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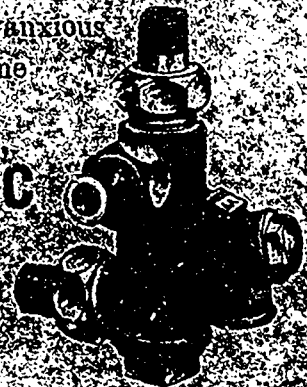
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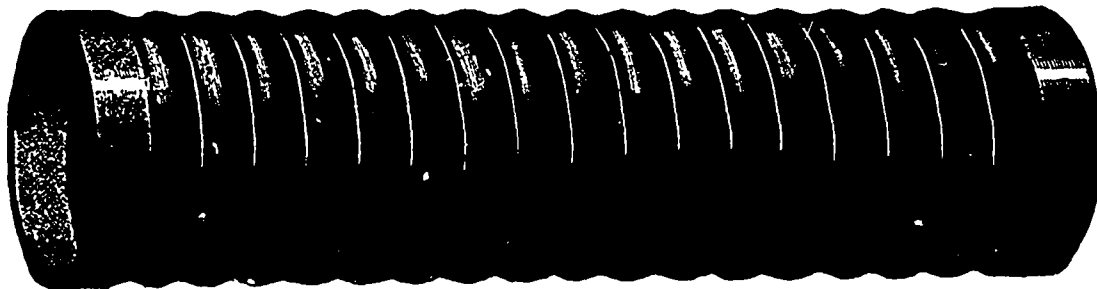


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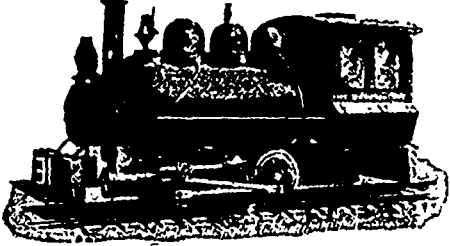


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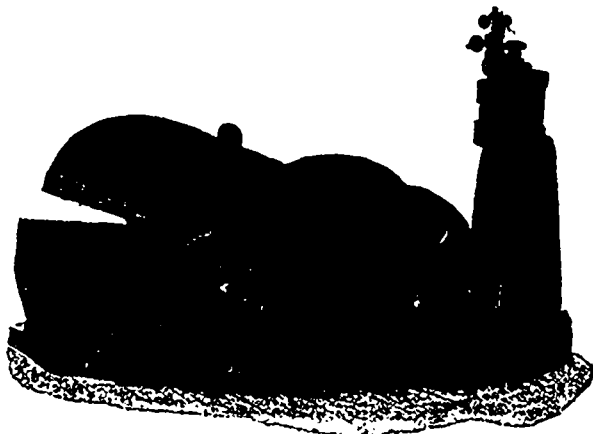
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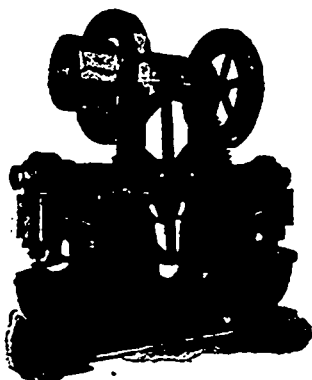
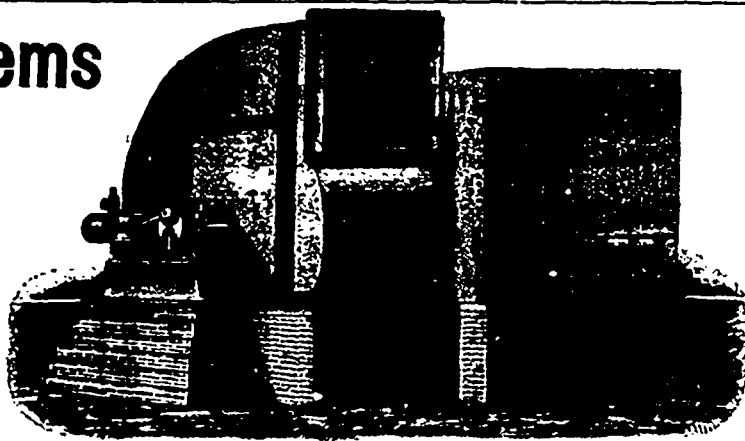
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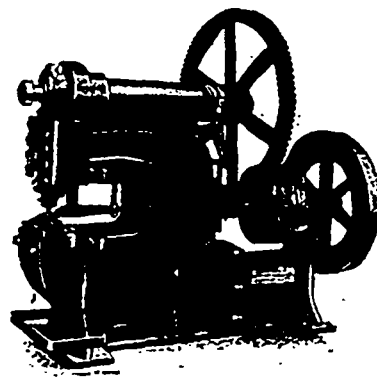
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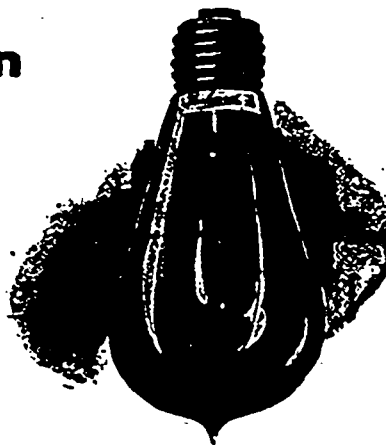
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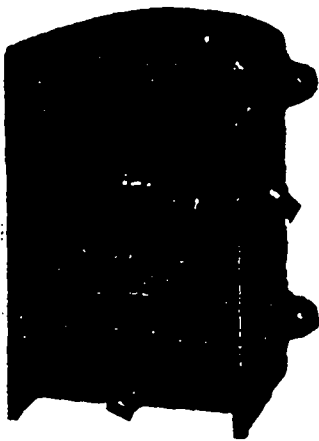


**PACKARD ELECTRIC CO., Limited.**

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MONTREAL, QUE.

