinery and elevators of their entire works, entirely replacing steam. At this rate, Hamilton will soon be a smokeless city, as the engines of the Hamilton Electric Light and Power Co. were closed down on March 5th, and have not been in operation since, everything being driven by the large S.K.C. motors, with power from DeCew Falls.

# THE BEST PIPE THREADING and CUTTING-OFF MACHINES



ARE MADE BY THE **ARMSTRONG MFG. CO.**  
BRIDGEPORT, CONN.

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES**  
And **WATER, GAS and STEAM FITTERS' TOOLS.**

SEND FOR CATALOGUE 27.

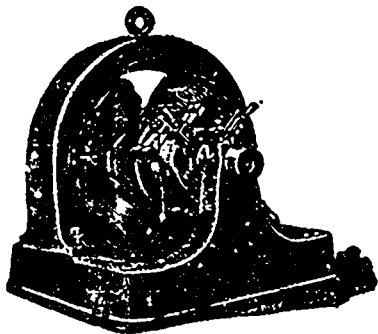
Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

No. 00 Machine, Power Attachment.

## 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 Factor-ies. 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

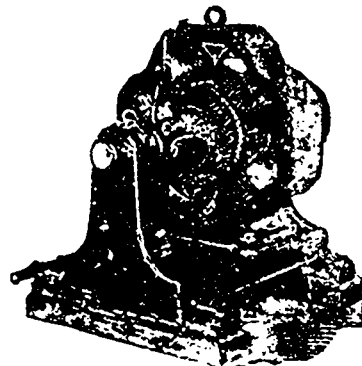
Esplanade and Jarvis Streets,  
TORONTO.

Possession Immediately.

Apply to.....

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

## 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.  
760 Main St., Winnipeg.  
42 York St., Toronto. 131 Granville St., Halifax.



The B. Groening Wire Co., of Hamilton, Ont., have placed an order for another thirty h.p. S.K.C. motor, which is to be installed about the middle of May and will complete the conversion of their manufactory from steam driven to electrical driven, and adds another smokeless chimney to one of the Hamilton factories.

The Algonquin Milling Co., Algonquin, Ont., has been incorporated with a capital stock of \$10,000.

The Standard Mica Co., Toronto, Ont., has been incorporated with a capital stock of \$50,000.

The Owen Sound and Georgian Bay Street Railway Co., Owen Sound, Ont., has applied for incorporation with a capital stock of \$95,000.

The John McPherson Co., Limited, manufacturers of boots and shoes, Hamilton, Ont., have placed their order for a forty h.p. S.K.C. two-phase induction motor, which is to be used to operate their entire plant, replacing their present steam equipment. They are also having their factory lighted throughout by electricity.

The Hoover Mfg. Co., Winnipeg, Man., is applying for incorporation with a capital stock of \$10,000 to manufacture clothing.

Messrs. Rhodes, Curry & Co., Amherst, N.S., have established a branch of their works at Halifax, N.S., which consists of planing, lath, saw and shingle mills, car and machine works and foundry.

The Lyons Shoe Co., Winnipeg, Man., is applying for incorporation with a capital stock of \$10,000.

The E. T. Wright Co., of Hamilton, manufacturers of tin and stamped ware, are having their steam engine replaced by a thirty h.p. S.K.C. two-phase motor, receiving its current from the lines of the Cataract Power Co.

If negotiations now in progress eventuate favorably, Messrs. Lever Bros., of the Sunlight Soap Co., who own large soap works at Port Sunlight, near Liverpool, England, and at Sydney, N.S.W., will erect extensive works at Toronto, from which to supply their Canadian demand.

The Toronto Rubber Co., whose works at Port Dalhousie, Ont., were recently destroyed by fire, will rebuild at that place.

Garth & Co.'s iron foundry, Montreal, was gutted by fire April 6th, loss about \$50,000.

Mr. Robert Hunter and associates, it is understood, have purchased the building at Toronto Junction recently occupied by the Toronto Junction Foundry Co., to engage in the manufacture of gasoline engines, the intention being to eventually build automobile engines to be operated with gasoline motors.

The Lowswell Mfg Co., of Hamilton, Ont., are having installed in their works, one thirty h.p. two-phase motor of the Royal Electric Company's make. The current for

this installation is to be taken from the Cataract Power Company's service.

The St. James Presbyterian Church, London, Ont., will erect a new church edifice at a cost of about \$30,000.

The B. Groening Wire Co., of Hamilton, Ont., had installed in their works, about three months ago, a forty h.p. S.K.C. two-phase motor, by the Royal Electric Company. They receive their current from the Cataract Power Co. This has worked so satisfactorily that they have placed an additional order for one fifty h.p., and one thirty h.p., and one twenty h.p. motors of the same type, to operate their entire works by electricity.

Attorney-General Longley has before the Nova Scotia Legislature an agreement entered into by which a lease is granted for thirty years of two immense tracts of Crown lands in Victoria and Inverness Counties, Cape Breton, comprising altogether nearly 1,000 square miles, to three American capitalists—Edward L. Sanborn and Robert B. Blodgett of Boston, and Daniel F. Emery, jr., of Portland, Me. The lands are leased for the purpose of converting the timber thereon into pulp and paper, and the lessees must have two such mills in operation within the period of two years, and have expended at least \$10,000 in the operation of the business for which the lease is granted. The lessees agree to pay the Government of Nova Scotia \$6,000 per year, and to do all manufacturing within the Province of Nova Scotia.

## REDDAWAY'S ORIGINAL

# CAMEL BRAND HAIR BELTING

STRONGEST BELT MADE. NO STRETCHING.

NOT AFFECTED BY DAMPNESS,  
HEAT OR STEAM.

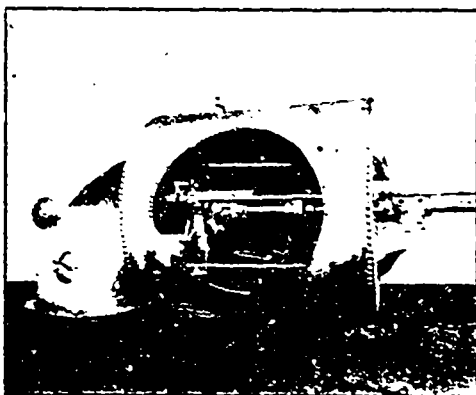
WRITE FOR PARTICULARS. LARGE STOCK ON HAND.

Fire Hose, Steam Hose, General Mill Supplies.

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



# The Crocker Patent Turbine



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

WE MAKE A SPECIALTY OF SUPPLYING

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.

**PLATINUM IN YUKON SANDS.**

In a report to the State Department, United States, Consul McCook at Dawson City announces the discovery of platinum among the sands of the Yukon creeks. He says :

"Black sand is found in almost every stream in the Yukon territory, and, while considered a good indication of gold in more or less quantity, has been always a nuisance to washers. On account of its great specific gravity, it remains in the sluice boxes with the gold, and even hand-panning will not always separate it from the precious metal it accompanies. During the clean-up many tons of this sand are thrown out, yet the analysis of twelve pounds taken from near the mouth of the Hootalinqua would tend to show a distinct value for this supposedly by-product. The dredging company, of which Captain Jack Crawford is the resident head, has obtained considerably over 100 miles of rivers for gold dredging, part of which is a long stretch of the Hootalinqua, near its mouth. In a test last summer fine gold was sluiced in paying quantities, but it is not of that gold we wish to speak. In washing a cubic yard and a-half of gravel the short sluice boxes became badly congested with black sand. The sand and gold dust were taken up and the gold carefully removed. The sand was not thrown away, as is usual,

but brought to Dawson. Dr. Willis L. Everett, a metallurgist of national reputation and a member of the bar of the Supreme Court of the United States, is official assayer for Captain Jack's company, and has a most complete and expensive assay office on Second avenue. The sand was given him for examination and the most surprising results were obtained.

"To commence at the beginning, it was readily found that twenty-five per cent. of the black sand was non-magnetic iron oxide. With magnets the two are easily separated, and between the two sands there was little difference, except that the non-magnetic sand appeared of slightly finer grade than the magnetic. A furnace test of the magnetic sand was divided into lots, mixed with the proper fluxes, and introduced into the furnace. At the proper heat all but the metals wanted were volatilized or ran into slag, leaving buttons of platinum and gold. A careful weighing upon scales which weigh to the 1-48,000 part of a grain, showed a most surprising result, a result which is bound to revolutionize sluicing methods as practised to-day in river dredging. In one ton of the non-metallic black sand there is \$102 in gold and ninety-six ounces of platinum, some iridium and a trace of tin. The platinum, at \$8 per ounce, would amount in value to \$768, making the total value of a ton of the sand \$870."

**MINING MACHINERY IN BRITISH COLUMBIA.**

The British Columbia correspondent of THE CANADIAN MANUFACTURER sends us the following information regarding the demand for mining machinery in that province:

The mining season just opening in the Slocan Mining District gives every promise of being the most active yet experienced in the history of the Great Northwest. Everywhere active preparations are being made for extensive development.

I anticipate extensive introduction of mining machinery. The following companies will erect plants without delay:—

The Ruth Mines, Limited, of London, England, with mines located at Sandon, B.C., will erect a concentrator, tramway and complete mining plant during the summer of 1899.

The Queen Bess Mining Co., with mines and office at Sandon, B.C., will equip their property with a complete mining plant during the season.

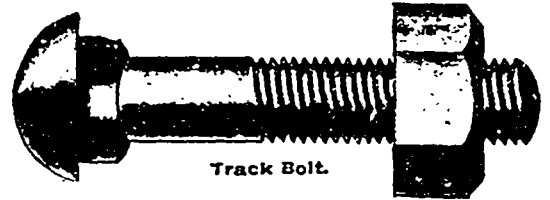
The Last Chance Mining Co., with mines and office at Sandon, B.C., are preparing to erect an extensive air compressor plant on their properties.

The Arlington Co., with office and mines at Slocan City, B.C., also contemplate erecting a complete air compressor plant at an early date.