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### NOW IS THE TIME

To protect your lines and apparatus against Lightning.

## C. G. E. Lightning Arresters

FOR ALL CIRCUITS.

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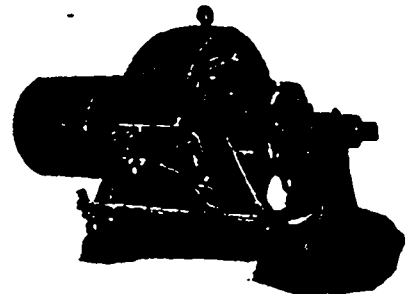
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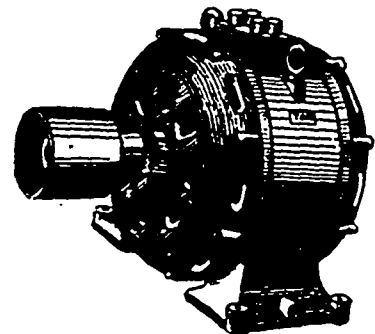
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REPAIRED and RECONSTRUCTED.

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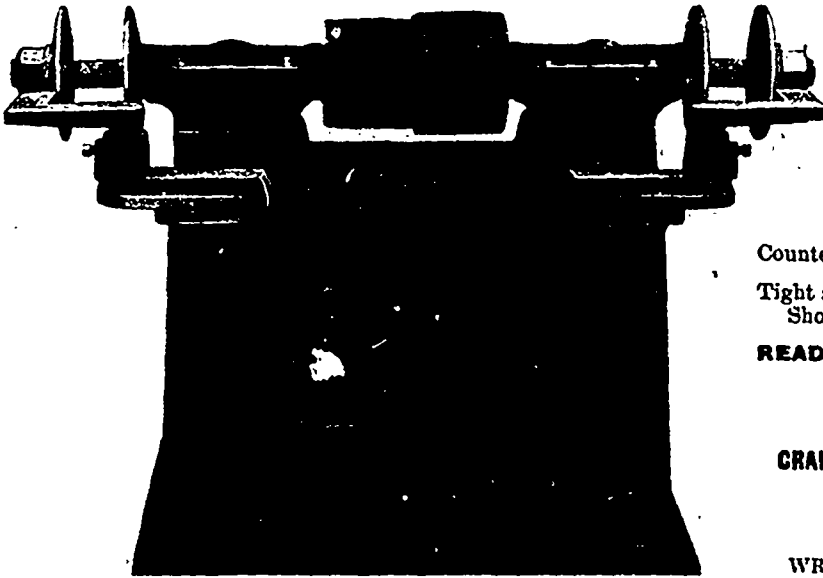
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To carry 2 wheels 20 to 30 in. dia., 4 in. thick.

Countershaft has cone pulleys 17 and 18 x 6½.

Tight and loose pulleys, 8 in. dia., 7 in. face. Should run 450 revolutions per minute.

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Your aim should be to start up for yourself.

**Why Work** from morn'till night for somebody else instead of pushing a business for yourself, and thus reap the full profit of your labor.

**We Will...** start men of ability and good character in every county in the Dominion.

WRITE FOR PARTICULARS TO

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ESTABLISHED IN 1890.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

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

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**THE CANADIAN MANUFACTURER**

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

**PREFERENTIAL TRADE.**

"I cannot imagine British manufacturers being so stupid as to continue year after year increasing their sales to a customer if they do not find the business profitable. \* \* \* If the seller sells more, and the carrier carries more, and a larger number of seamen find employment under preferential trade, I conclude that there must be a benefit to Great Britain in the preference."—George Johnson, Dominion Statistician.

In the April 1 issue of this journal was published an analysis of the question of preferential trade as between Canada and Great Britain. It was prepared by Mr. George Johnson, Dominion Statistician, at the request of His Grace the Duke of Argyle, who desired a statement showing the effects and operations of the tariff preference. His Grace is deeply interested in what may be known as the Chamberlain movement, now going on in Great Britain; and he thought Mr. Johnson's memo of sufficient importance to publish it in the London Times and thus circulated throughout the kingdom.

It will be observed that the intention of Mr. Johnson was, seemingly, to view the question from the British standpoint, and to show the benefits that actually flow to Great Britain through the operation of the preference; but he makes no allusion whatever to the effects of the preference upon Canadian welfare, particularly upon Canadian manufacturing industries, nor upon Canadian trade with other countries.

Before the institution of the preference the imposition of duties bore alike upon imports from all countries; but it was found, as Mr. Johnson shows, that the imports from Great Britain into Canada were falling off at a most alarming rate. In 1873 the imports from Great Britain into Canada for home consumption were valued at \$68,522,776, while in 1897, the year before the adoption of the preference, the value had dropped to \$29,412,188. The imports into Canada were constantly increasing, but the imports from Great Britain were constantly decreasing. The political ties between the two countries showed no weakening, but the commercial bonds were shaky and almost disrupted. With a desire to strengthen these bonds Canada came forward of her own free will and accord, and to her own commercial detriment, receiving never a word of thanks or any act of reciprocity on the part of the mother country, and gave her a preference not accorded to any other country; and we are now presented with the

amazing spectacle of British statesmen declaring that the preference is of no substantial benefit to their country.

Mr. Johnson, in addition to showing how rapidly the value of the exports of British goods to Canada were diminishing before the preference, also shows that while our imports in 1897 were valued at only \$29,412,188, under the 25 per cent. reduction, they increased in 1898 to \$32,500,917, and in 1899 to \$37,060,123; and that under the 33 1/3 per cent. reduction, the imports, in 1900, were valued at \$44,789,730, and in 1903, the last fiscal year, at \$58,896,901. Between 1873 and 1897 there was a decrease of nearly 60 per cent. in the purchases of Canada from Great Britain; under the 25 per cent. reduction there was, in 1899 as compared with 1897, an increase of 26 per cent.; and under the 33 1/3 per cent. reduction, comparing 1893 with 1899, the increase was nearly 60 per cent. And yet there are British statesmen who deride as of no importance Canada's contribution to British manufacturers. As Mr. Johnson shows, the difference in the last three years—1901-02-03—in favor of Great Britain, due to the preference, amounts to a cash value of \$8,464,596.

It is difficult to comprehend why Canada should make this enormously large concession to British manufacturers; and it is also hard to see wherein Canada is benefited by the transaction. The goods we purchase from Great Britain are no better than those we buy from other countries—no better than those we make ourselves; and if we recognize that tariff protection is essential to our manufacturing industries, and if our general tariff is framed to afford such protection, the preference is an unfair burden and handicap upon them.

Mr. Johnson tests the value of the preference to Great Britain by analyzing several of the classes of goods exported by that country to Canada. These he groups as cotton goods; flax, hemp, etc.; iron and steel, and woollens. The terms or periods of years in which these were imported were, 1895-96-97—before the preference, and 1901-02-03—since then. The growth of the trade was very progressive during the latter period which it was not during the former. Thus in 1895 the value of imports of these classes was \$13,051,694, and in 1897, \$11,177,928, a decrease of \$1,873,766; while in 1901 the value was \$16,155,707, and in 1903, \$24,083,408, an increase of \$7,927,701, and yet there are British statesmen who do not appreciate the value of the preference.

It is shown in the classification that during the period



previous to the preference, our imports of "woolens" were valued at \$19,103,929, and in the subsequent period at \$25,571,661, an increase of \$6,467,732. This is a bad showing for the Canadian woolen industry. Previous to the preference Canadian mills produced about all the woolen goods the country required; and first-class Canadian-made blankets could be sold in London at same prices as British blankets. Now it is different. Our mills, many of them are closed, and Canadian operatives are in idleness or forced into other occupations; and this to please and benefit British textile manufacturers.

Mr. Johnson shows that in the three year period before the preference our imports of iron and steel goods were valued at \$6,330,134, and in the second period, \$13,704,947. This latter period is coincident with the boom in Canadian manufacturing and commercial industries which required large quantities of such goods, such as steel rails, mining machinery, etc., nearly all of which are in the free list. But another story may be told in this connection.

In THE CANADIAN MANUFACTURER of January 2, 1903, was published a tabulated statement showing in detail the values of 84 different manufactures of dutiable goods, chiefly of iron and steel, and some other products allied therewith, during the fiscal years 1898, 1900, and 1902, and the duties imposed thereon by the general tariff, a discount of 33½ per cent. being allowed upon the articles made in Great Britain. It should be borne in mind that 1898 was the first full year in which the British preferential tariff was in effect. The statement also showed in like detail the values of 45 different non-dutiable manufactures and products of similar character, and indicated the sources of origin of what, to large extent, was to Canadian manufacturers their raw materials.

The statement was intended to emphasize three things—first, the large values of Canada's imports of dutiable goods which, to a great extent, should have been produced at home; second, the relatively small imports from Great Britain, notwithstanding the preferential tariff in her favor; and, third, the great value of such imports from the United States.

It was undoubtedly an impulse of the heart rather than of the head that prompted the engrafting of the preferential tariff upon our fiscal system. It had been noticed that our imports of dutiable goods from Great Britain had been steadily decreasing, as Mr. Johnson so pointedly shows, and it was thought that were the duties lowered there would be an increase of them; but the idea was a mistaken one, for we find that as compared with our total dutiable imports, the matter has not been mended. It is true that the volume of our imports from Great Britain are showing a slight increase, but this is because of the general prosperity that pervades the country, and not attributable to the tariff preference, the increase of the imports of 1902 being less than one per cent. over the proportion shown in 1898.

The preponderance of imports of American manufactures into Canada over similar products from Great Britain and all other countries is due to several causes; and it should be observed that in the list of articles enumerated in our statement, every one of them is capable of being produced in Canada, and in Great Britain also. Among these causes may be mentioned the greater adaptability of American goods to Canadian wants, coupled with the fact that American manufacturers are liberal advertisers in Canadian journals.

The values of the 84 lines of dutiable goods imported into Canada from Great Britain, United States, and from all countries in the three years alluded to in the table, were as follows:

|            | Great Britain. | United States. | All Countries. |
|------------|----------------|----------------|----------------|
| 1893.....  | \$1,506,499    | \$10,148,788   | \$12,564,797   |
| Proportion | 12.0 p. c.     | 80.7 p. c.     | 100.0 p. c.    |
| 1900.....  | \$3,240,607    | \$17,059,118   | \$21,658,655   |
| Proportion | 7.0 p. c.      | 78.7 p. c.     | 100.0 p. c.    |
| 1902.....  | \$3,047,812    | \$18,738,148   | \$28,528,516   |
| Proportion | 12.9 p. c.     | 75.3 p. c.     | 100.0 p. c.    |

The value of all merchandise, both dutiable and free, entered for consumption in Canada, was as under:

|            | Great Britain. | United States. | All Countries. |
|------------|----------------|----------------|----------------|
| 1898.....  | \$32,500,917   | \$78,705,590   | \$130,698,006  |
| Proportion | 24.8 p. c.     | 60.2 p. c.     | 100.0 p. c.    |
| 1900.....  | \$44,789,730   | \$109,844,378  | \$180,804,316  |
| Proportion | 24.8 p. c.     | 60.7 p. c.     | 100.0 p. c.    |
| 1902.....  | \$49,206,062   | \$120,814,750  | \$202,791,595  |
| Proportion | 24.2 p. c.     | 59.5 p. c.     | 100.0 p. c.    |
| 1903.....  | \$58,896,901   | \$137,605,195  | \$233,790,516  |
| Proportion | 25.1 p. c.     | 58.8 p. c.     | 100.0 p. c.    |