**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.**



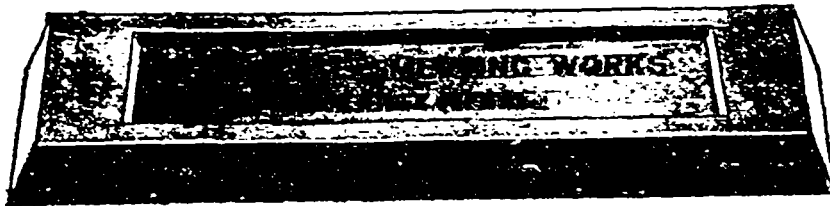
Coach Screw.

**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.

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**..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. BOLTER'S SONS, Chicago, Ill.  
 We would rather ret in 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.



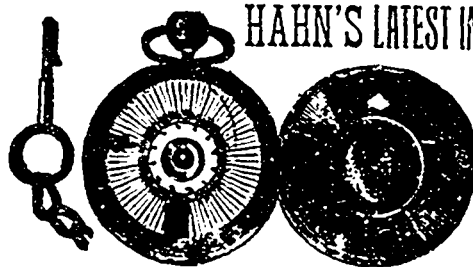
Numerical (or Key) Recorder

**DRAFT WITHOUT A CHIMNEY.**  
 The days of the chimney are numbered. No longer is the location of the factory to be evidenced by the existence of a tall brick stack belching forth its volume of smoke. Comparatively small but all-powerful is the fan blower which has stepped in to fill its place and do its work.

Two years ago at Jamaica Plain in the suburbs of Boston there stood a tall chimney upon which the B. F. Sturtevant Company were entirely dependent for producing its draft for the operation of its boilers. Changes in the arrangement of the works necessitated moving the boiler plant, but, of course, it was out of the question to take the chimney along. In its stead a fan blower was installed on the top of the boilers, and provided with a special engine to drive it at just the speed required. It is automatically regulated so that less than one pound drop in steam pressure greatly increases the draft, starts up the fire and brings the pressure back where it belongs. It is thus kept the same hour in and hour out, and the fireman has nothing to do but shovel coal.

The fan works by suction, draws the gases from the boiler flue and forces them out through a short stack extending only thirty-one feet above the boiler room floor. The draft which may be produced is two or three times stronger than that of the chimney which has been discarded. The weather makes no difference, the draft is just as strong on damp and muggy days as on those days that are crisp and bright.

Though it barely extends above the roof of the surrounding buildings no trouble whatever is experienced from smoke, for the simple reason that when draft is produced in this way no smoke is made. The utter uselessness of the old chimney has been so clearly demonstrated that it has just been taken down for the sake of the bricks it contained. There is thus presented the novel sight of a large manufacturing plant covering a half dozen acres with no apparent means of producing the draft; the little steel plate stack being visible from certain points only.



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

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

For Circulars, prices and further information address  
**A. HANZ & CO., 115 Chambers St.,**  
 NEW YORK  
 This Clock received the First Prize at World's Fair

**NAME PLATES FOR** DYNAMOS, MOTORS, ANY TYPE OF ELECTRICAL APPARATUS AND ALL KINDS OF MACHINERY  
 WRITE FOR PRICES.  
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The cost of the entire mechanical draft equipment, including the stack, was less than one-half that of a new chimney. Because of the stronger draft much cheaper fuel is burned than was possible with the chimney, the saving being nearly a thousand dollars a year. In another boiler plant of 1,000 horse-power the full saving is \$6,500 per year. At the same time the amount of steam generated may in either case be readily increased to double that for which the boilers are rated. In other words, it is possible with mechanical draft to use much smaller boilers and still produce the required amount of steam.

What has been done here is being done elsewhere. Many boilers on land and sea are now so arranged that a chimney is only needed to carry the gases high enough to conveniently discharge them into the atmosphere. According to the conditions the fan may be applied for from twenty per cent. to forty per cent. of the cost of a chimney.

Where the chimney draft is not sufficient the fan may, for very little cost, be added to help it out. Sometimes the blower can be arranged so as to force the air under the fires, and cause it to pass up through them and thus give perfect combustion; or, on shipboard it may be so arranged in connection with the ponderous boilers that the air may be heated by the gases as they escape, thereby saving coal. This possible saving of heat is one of the most important advantages of mechanical draft. With a chimney twenty to thirty per cent. has to be wasted in the hot gases in order to produce the draft. The fan requires only about one-seventy-fifth as much power to move the same amount of air, and therefore makes it possible to save as much of the remaining heat as is practicable.

The fan can be built of any size, and exactly adapted to any location, and regulated to suit the requirements. No heavy foundations are required, it seldom requires valuable floor space, and being portable need

not remain like the chimney a monument to a departed industry.

In every way mechanical draft represents advantages and conveniences which make it perfectly safe to assert that the next generation will see it generally adopted as a substitute for the chimney.

**THAWING BY ELECTRICITY.**

The Graburn and Blaney Canadian patent of the Graburn electrical thawing process has been sold by the inventor, Mr. Nelson Graburn, of Montreal, to the Electrical Thawing Syndicate (Limited), London Eng., for £7,000 and one-quarter interest in the company. The patent is intended to be used in countries like the Klondyke, where mining operations are carried on during a large portion of the year under considerable difficulties, owing to the ground being frozen hard to a considerable depth. It provides for specially constructed dynamos and elec-

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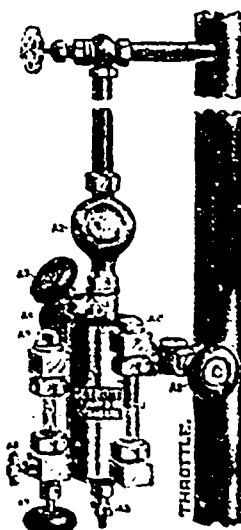
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**Detroit Lubricator Co.,**  
DETROIT, MICH.



trodes, the latter being placed against the walls of the shaft, with a space of from five to six feet of ground intervening; so that when the current is turned on, it has to cross the face of this space to complete the circuit and the ground contained therein, forming a resistance to the motion of the electricity, heat is generated and the ground thawed. By the bonfire system of thawing in a temperature of zero or lower, it is stated that upwards of 85 per cent. of the heat generated is lost in the atmosphere, whilst heat generated by the above electrical process can be absolutely controlled and applied in such a manner as to utilize its full force and effect. It is also claimed that by the electrical system it is possible to thaw out one foot of frozen earth per hour, as against one foot in twenty-four hours by the bonfire system. Several electrical experts who have examined into the system, including Mr. H. F. Parshall, consulting engineer of British Thomson-Houston Company, etc.,

are said to be satisfied as to its practicability and efficiency, as correspondence in the possession of Mr. Graburn shows.

**NEW EXHIBITION BUILDINGS.**

Manager H. J. Hill, of the Toronto Industrial Exhibition Association, has requested the Toronto City Council to place in the estimates for the current year the following appropriations for improvements to the Exhibition Buildings:

New Dairy Building.....	\$10,300 00
New Art Gallery.....	10,000 00
New pig pens.....	2,500 00
Fire Hall, Police and Emergency Hospital Building.....	5,000 00

Total..... \$27,800 00  
Alderman Sheppard, who is also a director of the Association, points out that the \$10,300 for the Dairy Building would be duplicated by the Provincial Government.

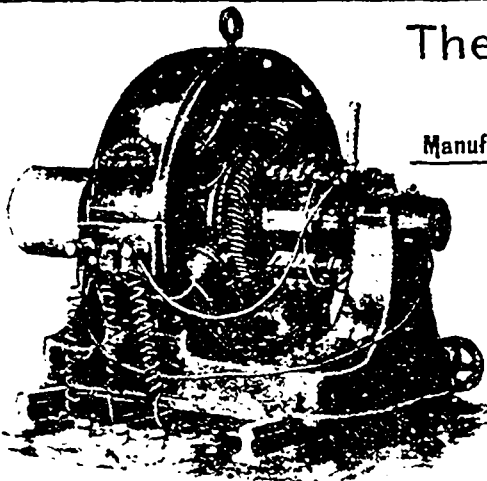
He also says that a new Art Gallery would create more space in the Main Building, and postpone the necessity of putting up a new Main Building for a few years.

**ACETYLENE FOR GAS ENGINES.**

In a recent pamphlet, issued by Mr. F. Grover, Leeds, England, are to be found some very interesting results of experiments carried on with acetylene as a motive power for gas engines.

Mr. Grover began by firing mixtures of air and acetylene at atmospheric pressure, and found that one part of gas and eighteen parts of air was the weakest mixture that could be ignited. The pressure developed was about three times as great as when a similar mixture of coal gas and air was ignited, and the rate of combustion was much more rapid. When seven parts of air and one part of acetylene was ignited at atmospheric pressure, the pressure developed was 111 pounds per square inch, the highest point reached.

On raising the initial pressure to two atmospheres, and igniting a mixture of eleven parts of air and one part of acetylene, the pressure developed was 197 pounds per



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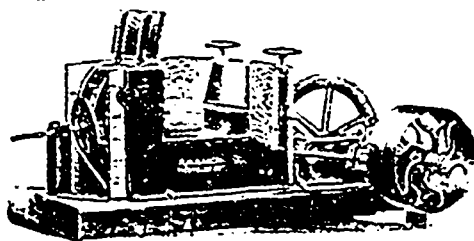
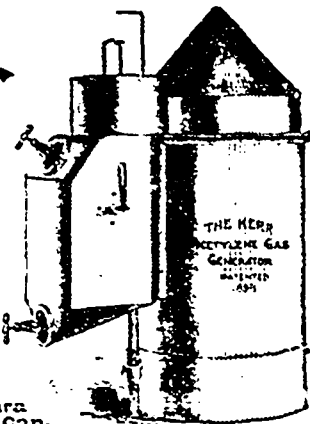
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No Valves or complicated Mechanism to mis-tit and confuse. No Copper, Brass, or other dangerous element used in its entire construction. Write us your requirements and obtain prices.