In THE CANADIAN MANUFACTURER of December 18, 1903, was published an enlarged tabulated statement showing in detail the values of a selected list of 200 different manufactures of dutiable goods, chiefly of iron and steel, imported into Canada in the fiscal year 1903, and the rates of duties imposed thereon under the general tariff, a discount of 33½ per cent. being allowed upon certain imports manufactured in Great Britain, admitted under the preferential tariff. The values of these 200 different lines was as under:

|            | Great Britain.<br>Preferential Tariff. | U. S.<br>General Tariff. | All other Countries.<br>General Tariff. | Total.       |
|------------|----------------------------------------|--------------------------|-----------------------------------------|--------------|
| 1903.....  | \$4,702,490                            | \$42,526,606             | \$3,582,674                             | \$50,812,770 |
| Proportion | 9.3 p. c.                              | 83.5 p. c.               | 7.2 p. c.                               | 100.0 p. c.  |

The question of fealty to the mother country, as regards the preference, does not and should not enter into the consideration of our fiscal relationship, but if it did there is no good or sufficient reason why Canadian manufacturing industries should be sacrificed in favor of British manufacturers.

#### OUR ANGELS OF COMMERCE.

The weekly reports published by the Dominion Department of Trade and Commerce regarding the trade and commerce of Canada with other countries is filling a long-felt want, and are, or should be, of immense value to Canadian exporters. The Department invites correspondence upon all matters pertaining to trade, and will cause special enquiries to be made by the commercial agents of Canada into any subject of general interest when so desired. This is a most laudable imitation of the methods observed by the Department of Commerce and Labor of the United States Government, which is in close touch with the consular system of that country, and which sends out bulletins published on every lawful day, covering reports of consuls and commercial agents in all parts of the world. Similar reports are also published at about weekly intervals by the Governments of Great Britain, Germany, France, and perhaps some other countries; and it is a pleasure to note that, save in the instance of the United States, the Canadian publication of such information is up-to-date and in line with any of the others. A noticeable and valuable feature of these Canadian weekly reports is that they will be sent free upon application to the Department of Trade and Commerce, Ottawa, to any who may be interested in either the import or export trade of Canada.

Another valuable feature of the methods of the Department is that the Canadian Commercial agents, whose addresses are here given, will answer correspondence relative to commercial

and trade matters, and give information to those interested as to local trade requirements in the different countries and districts they represent.

Following are the names of Canada's commercial agents and their addresses:

J. S. Larke, The Exchange, Sydney, Australia, agent for New South Wales, Queensland and New Zealand.

D. H. Ross, P.O. Box 140, Melbourne, Australia, agent for Victoria, South Australia, Western Australia and Tasmania.

\*James G. Jardine, P.O. Box 1282, Cape Town, Cape Colony, agent for South Africa.

Peter B. Ball, 16 Bennett's Hill, Birmingham, England, agent for Birmingham.

J. B. Jackson, cor. E. Parade and Greek Streets., Leeds, England, agent for Leeds and Hull.

P. B. McNamara, 94 Market Street, Manchester, England, agent for Manchester.

A. Poindron, 101 Rue Reaumur, Paris, France, agent for France.

+Alexander MacLean, Yokohama, Japan, agent for Japan.

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, Grubbedg, No. 4, Christiania, Norway, agent for Norway, Sweden and Denmark.

In addition to their other duties, the undermentioned Canadian immigration agents will answer inquiries relative to trade matters, and their services are available in furthering the interest of Canadian trade:

W. L. Griffith, Secretary, Canadian High Commissioner's Office, 17 Victoria Street, London, S. W., England.

W. T. R. Preston, 11 and 12 Charing Cross, London, W.C., England.

Harrison Watson, Curator of Canadian Section Imperial Institute, London, England.

G. H. Mitchell, Newton Chambers, 48 Cannon Street, Birmingham, England.

Alfred Jury, Old Castle Buildings, Preeson's Row, Liverpool, England.

Bruce Walker, 52 St. Enoch's Square, Glasgow, Scotland.

John Webster, 14 Westmoreland St., Dublin, Ireland.

Edward O'Kelly, 13 Queen's Square, Belfast, Ireland.

D. Treau De Cœli, Rue De Souci, Antwerp, Belgium.

H. M. Murray, Western Mail Building, Cardiff, Wales.

Paul Wiallard, 10 Rue de Rome, Paris, France.

The gentlemen whose names are here given are employed by the Dominion Government. It is included in their duties to give prompt and intelligent responses to all enquiries made of them by Canadian exporters and importers, which service is rendered without charge, nor is it necessary for any enquirer to forward his communication in other manner than by a direct address as above given. The routine of a circumlocution office is not popular or necessary in Canada.

We presume that when the Department of Trade and Commerce find that its Commercial Intelligence Bureau is lacking in a greater number of representatives, to be stationed in other trade centres, suitable appointments will be made.

\* Mr. Jardine's address for some weeks will be 11 Colborne Street, Toronto, Ont.

+ Mr. MacLean's address, until further notice, will be 910 Bank Street, Ottawa, Ont.

### MIND YOUR BUSINESS.

While Canadian manufacturers—many of them—and exporters make laudable efforts to build up trade with other countries, but too often (and unfortunately) the rewards for their efforts are disappointments and financial loss. It is unfortunate that such results occur, but if close examination is made it would be discovered that the causes were to be found either in the factory or the counting-house, perhaps in both.

One object that the Dominion Department of Trade and Commerce has in view in maintaining its corps of commercial agents in different countries is to keep our manufacturers and exporters advised as to the causes of failure of shipments to produce favorable returns; and this service is emphasized in the reports made by these agents.

Mr. J. S. Larke, agent at Sydney, Australia, speaking of defective invoices, defective packing, etc., says:

The complaints against Canadian exporters this month are not numerous, but they are important. The Australian branch of a Canadian firm has had to pay over six hundred dollars, besides costs in customs duties, more than it equitably should have paid, through failure to make out its invoices properly. The duty is levied on the proper price at the factory plus 10 per cent. to cover freight charges. All invoices, therefore, should be made out to give this cost, and the charge for casing, inland freight paid as additional items. In the instance referred to, this was not done, and the customs exacted duty on the price at Vancouver. There is a probability that the extra duty will be refunded when evidence of the proper value is obtained from Canada, but the mistake has entailed the loss of a good deal of time and costs of defending a prosecution for fraud.

Another was defective packing. Cast-iron stove plates were packed in sawdust. The handling on land and shaking on the sea naturally sent the sawdust to one end of the case, resulting in the breakage of the plates. This was a contributory cause which has about put an end to the Canadian gas stove trade.

In another case an agent has received very full replies to his request for information, but the firm designates a special article it wishes to have placed on the market by initial only, and sends no samples. The article is unknown here. Possible business is, therefore, delayed for another three months pending samples and further information. As the sample was inexpensive and could readily have been sent by mail, its omission was an oversight which has frequently been committed.

One of the difficulties in getting good agents to take up such lines (tobacco) is the fear that after they have gone to the expense of building up a trade their Canadian principals enter into an agreement which prevents them from shipping goods to Australia. Two such cases of especial hardship have occurred. United States firms, finding their Australian trade cut into, went to Canada and purchased the rival factories and put an end to Canadian export in these lines. Sometimes the purchase has resulted the other way, goods which once were supplied from the United States are now shipped from the Canadian branches. These movements, whatever the result of the trade of the country, give great concern to commission agents here, and many of them are requiring guarantees that their time and money spent in introducing a line shall not be wholly lost.

I have called attention to the necessity of preserving intact the territory of an agent. An agent commonly sells to a limited number of firms with the understanding that these firms only will receive the goods. The prices on this understanding are fairly maintained and the goods will continue to be ordered because there is a profit in handling them. But if, after orders have been filled by these firms for a quantity such as the market is likely to absorb, a fresh lot of goods unexpectedly appears on the market, then prices are likely to be cut and the original buyers refuse to give repeat orders, because they consider Canadian manufacturers have not kept faith with them.

A case which I am informed is of this kind is creating some disturbance here now. A Canadian firm which has secured a very high reputation for its business methods, being one of the

few against whose goods and methods no complaint has ever been made to me, has done a steady business for some years. A large consignment is now offered in Australia and New Zealand for sale. How they came here I am not informed, but it has been stated that they were obtained to be shipped to South Africa and sent here instead, without the knowledge or consent of the manufacturer. The manufacturer should inquire into this matter and satisfy his agent and original customers. As soon as a line has acquired a reputation and is selling profitably, there is a desire of Australian firms not handling them, and who in all probability refuse to go to the trouble and expense of making a market for them, to secure a supply in order either to share in the profit, or as likely to ruin an opponent's business. They secure a New York or other commission house to buy for cash.

There is a strong temptation on the part of the Canadian manufacturer to fill such an order, particularly when he is told they are not for Australia. If the goods are sent here it probably ends the Australian business or else the Canadian manufacturer will have to pay a sum for damages to the original buyers to retain it.

Mr. C. E. Sontum, commercial agent at Christiansa, Norway, writing regarding the marketing of Canadian cheese in that country, says:

With cheese it is somewhat different (from butter), as large quantities are imported, especially to Norway, of Cheddar cheese. I am aware that considerable of this is of Canadian manufacture, but comes here through English commission merchants in Liverpool and London. I cannot find that there exists a direct import of cheese from Canada, and I believe that there would be sold much more of Canadian cheese here if the Canadian manufacturers came in direct touch with the importers. I have written to several Canadian cheese manufacturers at different times, pointing out to them that there is a good market in Norway for cheese; but it seems as those I have written to have been too busy filling orders for other markets to take up the export to Norway. Once last year I thus had an inquiry from an importer here for 500 Canadian cheese. I wrote over to a couple of Canadian manufacturers, and also mentioned this in a special report to your department, but as I received no reply from the manufacturers, the importer here meanwhile bought his cheese from an English commission house.

It is evident that a more direct trade would bring better results, and tend to increase the sale of Canadian cheese on this market. Any Canadian manufacturer that has cheese to offer for export I can at once place in direct communication with importers here.

Mr. G. Eustace Burke is Canada's commercial agent for the Island of Jamaica, B.W.I., located at Kingston. Mr. Burke writes:

I cannot too strongly impress that producers and manufacturers shipping goods to these markets should employ every available method of designating same as of Canadian origin and source of production, and it would not be too much in appointing sole agencies to make it a sine qua non that shipments must be advertised and sold as Canadian.

I particularly bring this matter to notice, for it has been brought to my knowledge that Canadian bent wood chairs and carriages have been represented as of Austrian and United States manufacture, while butter and re-bagged hams and bacons have been sold as Danish and English respectively.

A good deal of Canadian office and household furniture, boots and shoes and other branches of product and manufacture, I am satisfied, are also disposed of, their origin being withheld.

It goes without saying that considerable quantities of commercial commodities arrive here from time to time, via United States ports, yet, one seldom sees them advertised as of Canadian origin. The manifold injustice thus done to Canadian enterprise, and the drawbacks attendant in the work of popularizing the Dominion's capabilities as a source of supply, must be clearly obvious, and every effort should be employed and steps taken to check, as far as it is practicable, the practice.

#### DOMINION OF CANADA EXHIBITION.

The Dominion of Canada Exhibition, otherwise the Winnipeg Fair, will be opened on July 24 and continue till August 6 next.

Too much cannot be said in favor of this enterprise, the great and growing importance of Winnipeg as a commercial centre of one of the most important sections of Canada entitling it to all the attention which may be bestowed upon it. The Dominion Government, much appreciating the importance of the occasion, have granted the sum of \$50,000 to assist in making the Fair the success it should achieve.

The Canadian Manufacturers' Association are lending a useful and willing hand in the matter, and has issued a circular to its members announcing as follows:

By special arrangement the display of manufactured goods has been placed under the direct supervision of the Canadian Manufacturers' Association.