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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.

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

square inch. On using the same mixture, and starting with a pressure of three atmospheres, the pressure developed was 350 pounds per square inch. Of especial interest is the statement that with an initial pressure of three atmospheres, it was possible to ignite a mixture of thirty parts of air and one part of acetylene, the pressure developed being 180 pounds per square inch.

The author thinks that from a thermodynamic standpoint acetylene would be a very useful addition to the list of gas engine fuels, but that the present price is prohibitive, for it would cost 2.6d. per horse-power hour.

### NEW TEXTILE COLORS.

Anthracene Chrome Black F. Patented.—Under this denomination the Wm. J. Matheson Co., are presenting a new product, which they say is of the greatest importance in the dyeing of black shades upon wool.

This new color needs to be after-treated with bi-chrome in order to fix it permanently upon the fibre, this treatment producing shades which are unsurpassed by any black in the market in fastness to washing, milling steaming, light, alkalis, acids, potting and sponging. It dyes extremely level and stands carbonization, which renders it suitable for the dyeing of loose wool. The shade is not altered in artificial light, a property which is not possessed by any similar black in the market, competing products which approach it in other valuable properties turning reddish brown under the influence of artificial light. Its penetration is excellent and it is thus well adapted for the dyeing of heavy goods and felts. It surpasses all other wool blacks in its fastness to steaming, the greater number of artificial blacks turning red when severely steamed. In fastness to stoving it is also superior to any black now in the market.

It can be successfully dyed by boiling the goods with 5 per cent. acetic acid for one-half hour, then introducing  $\frac{1}{2}$  per cent. bisulphate of soda or 3-3 $\frac{1}{2}$  per cent. sulphuric acid, the latter ingredients being added in two equal portions. After exhausting the bath, add 1 $\frac{1}{2}$ -1 $\frac{1}{2}$  per cent. bichrome and boil one-half hour. If hard water is used for dyeing start the bath with 5 per cent. acetic acid and 1-1 $\frac{1}{2}$  per cent. oxalate of ammonia, instead of simply the acetic acid.

This color is unequalled in its valuable properties for the dyeing of high grade wools and we will be pleased to submit samples and any further information to parties who are interested in the production of such excellent effects.

Diamine Scarlet H. S., Patented.—This new direct dyeing cotton scarlet gives shades somewhat brighter and yellower than our well-known Diamine Scarlet B., Pat., which product it resembles in its general properties. It is also extremely valuable for the dyeing of silks and of silk and cotton mixed goods, or satins. Its cheapness and brightness recommend it for the production of scarlet shades upon cotton, silk or fabrics composed of the interwoven fabrics.



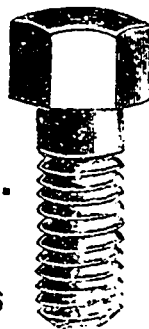
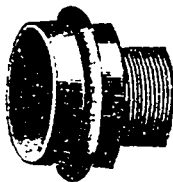
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If you use Electricity we Batteries Repaired and Recharged  
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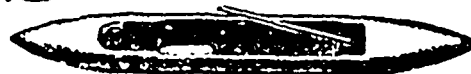
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**Diamine Black Violet, Patented.**—This new cotton black produces dyings of a more violet tone than those produced with our Diamine Black BH, Pat., the valuable properties of which this dyestuff possesses. It covers extremely well and is a cheap cotton black, taking into consideration its fastness to all the atmospheric and washing tests to which the best class of cotton goods must be subjected. We would be pleased to forward samples to interested parties in order that it may be thoroughly tested.

**Cyanole Extra H., Patented.**—This wool blue possesses all the valuable properties of our Cyanole Extra, Pat., but dyes somewhat lighter shades than those produced by our older product.

**Diamine Brown 74290 J, Patented.**—This new cotton brown dyes shades brighter and yellower than our Diamine Brown M., Pat. It is very fast to light and is a valuable addition to our series of direct dyeing Diamine Browns.

**HOW TO TRADE WITH FOREIGNERS.**

Our neighbors to the south are nothing if not practical and thorough in all the affairs of life particularly business matters—and hereby hangs a story—the story of business success. The New York Herald, in a recent

issue, under the heading of "How to Trade with Foreigners," describes a new school building about being erected in 59th Street, between 2nd and 3rd Avenues in that city, at considerable expense and for the express purpose of teaching the coming business man "How to Trade with Foreigners." Toronto already possesses an institution where the Canadian manufacturer can come into touch with the foreign buyer in the branch office of the Kelly's Directories Limited Co., of London, England, just lately opened. Here are to be seen commercial directories, covering every business centre the world over.

We give herewith the firm's circular letter, and suggest that our manufacturers might find it advantageous to consult some one or more of the many valuable works in their library—one of which is endorsed by the British Government as being of special value in this very connection.

"Owing to the rapid extension of our business throughout the Dominion, the very favorable manner in which our works have been received by your manufacturing industries, and the evident interest so plainly and substantially manifested in commercial works leading to the establishment of export trade, we have deemed it advisable, in order promptly to meet the growing demand for our books, to open a branch office in Canada. We have therefore taken the commodious offices at 28 Victoria street, Toronto, where we shall keep on hand a full line of our publications, and shall be pleased if you will avail yourselves at any time of the valuable commercial information which they contain.

"Merchants or manufacturers not residing in Toronto, who may desire a few addresses of trades abroad, are cordially invited to write us and designate locality and trade wanted, and we will cheerfully forward them by mail.

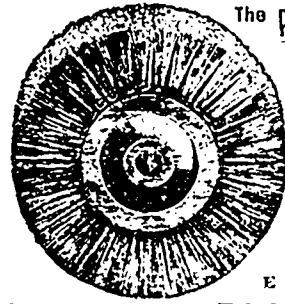
"In connection with our directories we have opened an address department, and are prepared to furnish addresses—all trades, all professions, in all countries, at the very reasonable rates of 30c. per 100 or \$2.50 per 1,000. This will be found an economical arrangement for those who desire only a few

names or many names, involving the use of several books.

"Subscribers visiting Europe will find the use of our offices in London, Manchester, Birmingham, Liverpool, Sheffield, Leeds, Glasgow, Hamburg, Paris and New York advantageous to them."

The R. J. Smith Co., of Ottawa, has been incorporated with a capital stock of \$45,000 to take over the business of Messrs. R. J. Smith & Co., Ottawa, and manufacture clothing, etc.

Arnprior, Ont., is to have a \$70,000 water and sewerage system.

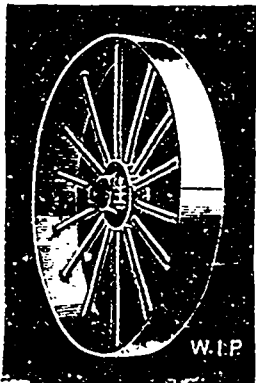


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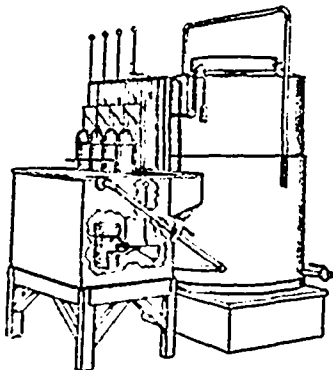
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**OIL-CLOTHS** of Every Description  
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**No Opening** of generator.  
**No Heat** in generator.  
**No Overgeneration.**  
**No Bad Odour** through house.  
**No Danger.**

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Town Lighting and Large Plants a Specialty  
**J. WALLACE & SON, 156 King St. East, Hamilton, Ont.**



Sizes 25 light to 2,000 lights.

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**WATER POWERS OF ONTARIO.**

Thomas W. Gibson, Secretary of the Ontario Bureau of Mines, says that, at Buffalo, N. Y., on the occasion of the introduction into that city of electric power from Niagara Falls, Mr. Nikola Tesla, perhaps the most celebrated of living electricians, spoke of a tremendous problem yet to be solved in the production of power, to the elucidation of which he had devoted a great deal of attention. Without describing the nature of this problem, he spoke of it as an effort to "evolve means for obtaining energy from stores which are forever inexhaustible, to perfect methods which do not imply consumption and waste of any material whatever." Even if this stupendous achievement were accomplished, however (as he had little doubt it would be), he said his investigations led him to conclude that "under the theoretically best conditions such a method of obtaining power cannot equal in economy,

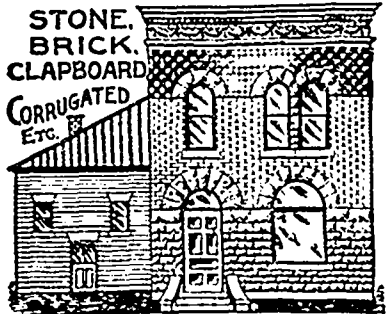
simplicity and many other features the present method involving a conversion of the mechanical energy of running water into electrical energy, and the transmission of the latter in the form of currents of very high tension to great distances. Provided, therefore, that we can avail ourselves of currents of sufficiently high tension, a waterfall affords us the most advantageous means of getting power from the sun sufficient for all our wants, and this recognition has impressed me strongly with the future importance of the water power, not so much of its commercial value, though it may be very great, but chiefly of its bearing upon our safety and welfare."

If Mr. Tesla's conclusion be correct, namely, that a waterfall affords us the most advantageous means of getting power from the sun for all our wants, excelling for this purpose not only muscular force, but wind and steam as well, the rocky uplands of northern and western Ontario may yet be reckoned among the most valuable parts of the Province by reason of the vast number of waterfalls situated there. The main watershed dividing the system of the great lakes from that of Hudson Bay runs in a northwesterly direction from the eastern boundary of the Province north of lake Temiscamingue to the head of Lake St.