This will afford an unprecedented opportunity to the manufacturers of Canada to introduce their products into this section of the Dominion, which they should not fail to take advantage of. The United States manufacturers are alive to the importance of the trade in Western Canada, and present conditions demand that a representative display of the goods "Made in Canada" should be made at this exhibition.

In addition to the present accommodation, two handsome new buildings, each 400 x 80 feet, are being erected solely for the display of manufactured products.

Freight charges both ways on exhibits returned from Winnipeg, without change of ownership, will be paid by the Exhibition Association from the Government grant.

Special arrangements have been made for manufacturers to send their exhibits from Winnipeg to exhibitions at Toronto, London or Ottawa. These shipments will be forwarded free of charge from Winnipeg to any of the points named. From there to other exhibitions or to original starting points will be carried at one-half regular freight rate.

Special facilities and free power will be provided for process exhibits. These are specially invited, and will receive particular attention from the management.

All applications, or requests for information, must be directed to Exhibition Department of the Canadian Manufacturers' Association, Toronto, Ont.

It should not be imagined that the display of all manufactured goods to be shown at the Fair has been placed under the direct supervision of the Association, but only those which may be displayed under the auspices of the Association. The Association has no control, of course, over the exhibits of foreign manufacturers, of which there will probably be a large number; and we are advised that it cannot tell whether or not the Dominion Exhibition Board desire to have foreigners make exhibits there.

We are informed, however, by Mr. F. W. Heubach, general manager of the Exhibition, that foreign exhibits are invited, and foreign exhibitors will be accorded the same benefits, power for processes of manufacturing, exhibiting, etc., as are granted to Canadian manufacturers. This, of course, applies only to the Fair buildings which are under the immediate control of the exhibition management.

#### EDITORIAL NOTES.

The correspondent of the London Times at Colombo, India, says that important deposits of tin had been discovered in lower Burma equal to those of the Straits Settlements, and likely to add largely to the world's output. Excellent coal was also found in the vicinity.

The British Cotton-Growers' Association proposes to raise a fund of half a million pounds, payable in five years, to carry on the work of cotton growing in the British colonies.

The Mexican Government, through Sir William Mulock, have expressed a willingness to bear one-half the cost of instituting a steamship service between Mexico and Canada. It is believed the Canadian Government will reciprocate, and that before long steps will be taken to inaugurate a service. A steamship line to Mexico will be a great advantage to manufacturers or exporters who do business with that republic, seeing that it will mean direct communication and the avoidance of vexatious delays.

The prosperity of the United States during 1903 is indicted by the large quantity of wool and woolen goods imported in that year. We imported 173,575,891 pounds of wool, valued at \$22,811,734. These figures have not been exceeded in either weight or value in any previous year, excluding of course the free wool period of 1895-7. The woolen goods imported last year were valued at \$19,321,504. This is in excess of the imports of any previous year since 1898 and is nearly one-half the value of the annual imports previous to the Wilson bill. It will be remembered that at that time 1890-94, a ruling of the Treasury Department resulted in a large increase of our imports of woolen goods. In one year alone, 1890, the imports of woolens were valued at over \$52,000,000. Although last year's imports were high for the Dingley tariff, yet the efficiency of that law is disclosed by comparing last year's imports with those, previous to 1894.—Textile World Record.

Messrs. W. F. King, Chief Astronomer of Canada, and O. H. Titman, Chief of the Geodetic Survey of the United States, have been appointed commissioners to delimit the boundary between Canada and Alaska, as laid down by the tribunal that assembled in London last Fall. They cannot undertake their work till the snow has disappeared from the mountains, which will mean the beginning of summer, and it will probably be spread over two seasons. In addition to this survey, however, of the stretch that was not very fully marked by the commissioners, the two governments will need to mark the entire line from end to end with permanent monuments of some kind in order that there may be no future disputes as to its exact location. This may take eight or ten years more as it involves the covering of hundreds of miles of unsurveyed and unoccupied territory with practically no roads.

The Bulletin of the American Iron and Steel Association reproduces the gist of the letter written by Mr. George Johnson, Dominion Statistician, to the Duke of Argyle, showing the effects of the tariff preference given by Canada to Great Britain, which was, by the courtesy of Mr. Johnson, published in the April 1 issue of this journal. Following the article in the Bulletin are comments by Mr. Swank, the editor, as follows:

Although the mother country has clearly gained, and gained largely, by the Canadian preferential tariff, it is equally plain that the Canadian manufacturers and the men they employ have been heavy losers by the same tariff policy. Whether our neighbors will be willing to continue to sacrifice some of their most important industries for the benefit of British manufacturers may be doubted.

There lies before us some evidence that the welfare of the colonies is not first in the thoughts of English statesmen, even of the protectionists. On March 15, in the course of a debate in the House of Commons, in which the heavy imports into Great Britain of bounty-produced Canadian pig iron were mentioned, the Chancellor of the Exchequer, Mr. Austin

Chamberlain, said of the bounty: "It now amounts to about 12s. 5d. per ton on pig iron produced from Canadian ore and to about 8s. 3d. on pig iron produced from foreign ore, and is subject to a reduction each year till 1906-7, when it will be 35 per cent. of the original figures. The abolition or modification of these bounties would be a proper subject for consideration whenever our fiscal and commercial relations with our colonies come under review." Our free trade London contemporary, the Iron and Steel Trades Journal, says that the Chancellor's admission, above quoted, "emphasizes the fact that while we shut out bounty-fed sugar made in Germany, we let in bounty-fed pig iron from Canada." And it adds: "Clearly to be consistent, our protectionist legislators ought to insist on a countervailing duty of 12s. a ton to prevent the 'unfair' of this Canadian iron."

It seems from the above to be very doubtful whether it is the purpose of Mr. Chamberlain's party, any more than it is of the British free traders, to encourage the development of manufacturing industries in the British colonies.

Our esteemed contemporary, The Monetary Times, publishes a lengthy editorial describing the remarkable enterprise and perspicacity of a number of British manufacturers who have chartered a large steamer which is being fitted up as a high commercial travellers' sample trunk, intended to display to the world the products and manufactures of the United Kingdom. It is stated that no fewer than 150 trades and industries will be represented by samples, in the care of two hundred trade representatives. This unusual business venture, we are told, is intended to promote, first, inter-imperial commerce; second, the personal introduction of the seller to the buyer; third, to provide a means by which British manufacturers can investigate the peculiar conditions and requirements of individual markets; fourth, the advertisement of British industries by bringing to foreign and colonial ports a representative exhibition of British manufactured articles. The expedition is booked to sail from London on April 27, the first call to be at Halifax, and from thence to other Canadian ports, possibly including Toronto, Hamilton, London, Winnipeg, Bobcaygeon, Woodbridge, and other places at times when the Fall Fairs are in bloom; after which the circumnavigation of the globe will be continued. It is a grand project.

Mr. Francis King, the secretary, has sent us a copy of a Memorial addressed by the Dominion Marine Association to His Excellency, the Governor-General, in Council, in which reference is made to the following subjects: Tonnage dues and inspection fees upon steamboats in Canada; reciprocal steamboat inspection arrangements with the United States; fees of Customs officers; charges on vessels landing at Government wharves; Government aid to Canadian shipbuilders; canal tolls, and the proposal for an enlarged Welland Canal. Attention is particularly directed to the clauses relating to the subjects last named. In view of the expenditure of \$101,000,000 about to be made upon the Erie Canal, it is urgent that no further delay be made in commencing the improvement of our own inland water route necessary to ensure and maintain its supremacy.

The Cleveland Marine Review points out that at this time a year ago shipyards of the great lakes had orders for sixty-two vessels valued at \$13,491,500. Now the number of orders on hand is only twenty-five, many of them for small vessels, and the aggregate value is only \$3,970,500. In the list of a year ago there were forty-eight freighters, capable of carrying in a single trip 230,950 gross tons on eighteen feet draught. In this year's summary there are only ten freighters of a combined capacity of 63,400 tons. In merchant work on the seaboard there is little encouraging to report. On the contrary, the situation is especially discouraging, for there is not a single new order of any importance to chronicle. There is not now, and has not been for two years, and more, an order given for a vessel for the foreign trade of the United States. But the showing is such as to prove that the United States occupies a most ignoble position in the world's output of ships.

## PLUMBAGO CRUCIBLES.

THE CANADIAN MANUFACTURER is under obligations to Mr. John A. Walker, vice-president of the Joseph Dixon Crucible Co., of Jersey City, N.J., for the accompanying representation of a group of plumbago crucibles, which conveys a good idea of what such things are. On a recent occasion Mr. Walker prepared a paper on the manufacture and care of plumbago crucibles, which he read before the United States Foundry Association, from which we extract as follows:

To the last half of the nineteenth century belongs the graphite industry; so much so, in fact, that graphite has become one of the great factors in our modern civilization.

To speak mineralogically, graphite, commonly known as black lead or plumbago, belongs to the coal family, and is classified with the carbon minerals.

To speak chemically, graphite is a pure carbon, and has substantially the same analysis as charcoal and the diamond.

To speak geologically, graphite occurs only in the oldest archaic rocks, and is the product of an unmeasurable heat.

To speak electrically, graphite is one of the best conductors of the subtle electric current.

And to speak colloquially, graphite has entered every civilized home in the form of stove-polish for the kitchen, and the lead-pencil for the library.

Graphite has revolutionized methods in metallurgy by its use in the making of crucibles or melting pots.

As a mineral it crops out all over the globe, but as an ore of a suitable quality, and in sufficient quantity to pay for mining and refining, it is confined to three or four well-known localities.

Crucibles or melting pots, of some description, have, of course, been used since the first fusion of metals by man. We all know the legend that the earlier alchemists marked their crucibles with a cross (hence the word "crucible"), to prevent the devil from interfering with the chemical operations about to be performed. This legend, whether true or not, shows the antiquity of the melting-pot.

Before the present century, crucibles were made chiefly of sand and clay, but what we know as the modern graphite crucible, more commonly known as plumbago, or black lead, was originated, we are informed, in the year 1827 by Joseph Dixon, then living at Salem, Mass.

In its broadest sense, a crucible is the vessel in which a fusion of some substance is conducted. Crucibles differ widely, according to the substance to be fused and the object of the fusion. They differ in composition, shape, and size,

from the tiny platinum crucible of the laboratory, and the average melting-pot for brass or steel melting, to the fifty-ton hearth of the modern steel furnace.

Crucibles are used in every laboratory and every scientific shop, but chiefly in the foundry for the fusion of metals and alloys.

There are now in use, in various parts of the world, platinum crucibles for laboratory work, sand crucibles so-called, made from Hessian clay and sand, straight-out clay crucibles made from English clay, and the melting-pot known to all foundrymen as the black lead, or plumbago, crucible, which is, more correctly speaking, the graphite crucible.

While the use of the Hessian sand crucible still lingers among assayers, and while English steel-makers still cling to the use of the one-heat clay crucible, the vast bulk of all the metals and their alloys is fused in the modern graphite crucible.

As before mentioned, graphite crucibles were first made in 1827 by an American. Later the American taught the Englishman, and still later the practice travelled to France and Germany, Japan and China; and now the making of the graph-

constant chemical analyses of his materials, and he cannot have too much knowledge of the broad lines practised by his customers.

The fusion-point of different metals is vastly dissimilar. This must be taken seriously into account. For instance, the crucible made for steel-melting is useless in a brass foundry. It is far more refractory, it is true, but if the brass-melter employed a crucible intended for steel-melting, it would slowly wither away in his lower temperature, where it would behave beautifully in a furnace with heat 1,000 degrees higher.

Intimate knowledge of fuels and their function is also absolutely necessary to the crucible-maker. He must know not only the behaviour of the several fuels, as coal, coke, gas, and perhaps electricity, but also the quality of these several fuels, as not only a change from coal to oil, but a simpler change of from one coal to another, has an intimate bearing on the life of a crucible.