Joseph on the northern boundary, a distance of about 500 miles. It consists of a tableland or plateau rather than a sharply defined ridge, and is estimated to have an average width of about seventy miles, or an area of about 35,000 square miles, thus with the slopes on both sides affording an extensive catchment surface for the streams running to the north and south. Its elevation will average perhaps 1,400 or 1,500 feet above the level of the sea, or 900 feet above Lakes Huron and Superior. In places it approaches the shore of the latter lake, and for the greater part of its extent is situated at a comparatively short distance from either of these bodies of water. The consequence is that the rivers and streams which flow from it into the great lakes, though mostly of considerable volume, are not of great length, and their descent is therefore usually rapid and abrupt, and marked in many places by cascades and falls.

The value of a river of given volume for purposes of water power does not altogether, or even chiefly, depend upon the amount of its fall from source to mouth. Of course, the greater the fall the greater the energy possessed by the stream as a whole. But it is apparent that if the descent be gradual and uniform, or approximately so, there will be few places in its course where the fall is large

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Entirely water, wind, storm and fire proof. Will last years and always look well. Cheaper than matched lumber. Shipped from factory all ready to apply. Sold by leading dealers, or write direct stating requirements.

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**C**HEMICAL  
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**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.

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- Olive Gold Mine.
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**A Few Mines**



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**BRITISH COLUMBIA :**

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enough to afford any considerable quantity of power. It is only where sudden falls or rapids occur, which create a decided difference in the level of the water, that the energy of the river is concentrated, as it were, within a short space, and can be utilized. The nature of the soil or surface of the country through which the river runs has an important effect in influencing the habit of the stream in this respect, and so determining its value as a producer of power. If it be composed of sand, clay, gravel, or even the softer and more easily decomposed rocks, it will usually be found that the river has worn its bed to a fairly uniform slope throughout, in which case there will be few opportunities of developing power from its waters. Even if a slight drop should occur, a dam would probably be required in order to obtain any considerable head, and the erection of dams, while often necessary and advantageous, involves additional expense both in construction and maintenance. In a river whose bed is composed of hard rock such as is usually comprised in the Laurentian and Huronian formations of northern and western Ontario, the eroding force of the water meets with much greater resistance, and its course is more likely to be marked by abrupt changes of level in rapids and falls, and indeed this is characteristic of many if not most of the rivers in those parts of the Province. Another prominent feature of the topography of these districts is the very large number of lakes, varying in size from mere ponds to large and important sheets of water. These are either the sources of or tributary to the rivers, or expansions of them, and act as reservoirs or storage basins, tending to regulate the flow of the water and to render it constant and steady throughout the year.

The character of the country in northern and western Ontario is therefore such as to provide an almost illimitable amount of water power readily available. Taking into account the annual precipitation of moisture in the form of rain and snow there is no reason to doubt that hundreds of thousands of horse power could be generated from the waters of streams flowing into the great lakes with a minimum of trouble and expense. A shorter watershed running from the main one

southwesterly round the western end of Lake Superior divides the streams falling into that lake from those which find their way into Lake Winnipeg and so into Hudson bay, and the waters running in both directions from this divide furnish many fine water privileges, similar in character and equally available; while tributary to the Ottawa river, and in that part of the province included within the boundaries of Algonquin National Park, as well as to the south and west, are numerous rivers of considerable fall and volume, from which a very large additional amount of power could with little difficulty be obtained. The streams flowing into Hudson bay, such as the Albany, Kenogami, Missinaibi, Mattagami and Abitibi are of greater average length than those running into the great lakes, and as they descend to the level of the sea, say 600 feet below that of Lakes Superior and Huron, many falls are to be found upon them, particularly in their upper reaches and in the neighborhood of the "long portages," where their waters are interrupted by the hard rocks of the old formations on their way to the more level Devonian plains, bordering on James bay. For the present, however, these rivers are too remote to be regarded as sources of available power, though the time may come when they will be called into requisition. But on the Seine, Atik-ohan, Wabigoon, Winnipeg, and Rainy rivers, on the Mattawin, Kamunistiquia, Nipigon, Steel, Pic, Magpie and Michipicoton, on the Mississaga, Thessalon, Spanish, Vermilion, Wahnapitae and Sturgeon, on the Montreal, Ottawa, Petawawa, Bonnechere and Madawaska, on the Muskoka, Maganetawan and Severn, and on many others there are numerous falls and rapids waiting to be utilized and capable of doing the work now being done by all the steam engines in Ontario a hundred or a thousand times over. This is leaving out of view the waterfalls already developed and in use in the older portions of the Province, as well as the stupendous energies of the falls of the St. Mary and Niagara rivers, which are already, one on the Canadian and the other on the American side, to some extent made use of.

The rivers enumerated above are situated among the forests of pine and hardwood

which cover so considerable a portion of New Ontario, and in many cases they are contiguous to valuable deposits of ore or mineral. The raw material for many industries lies around them. The sawmill, planing mill, sash and door factory, pulp

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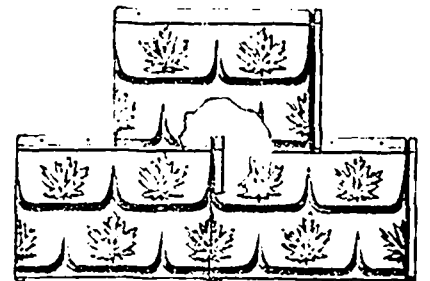
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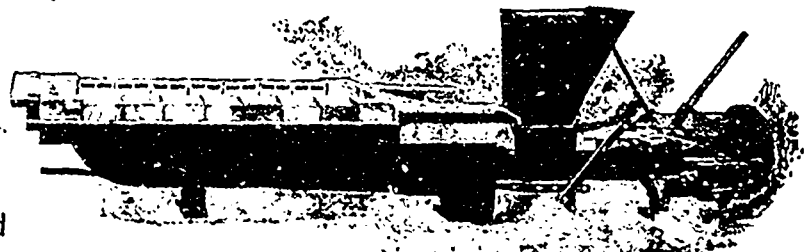
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mill, match factory and many other wood-working industries might happily combine abundant raw material and cheap power on these streams; while stamp mills and other mining plants might be worked with profit and success. Other industries, such as woolen, cotton and flour mills and chemical manufactories might avail themselves of the cheap power without necessarily locating in the immediate neighborhood of the waterfall, by connecting themselves with it by means of the electric current, though for textile, paper and other industries whose processes necessitate the use of large quantities of clear water, a waterfall convenient to means of transportation forms an ideal site. Electrically driven railways seem likely to come into vogue in this and other parts of the world because of their low first cost and inexpensive maintenance, and it appears feasible to operate electric roads by currents generated by the waterfalls on the rivers in many parts of the districts referred to. Such railways might serve a very useful purpose in carrying lumber, ore, raw and finished material and supplies of all kinds in a country where perhaps the volume of traffic might not be sufficient to render an ordinary steam railway a profitable undertaking.

Water power, whether employed directly to operate machinery, or converted into electric energy for the same purpose, has many advantages over the steam engine. For the same quantity of power its first cost is not usually much greater, and often not so great, and once installed it requires little or no attention. Its danger to life and property is less. It needs no fuel, a consideration specially important in Ontario, which has no coal beds, and where in time even the present abundant supplies of wood will be exhausted. Hitherto the chief disadvantage of water power has been its immobility. If a waterfall was not conveniently situated, it was of little or no use. If it did not pay to place a manufactory alongside a waterfall, the fall could not be brought to the factory. Now this has to a large extent been changed and power can be delivered without serious waste many miles from where it is electrically produced. The change will be still more marked when the problem of transmitting electric energy through long distances

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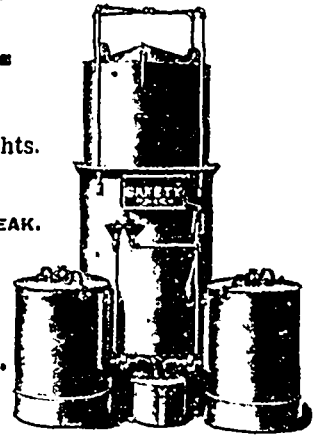
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As we shall not be able to personally visit each manufacturer, it is for this purpose that we publish this advertisement. This is our agent who is going about to solicit a share of your patronage. We are thankful for the patronage extended to us in 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:  
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And we would call special attention to our **PRESSES** for Cutting, Drawing, Wiring, Riveting, Etc. We shall also esteem it a pleasure to give quotations on Special and General Machinery in our line. **LONDON MACHINE TOOL CO.**

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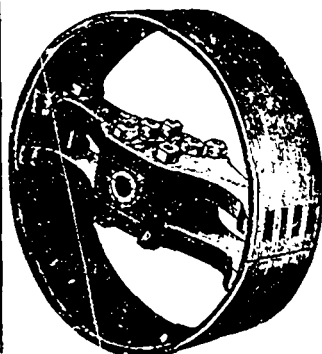
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AGENTS

MONTREAL and TORONTO.

has been thoroughly solved, and Nikola Tesla looks forward to a speedy solution

The presence of so many available water powers in the Lake of the Woods, Seine River, Wahnapitac and other mining districts of Ontario is a fortunate circumstance, and cannot but have a very favorable effect upon their development. Cheap power means economy in working, and will permit of ore bodies being profitably utilized which would otherwise not pay for treatment. The immense deposits of low grade ore which are found north of Lake Superior and on the Upper Seine are in many cases situated in proximity to waterfalls capable of yielding hundreds and thousands of horse power at comparatively little expense. The importance of preserving these water powers as far as possible for the general benefit and preventing their being locked up in the

hands of speculative individuals who would not use them themselves, but who would demand heavy toll for their use by others, has led to the adoption of new regulations under the Act respecting Water Powers, (61 Vict., chap. 8) passed at the last session of the Legislature. The principal features of these regulations are those which provide for the leasing of such powers by the Crown, instead of patenting them outright, and for the furnishing of surplus power by the lessee to others on terms to be fixed in case of disagreement by the Lieutenant Governor in Council. The full text of the Act, which was assented to January 17, 1898, and of the regulations, which were adopted by Order in Council dated June 21, 1898, is as follows:

Her Majesty, by and with the advice and consent of the Legislative Assembly of the

Province of Ontario, enacts as follows: The Commissioner of Crown Lands may reserve from sale any water power or privilege on the Crown Lands of the Province, and a sufficient area of land in connection therewith for the erection of buildings and plant, together with the right to lay out and use such roads as may be necessary for passage to, and from such water power or privilege and land and may under regulations to be approved by the Lieutenant-Governor in Council, make terms and conditions upon which such water power and land so reserved may be sold or leased, and developed.

1. These rules and regulations shall not apply to water privileges which in their natural condition at the average low stage of water have not a greater capacity than 150 horse power.

2. In granting or leasing otherwise than

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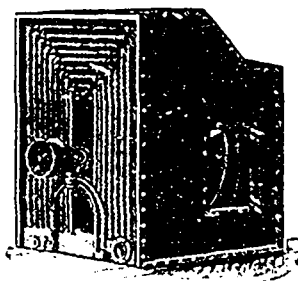
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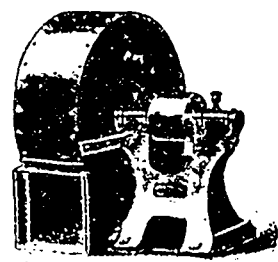
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Chemicals.

under these regulations any Crown lands upon which a water privilege is situated, the said privilege shall be reserved to the Crown together with such an area of land in connection therewith as shall in the opinion of the Commissioner of Crown Lands be required for the proper development of the same, and the construction of all necessary dams, weirs, tunnels, races, flumes, sluices, pits and other structures or works, and the erection of buildings and plant for the employment and utilization of such privilege, and storing grounds and yards in connection therewith; and there shall also be reserved in any such grant or lease the right to flood any portion of the land so granted or leased upon compensation to be made to the owner or lessee thereof by the person or persons to whom such privilege shall afterwards be leased; and the said water privilege, land and right so reserved shall form a separate property to be dealt with as hereinafter provided.

3. The right to lay out and use such roads as may be necessary for the passage to and from such water privilege or land shall be reserved in all grants or leases of contiguous or adjoining lands.

4. The applicant for a water privilege situated on Crown lands shall, if necessary, file in the Department of Crown Lands a plan and field notes by an Ontario Land Surveyor of survey thereof; and also a statement setting out:

(a) The location of the water privilege applied for, and a description of the land required in connection therewith.

(b) The height of the fall or rapid, the volume of water at the average high and low stages of same, the estimated capacity in horse power of the fall or rapid in its

natural condition at the average low stage of water, the height of the dams or weirs (if any) which it is proposed to construct, and the increase in the level of the water which such dams or weirs will bring about.

(c) The nature and location of the business, plant or manufactory in connection with which it is proposed by the applicant to utilize the water privilege, and the number of horse power which the applicant proposes to develop and use (1) within two years, (2) within five years.

(d) The plan by which the applicant proposes to develop the water privilege, showing the dams, weirs, tunnels, races, flumes, sluices, pits and other structures or works which it is proposed to build or make in connection therewith, the estimated cost thereof, and the form in which the power is to be used or transmitted, that is, whether by direct energy, electricity, compressed air, etc.

(e) The land or lands which would be overflowed or otherwise affected by the raising of the water or the construction of the dams, weirs, sluices, races or other works in connection with the development or use of such water privilege and the owner or owners thereof.

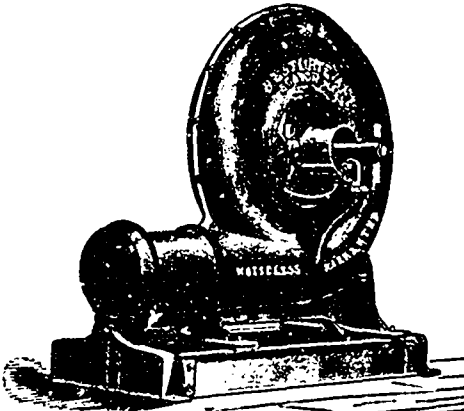
5. The Commissioner of Crown Lands shall have power to call for measurements, plans, specifications, descriptions, levels, profiles, elevations and all such other information as he may deem necessary for the proper consideration of the application, which shall be furnished at the applicant's expense. The plans and specifications for the construction of the necessary dams, weirs, tunnels, races, flumes, sluices, pits and other works for the development of such water privilege shall be submitted to

the Commissioner of Crown Lands, if so required by him, and such works shall not be proceeded with until the Commissioner has approved the said plans and specifications.

6. The applicant shall submit such proof of his financial standing and ability to develop the said water privilege as shall be satisfactory to the Commissioner of Crown Lands.

7. On approval by the Commissioner of Crown Lands of an application for a water privilege, he may order a lease of same to issue therefor, such lease to be for a term of ten years, with the right of renewal for a further term of ten years at the same rental, if the covenants and conditions have been performed and fulfilled, and thereafter with the further right of renewal for a term of twenty years upon such terms and conditions and at such rental as may then be provided by law or regulation.

8. The rental under any such lease shall be such sum as may be fixed by the Commissioner of Crown Lands, and shall be payable yearly in advance. Where application is made for the right to develop not more than half the maximum estimated capacity of a privilege at the average low stage of water as aforesaid, and where the granting of such application would not prevent or interfere with the development by other parties of the remaining capacity of the said privilege, the Commissioner may grant the same and may, if he think proper, reserve a portion of the land connected with the water privilege, provided that in any such case the Commissioner may issue a lease or leases for the remaining capacity of the said privilege, and the remaining lands connected therewith.

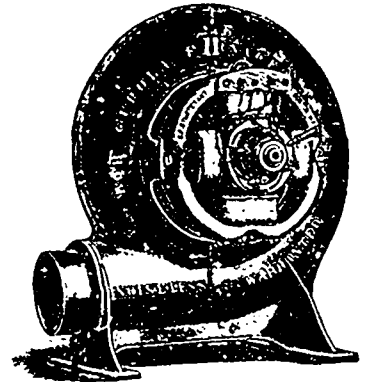


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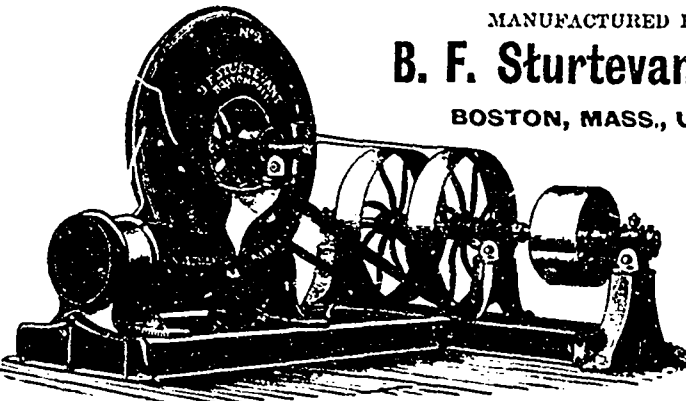


Blower with Electric Motor.

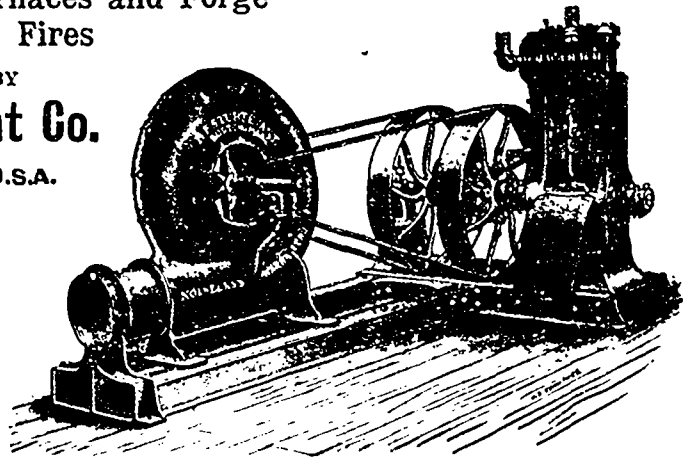
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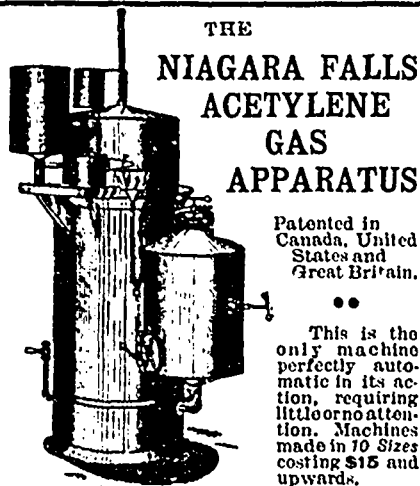


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GAS  
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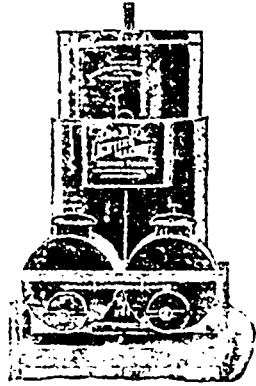
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(LIMITED).

LONDON, ONTARIO.

9. The right of timber owners and others to drive their logs down any river, stream or other body of water, as now by law established, shall not be interfered with, lessened or restricted by the granting of any such lease; and if any dam, weir or other structure be erected or built in connection with the development of any such privilege, with the object, intention or effect of damming the water or impeding the flow thereof, full and proper provision as now by law required shall be made by the lessee for the passage of logs and timber over and through the same.

10. The lessee under any such lease shall not destroy or obstruct the navigation of any river, stream or body of water previously navigable, but shall provide such locks, canals, passages and other means as may be necessary for the proper and safe surmounting or passing of any dam, weir or other work made or erected by the lessee.

11. The lease shall also provide—

(a) For the development and use within a period to be named in the lease of at least one-half the power proposed to be developed and used, and for the development and use of the full capacity of the privilege estimated as aforesaid, or of the remainder of the power proposed to be developed and used, as the case may be, within a further period to be named in the lease.

(b) For the use by other parties than the lessee of surplus or unused water or power not required by him for the purposes of his business, plant or manufactory on such terms as may be agreed upon; and failing an agreement between the parties as to the terms and conditions on which such surplus or unused water or power may be used, and the remuneration to be paid therefor, the Lieutenant Governor in Council shall have power to fix and determine the same, and any Order in Council fixing such terms, conditions and remuneration, shall be final and conclusive and binding upon all parties concerned.

(c) For the erection and maintenance by the lessee of a durable and efficient fishway when so required by the proper officer or authority in that behalf.

(d) Failure or refusal of the lessee to comply with the conditions of the lease, or default in payment of the yearly rental for ninety days after the same falls due, shall work a forfeiture of the lease.

(e) During the continuance of the lease, the lessee shall keep and maintain all dams, weirs, tunnels, races, flumes, sluices, pits and other structures and works necessary for the development and use of such privilege in good repair and condition, and shall not wilfully or otherwise injure or destroy the

same or any part thereof, but at the expiry or sooner determination of the said lease, shall leave all such structures and works in good repair and condition, and so that their subsequent usefulness shall not be lessened by any act of the said lessee.

(f) At the expiry or sooner determination of the lease, the water privilege shall revert to and become the property of the Crown as fully as if no such lease had been granted, together with all dams, weirs, tunnels, races, flumes, sluices, pits and other structures or works made or erected by the lessee in connection therewith, and all buildings erected on land covered by the lease; but the lessee shall be allowed a reasonable time, to be fixed by the Commissioner of Crown Lands, in which to remove all machinery employed by him in the development and use of the privilege, failing which removal such machinery shall become the property of the Crown.

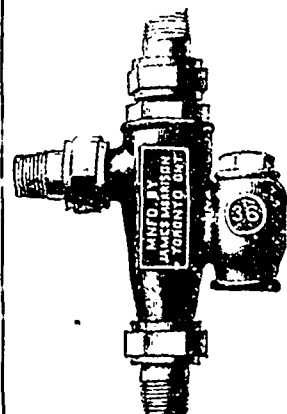
(g) Where there is more than one applicant for a water privilege the Commissioner of Crown Lands may, at his discretion, put the same up at public auction or tender, subject to the foregoing conditions, to be awarded to the highest bidder or tenderer for a lease thereunder.

(h) If at any time or times after the water privilege has been developed, either in whole or to the extent to which the lessee is bound by the lease to develop the same, the said lessee shall continuously neglect for the space of one year effectually to produce power from the said privilege, either for his own use or for that of other persons, unless hindered by unavoidable accident, the Lieutenant Governor in Council may order and direct the said lease to be forfeited and cancelled.

12. Where a water privilege is applied for by a municipal corporation for the purpose of supplying water, power, light, or heat for the use of the inhabitants thereof, the Commissioner of Crown Lands may issue a lease of said privilege to such corporation if otherwise entitled to receive and hold the same, on such special terms and conditions and at such rental as he may deem proper.

**DODGE MANUFACTURING COM-  
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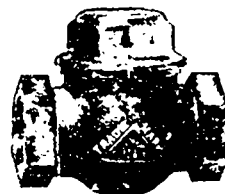


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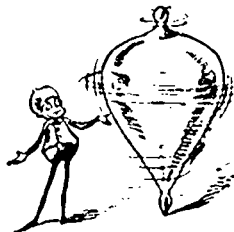
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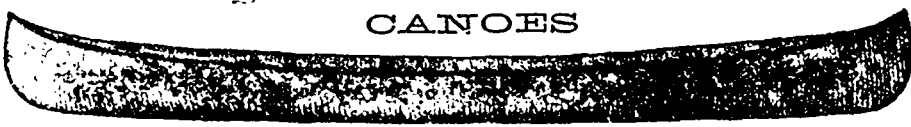
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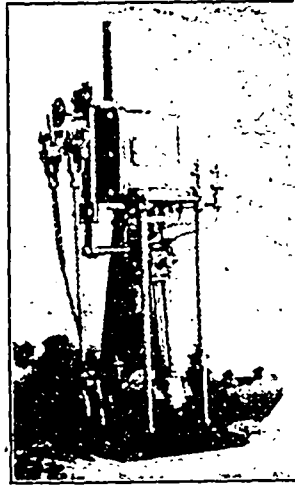
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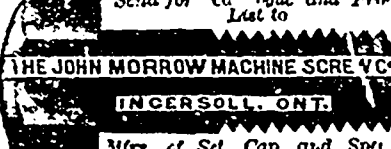
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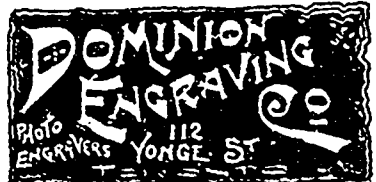
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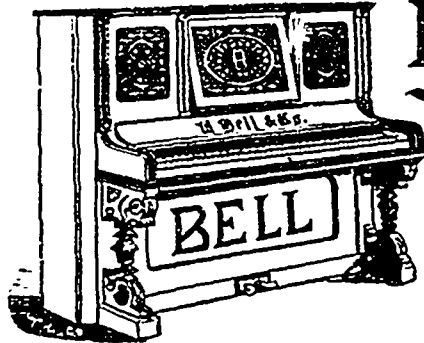
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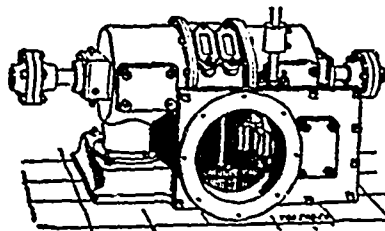
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# THE DICKSON PROCESS

FOR MANUFACTURE OF

## COMPRESSED PEAT FUEL

THE general public, and in fact many well-read people in America, have but a superficial knowledge of the character and properties of peat, beyond what they have gathered from hearsay or the testimony of Old Country people in regard to the burning, for centuries past, of dried turf, or sods cut from the surfaces of bogs and marshes, or at the best that it has been reduced to a paste by the primitive methods of adding water and "*tramping*" it in pits and then molding it by hand into lumps and leaving it to dry in the sun. Information is also scarce in this country respecting those other elementary methods—practiced in later years—of pressing wet peat into the form of *briquettes* after it had been ground to a plastic mass, and *then drying these blocks in the open air, or in a kiln*, to fit them for combustion.

These operations are still practiced in Ireland, Holland, Bavaria, and in other parts of Europe, although many improvements have been made in the means for excavating, drying and pressing by Exter, Hodgson, Gwynne, Elsberg, Leavitt and others, who have aimed at *the reduction of the moisture by different applications of artificial heat*, and endeavored to increase the output of the manufactured material by various mechanical arrangements.

The fatal objection to all of the above methods is that peat cannot properly be consolidated while it is wet—that is to say, no permanency could be given to blocks which have to be dried *after formation*, as even atmospheric drying will cause cracking and disintegration.

The very nature of peat renders it impossible to press out of its clinging and dense fibre more than a small proportion of the inherent water, and without reduction of the moisture to (say) average atmospheric conditions, the necessary solidity and consolidation cannot be imparted or maintained so as to prevent re-absorption of moisture, these processes consequently fell very short of the desideratum.

It is a noteworthy fact that, whereas, hitherto, only deposits of those mosses which form the regular "turf" have been used as fuel, it is possible to transform, economically, into a good fuel, in density equal to coal, by the Dickson process, the different vegetable deposits usually called swamp muck—which are wide spread in Canada and elsewhere. Nevertheless there are also numerous and extensive deposits in the Dominion of a character corresponding to the Old Country peat or turf.

The first Dickson machine was set up late last autumn on the Welland bog—a deposit of some 4,000 acres of *sphagnum palustre* still covered by the living moss which in the case of most such deposits has been burnt off the surface.

The advantage of such a process to any country, but especially to those countries which are destitute of coal, and of wood for the purposes of fuel, can hardly be imagined.

The Report of the Ontario Bureau of Mines, in speaking of the call for manufactured peat, thus tersely expresses the situation:

**"A process which would put us in possession of a good and cheap peat fuel would be a national benefit to Ontario, destitute as the Province is of workable beds of coal."**

The same might be truthfully said of most of the other divisions of the Dominion.

Thoughtful Canadians who have tried to forecast their country's industrial future have always had their enthusiasm dampened when they came to consider the fuel problem. Geologists have told us that it will be in vain to look for deposits of coal, at least in Manitoba, Ontario and Quebec, the wood supply is rapidly diminishing and may be said to be already out of reach for railway and power purposes. The remoteness of the coal deposits of Nova Scotia and the far west makes them almost useless to our great manufacturing centres. Attempts have been made to bring Nova Scotia coal to Ontario, and one or two shipments have found their way as far west as Guelph and Berlin, but the trade could not be made commercially profitable and had to be abandoned. Besides, though suitable as a steam fuel, the Nova Scotia article is bituminous or soft coal and unsuitable for domestic consumption.

In our efforts to find within our own boundaries the fuel needed to make independent industrial development possible, Canadians have from time to time turned their attention to the extensive peat deposits which abound in those parts of the Dominion to which nature has denied coal.

---

## NEW DICKSON PROCESS

In applying himself to the solution of the difficulty of utilizing this valuable but poorly understood material to the full advantage which its qualities warrant, Mr. Dickson was obliged, after years of patient application, marked by many abandoned experiments upon old lines, to entirely discard those methods.

### DRYING

His method, therefore, starts with the excavation and draining of the peat at the bog, and its natural drying in the open air or partly under cover, until the material retains only approximately the same humidity as the atmosphere, and this is not only the *sine qua non* for successful treatment and best results, but also the least expensive preliminary operation.

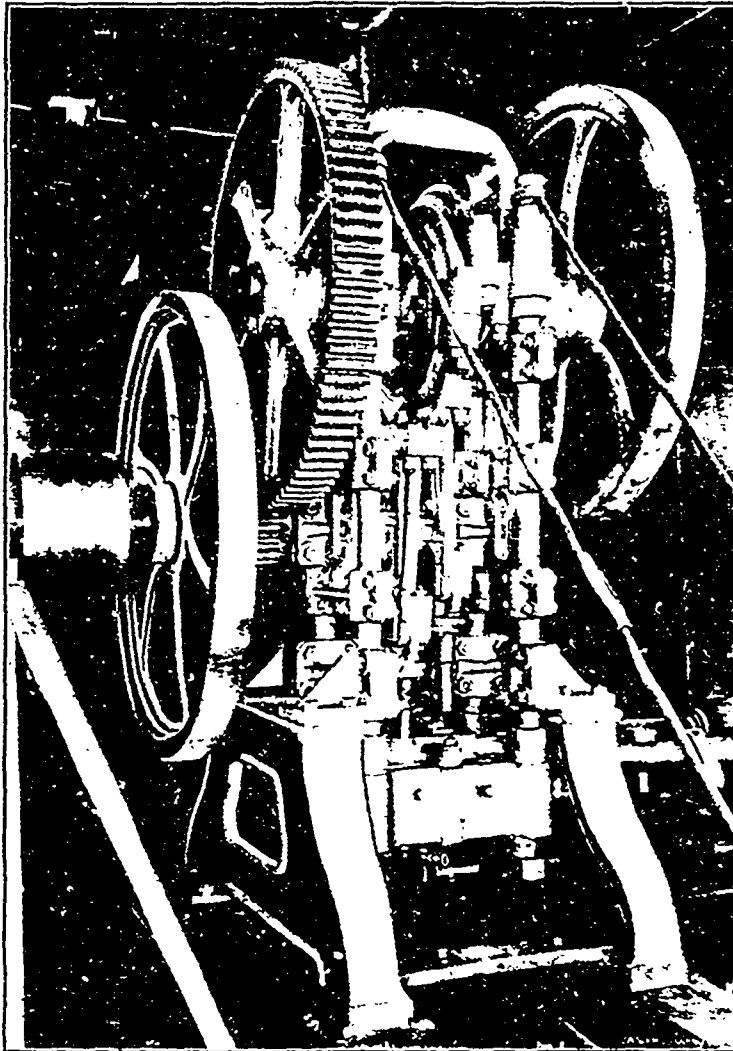
### REDUCING

The next step is the reduction or disintegration of the dried mass until it assumes a loose character finely divided, and without liberating any of the indigenous or inherent combustible matters.

(It must be remarked here, that his is the only process which does not require the picking out of the smaller roots and sticks previous to compression, as they can all be simultaneously broken up and incorporated with the smaller fibre, thus saving trouble, expense and waste).

## PRESSING

This dry, cold and disintegrated material—contrary to ordinary opinion—offers more resistance and friction against compression and consolidation than any other natural ligneous substance known, and discontinuing all attempts to press it against any fixed resistance or in any closed mold, Mr. Dickson devised and constructed his **Patent Open-Tube Vertical Press**, which, with moderate expenditure of driving power, and with only two formers, or dies, working against a yielding resistance, has an output of 1½ to 3 tons of pressed peat per hour. The charges are evenly disposed automatically and gravitate towards the dies, and the formative pressure is always the same, irrespective of any variation in density of the successively fed charges of material. The presses are of two types: the smaller (capacity 1½ tons per hour) is geared, but the



Geared Dickson Press.

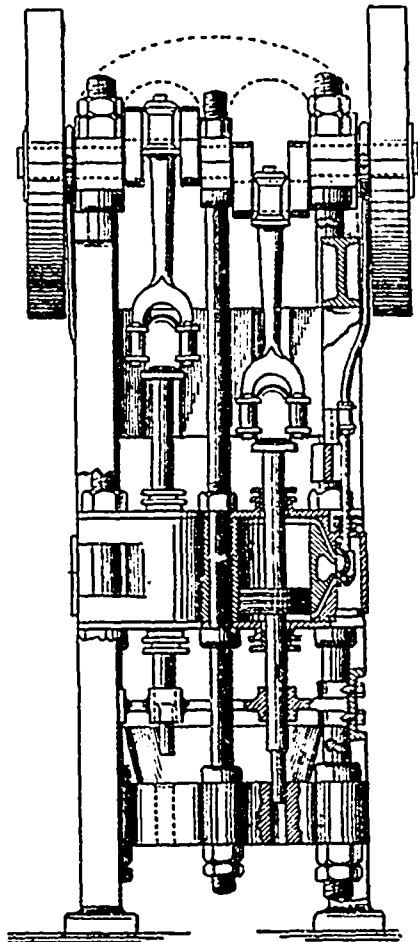
larger machine carries its own steam cylinders and the pistons serve as punches. The capacity of the latter machine, at present, is over three tons per hour, but it is expected that the output can be very materially increased without enlargement of the main parts.

## PRODUCT

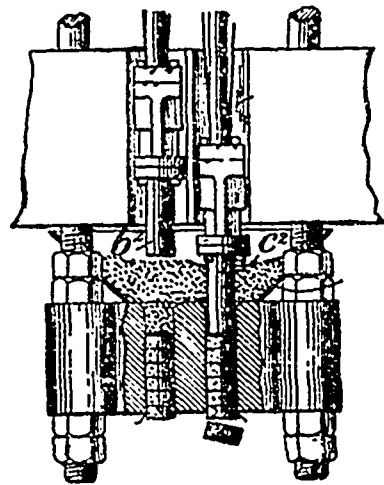
The result of the foregoing cold-dry process is the transformation of peat into blocks of fuel, each of which may be described as a novel article of manufacture, in the form of a hard, dense block,

containing all of the fibrous, carbonaceous, volatile and other materials and elements which are originally embodied in the raw peat, and an amount of moisture only corresponding approximately with that in the surrounding atmosphere.

Experiments and practice extending over many years, and a thorough study of the art as known in Canada, the United States, Great Britain and Europe, have warranted the conclusion that not only has peat never before been produced **commercially** in hard, dense blocks, retaining the full complement of volatile matter and fixed carbon as it is found in the raw material, but it has never been manufactured in any condensed form in which the water has been eliminated sufficiently to reduce the inherent moisture to the atmospheric degree (so essential for the reasons before given) without carbonizing the fibre, or dissipating much of the volatile matter.



Cross-Section of Dickson Steam Press.



Showing the Dickson Gearod Press at Work.

### ANALYSIS

The percentage to which the inherent moisture is reduced will, of course, vary somewhat according to the humidity of the atmosphere existing at the time the fuel is manufactured but the following general analysis of the new manufactured peat fuel may be taken as a fair average:

Moisture.....	12.
Volatile Matter .....	58.20
Fixed Carbon.....	26.
Ash .....	3.80
	100.00

The proportion of ash, of course, depends upon the special characteristic of any particular lot of peat as regards the inorganic constituents, but it only varies between 2 and 5 per cent. in peat usually selected for fuel, while the ash from the best coal is never less than 7 per cent., and runs as high as 15 and 20 per cent. in the poorer grades.

As to weight, the Dickson pressed peat stands with coal thus :

Bituminous coal . . . . .	73 lbs per cubic foot.
Peat . . . . .	83 " " " "
Anthracite coal . . . . .	93 " " " "

## DOMESTIC USE OF THE FUEL

The new process solves the problem of furnishing a cheap, clean, uniform and reliable fuel for all **domestic purposes**, as it is equally serviceable for **grates, stoves, cooking ranges and furnaces**, giving a long, bright flame and intense heat almost from the moment of ignition, and its durability compares favorably with that of coal in consumption, as the density and hardness of the blocks ensure the retention of their original form until the last atom of the inherent carbon and gas has been consumed. The combustion is so thorough that no volume of free carbon or deleterious vapor is allowed to escape, hence its hygienic and economic advantage over either soft or hard coal. There is **no sulphur, no soot, no clinker, small ash residuum; it is practically smokeless** (when burned under proper conditions), and contains **no gas deleterious** to animal or vegetable life.

In 1685 we find an Irish writer, Dr. King, saying :

“Turf charred I consider the sweetest and most wholesome fire that can be; fitter for a chamber and for consumptive people than either wood, stone-coal or charcoal.” In line with this is a statement made by Captain W. A. Kerr, V.C., of London, in a letter to Mr. Dickson :—“ All our medical men are prepared to prescribe peat fuel, provided it can be obtained at a reasonable price, of sufficient density, and that it will bear carriage. I know some quite at the top of the tree, men such as Sir Richard Quain, Robson, Roose, etc., they will hail the advent of such a material. There will be no difficulty in introducing it everywhere, from Windsor Castle, Buckingham Palace, Marlborough House, down to the laborer’s cottage. I have only shown the samples to a chosen few, nothing on our markets can compare with them. Here in London, where all the doctors recommend peat fuel so strongly in cases of influenza and other diseases of the throat, chest, etc., we have been paying, delivered, 40 shillings per thousand for unpressed air-dried turfs as taken from the bog.”

F. Clare, Esq., of Clare Bros. & Co., Manufacturers of stoves, furnaces, etc., Preston, Ont., writes under date of April 8, 1899: “ I have made a thorough and exhaustive test of this fuel in hot air furnaces, kitchen ranges, fire places, and different types of heating stoves, and have come to the conclusion that if it can be furnished at a reasonable price your compressed peat is an ideal fuel for domestic use.”

## FOR STEAM RAISING—Under Stationary Boilers

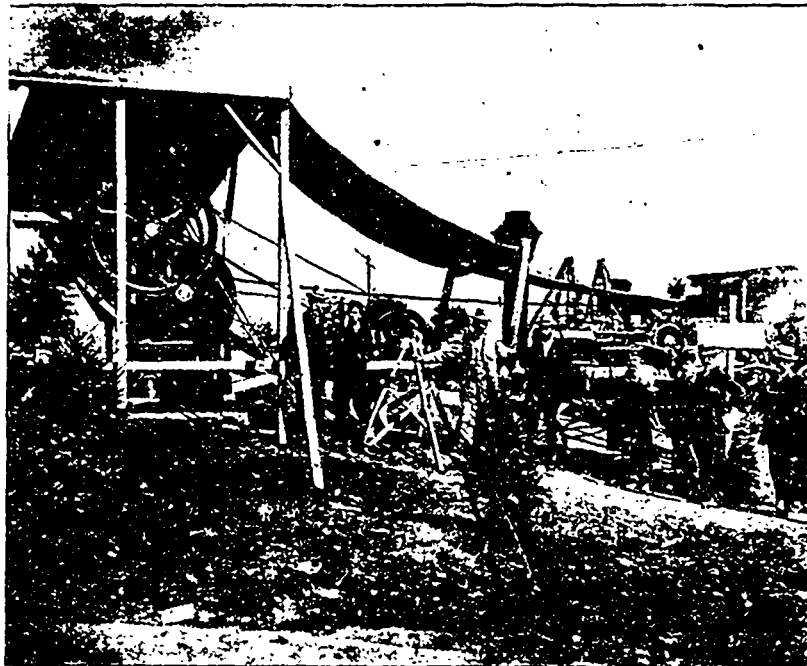
Although theoretically the calorific value of peat is considerably below that of the coals, yet it has been found possible, in practice, to utilize a larger percentage of the heat units, thus enhancing its relative value, as the following reports indicate :—

Peat, taken from the Ellice swamp, near Stratford, after being manufactured at the works of the Canadian Peat Fuel Company at Welland, was returned to Stratford for the purpose of making

a test. Mr. Thomas Clark, Mechanical Engineer and Manager of the Stratford Waterworks, conducted the test and his report is reproduced:

**TEST OF PEAT FUEL obtained from Township of Ellice, made at Stratford Water Works plant, September 28, 1898:**

No. 1 boiler, coal fire was drawn at 3 p.m., two pine slabs thrown on grates served to kindle peat fuel. No. 2 boiler was treated similarly, but no kindling was used, the peat fuel ignited from the hot bars. The steam gauge registered 47 lbs. In thirteen minutes the steam rose to 60 lbs. and was held remarkably steady throughout the test. The water level of boiler averaged four inches. Temperature of feed water, 170 degrees. Reading of vacuum gauge, temperature of feed water and pressure of water gauge was taken every hour. Peat fuel consumed per hour, 310 lbs. Water pumped per hour, 31,005 imperial gallons. Ash and unconsumed peat, 7.5 per cent. I have no hesitation in saying that fully fifteen per cent. of the peat fuel was lost owing to the excessive distance from grates to boiler. Had I known the nature of this fuel I should



**Peat Fuel Exhibit at Industrial Fair, Toronto, 1898.**

have recommended the raising of the grates fully seven inches, a much finer grate bar and an automatic damper.

**TRIAL OF SELECTED REYNOLDSVILLE COAL, September 29, 1898:**

No. 1 boiler was drawn at 3 p.m., 50 lbs. of pine served to kindle. No. 2 boiler was treated similarly: 50 lbs. of pine served to kindle. The steam gauge registered 52 lbs. The water level of boiler averaged four inches. Temperature of feed water, 170 degrees. Reading of vacuum gauge, temperature of feed water, and pressure of water gauge was taken every half hour. Coal consumed per hour, 300 lbs. Water pumped per hour, 30,080 imperial gallons. Ash, 8.9 per cent.

(Signed) THOMAS CLARK,

*Mechanical Engineer and Manager Stratford Water Works.*

**Test at the Metropolitan Street Railway Power House, North Toronto, with Welland Peat:**

The report of the experts in charge concluded with the statement: "That the thermal value of 100 lbs. of peat is equal to 91.15 lbs. of Reynoldsville Mine Run coal of excellent quality."



An engineer in charge of a Sawyer-Massey portable engine at the Toronto Exhibition tried Dickson's compressed peat and had this to say of it: "For quick steaming I never used fuel to equal peat. It is quite as economical as coal, and in many respects greatly superior. It is smokeless, cleanly to handle, very little ash, and no sulphurous gas, consequently makes no soot to gather on the tubes. I find the stoking much easier than with coal. I banked the fire at 5.30 p.m., closing off the drafts, and found plenty of fire next morning at 7 a.m., with 60 lbs. of steam up. When the fire has burned out I find the grate bars perfectly clean."

### **As a Locomotive Fuel**

In early days, on the Grand Trunk, an effort was made to utilize peat for fuel in its crude state. The attempt, while otherwise satisfactory, was given up because the fuel, in its unpressed state, was bulky, dusty, and readily broke down from exposure.

A recent test on the Central Ontario Railway, and referred to below shews that the improved compressed peat turned out by the Dickson presses, fulfils the requirements of a locomotive fuel. On November 22, 1898, a run was made from Trenton to Glen Ross (thirteen miles) with twenty-two empty freight cars, over a portion of the road with very heavy grades. The brakes were applied to the train at different times during the test, which was a severe one, as the locomotive was worked up to her full power. The cost of peat burned, so the engineer reported, was not greater than coal in proportion to the work done.

Locomotive engineers have testified to the increased life of fire boxes and of flues by the use of peat, the absence of sulphur being a great point.

### **As a Steamboat Fuel**

A trial was made of the new fuel from Welland bog, on August 17, 1898, on the steamer Primrose, of the Toronto Ferry Company. Chief Engineer Brownley gave it as his opinion that for quick steaming it was superior to coal, the quantity consumed not being greater, the ash very much less and there being an entire absence of smoke.

### **FOR SMELTING**

In a report made to an English company, Mr. Sanderson, of Sheffield, said: "All iron metallurgists have agreed in one opinion, that if peat by any means could be produced of sufficient density to enable it when charred to stand the blast necessary for the production of iron, the iron so produced would be of very superior quality."

### **UTILIZATION OF IRON SAND**

It is well known that Canada has large deposits of what is called magnetic iron sand, which has hitherto been unworkable, because it has not been found possible to hold the sand while being smelted. Mr. Dickson expects to attain the desired end by compressing the sand and powdered peat together into blocks, coking and subsequently smelting, the peat charcoal furnishing the fuel.

### **GAS**

The large yielding of gas from the Welland peat indicated in a report made by Mr. Thos. Heys, Consulting Chemist, confirms the statements made by many other authorities in the United States, Great Britain and Europe, and shows that the production of an illuminating gas of a superior brilliancy and power is within the direct sphere of operations in peat. Its manufacture, judging from the many experiments made in different parts of the world, is much more simple than the production of gas from coal, and the absence of sulphur from the peat allows the purification of this gas to be much more easily accomplished. As far back as 1862 communications were made to the British Society of Art to the effect that large establishments had been lit by peat gas, and that as much as ten thousand cubic feet of gas had been obtained from a ton of peat, although some difficulties were experienced in the separation of the inherent carbonic acid. Later the

objection in this respect was done away with in a great measure by the partial charring or baking of the peat before it was used for the manufacture of gas. The Dickson process puts the peat into the best possible form for effecting this last operation, and therefore there can be no doubt but that the abundance of carburetted-hydrogen existing in the peat may be economically utilized for the production of gas for heating and illuminating purposes.

Apart from the fuel industry peat prepared and consolidated by the Dickson process is put into the most advantageous form for destructive distillation and the recovery of the inherent products

## PATENT RIGHTS, ETC.

The Canadian Peat Fuel Co. have acquired from the patentee, Mr. Dickson, his patent rights in connection with the manufacture and sale of peat fuel in the Dominion of Canada.

The patent rights for all other countries are still open for disposal by Mr. Dickson.

The consolidation of finely divided substances, other than peat dust as fuel, is fully covered by the patents; and the machines for such purposes are procurable from the patentee.

Estimates and information as to machines, cost of plant, cost of producing the fuel, etc., will be furnished on application.

The machinery is on exhibition in Toronto, and an immediate demonstration is being prepared for in London, Eng., to assist in the disposal of the British and foreign patents.

A number of machines are under construction for local companies who have been licensed under royalty by the Canadian Peat Fuel Company to manufacture and sell in specified territory in Canada.

ISSUED FROM THE OFFICE OF

**A. A. DICKSON,**

April, 1899.

110 Adelaide St. West, TORONTO, ONT.

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## SPHAGNUM MOSS AND ITS VALUE

Deposits of peat are formed by the constant decay of mosses and vegetable growths at their roots. Upon some of these deposits, in America, sphagnum moss is still to be found growing. Its value for some purposes has long been recognized, more especially in Europe, but a wide prospect is opening out before it as an article of great commercial value for a large number of purposes, upon some of which it is proposed to touch. For years it has been used as a litter for stables; for packing fresh fruit and fish, etc., serving then as manure. Exports to the United States have been considerable from Holland, and in Canada the Canadian Peat Fuel Co. have a plant for baling moss litter which finds a ready sale in New York. As to other actual uses, a letter to Mr. Dickson from the Torf-Industrie Karl A. Zschœrner & Comp., Vienna, under date April 5, 1899, recounts what is being done by them.—“We manufacture, from *peat only*, carpets, door mats, blankets (for soldiers and horses), saddle cloths, etc. . . . . You will find our material far superior, they are antiseptic, very warm, fire proof (for peat will only glimmer), and will last longer. . . . . We manufacture also “peat wool” for dressing wounds. This wool is used in large quantities by the hospitals and the War Department, and is considered far superior to other dressings by our medical authorities. We produce from *peat only*, ropes, covering for steam pipes, peat litter, peat mull for stable purposes and water closets. This mull should be of very great value to Canada, more especially for little towns for sanitary purposes . . . . Our peat packing paper has been certified by the authorities here as to its value. . . . Our cardboard, which can be manufactured to any thickness, made from peat only, is far superior to other cardboard made from straw and other substances. . . . . The difference in the price is because we find our material alongside of our factories (the comparative prices quoted Mr. Dickson are generally as two to five in favor of peat). We may mention that our industries are not in the experimental stage, but we have factories erected to produce all the articles mentioned on a large scale.”