The crucible-maker should be told the nature of the fluxes used, as the fluxes chiefly attack the binding materials in the walls of the melting-pot. To some fluxes

these binding materials are impervious, to others they are an easy prey.

By slow and almost unperceived steps a very large use of the more fusible alloys has come, and come to stay. The market demands denser and stronger castings, and for these the fusion must be much more fluid. Hence the rapidly increasing use of phosphorus, aluminum and manganese.

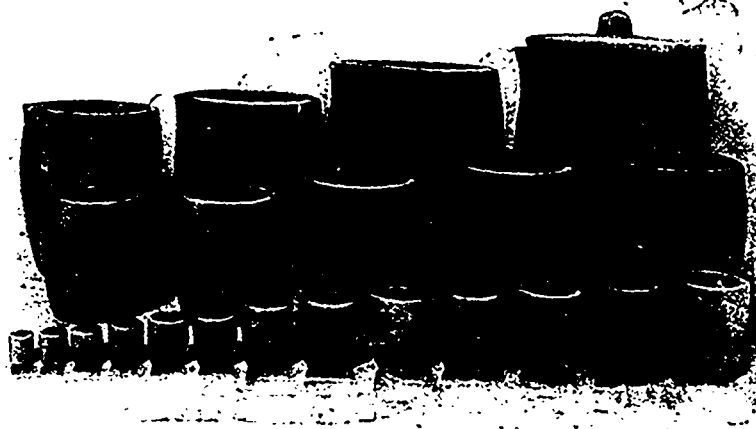
The use of these alloys not only adds strength and density to the castings, but promotes the fusion and increases the fluidity.

This raises the question of the porosity or permeability of the wall of the pot.

If the crucible with these extra fluid fusions is not well chosen, or should it contain hair-line cracks, invisible to the naked eye, this very fluid mass will find such cracks and prepare the way for a leak. The day has passed when a crucible is simply a crucible, or when one kind will suit all fusions, all fluids, all fluxes, and all furnaces, or, to change the putting of it, there are graphite crucibles and graphite crucibles. It is not sufficient that the mixture carries graphite, the crucible must be specially adapted to its particular service.

In using a graphite crucible the first step is the annealing. When the crucible comes from the maker's kiln, where the temperature is very high, it is supposedly "bone-dry." It is, however, a porous vessel, and it easily absorbs moisture; hence it should always be stored in a "bone-dry" place.

The best annealing is even heating. That is, evenly warm the pot, not on one side only, but around the pot, to a temperature say between 250 degrees F. and



Plumbago Crucibles.

ite crucible is confined to France, Germany, England, Japan, China, and the United States.

The theory of the graphite melting pot is that, vastly better than anything else, it is a ready conductor of heat, and at one and the same time it is both strong and elastic. Again, it is refractory and durable. Being the best conductor of heat, the coal bill is minimized and quick melting possible. Being strong and elastic, it stands all reasonable shocks and accommodates itself to radically different temperatures. Being refractory, the most stubborn metals succumb and become fluid long before the walls of the pot show the slightest sign of collapse.

The making of crucibles is based on a well-defined theory, and the crucible-making plant should be under the sharpest supervision of its manager and his trained assistants. They must be possessed of the latest knowledge of metals and their alloys, of furnaces, of fuels, of fluxes, and of the mechanics and the chemistry applied by the people who use their crucibles.

A successful crucible-maker must make

300 degrees F., and maintain that heat there until all moisture is expelled. Nothing more is required except that equal good attention should be given to the even cooling all around.

For causes of failure, or unreasonably short life, in a crucible may be mentioned:  
1st. The fit of the tongs. In a fire hot enough to melt brass, or copper, the crucible becomes soft and pliable. In lifting it out to pour, if the tongs do not fit, or are not made to grip the crucible at the right place, it is easily squeezed out of shape and liable to crack. The Dixon Company suggests that the tongs be made to grip the crucible just below the bilge, so it will not need such a tight squeeze. Some melters use tongs shaped like the Ace of Spades; such tongs remove the coal much more easily than those of the regulation shape.

2nd. The kind of coal used for fuel. Coal with too much sulphur destroys, unnecessarily, the life of the melting-pot. I have seen a carload of crucibles give 25 per cent. more heats by a change of coal.

3rd. The melter must not expect as many heats in melting one metal as another. From three heats when melting nickel, to six in melting steel, to twenty-four in melting copper, the heats run up in the forties when melting composition.

4th. The draughts and dampers, if arranged to produce a reducing atmosphere, as against an oxidizing atmosphere, will lengthen the life of the melting-pot. An oxidizing flame is always unfriendly to a plumbago crucible.

5th. The flux used also bears on the same result. The binding materials in the walls of the crucible are impervious to some fluxes and easy victims to others.

6th. The time of heat is also to be allowed for. If with modern furnaces, high draughts, and taller stacks, the heat is taken off in 1½ to 1¾ hours, don't expect your crucible to stand this large punishment as easy as the lighter strain of a 2½ to a 4 hours' heat.

7th. If in ordering your crucibles you could give a hint to the maker as to what metal is to be melted, he could tell better what crucibles to send.

8th. After pouring your metal, don't roll the pot out of doors where it will get rained upon, or on a bed of wet sand, or where it will absorb moisture. If you do, you put it exactly where in its hot, soft condition, it will become spoiled either teetotally or partially. Also in lifting large pots by the crane, don't release the grip and let them drop four or five feet on stone floor; rather hold the grip until within two or three inches from the ground, and then drop them if possible on a bed of old dry sand.

9th. Don't leave any metal to cool in the crucible, but pour until the melting-pot is clean empty. In the parlance of the shop, don't leave the crucible so you will find a "button" in the bottom when it is cooled off.

In cooling, each button will have small threads or spikes of metal which will attach themselves to the soft crucible

walls and get solidly stuck in them, and they tear the walls of the pot to get them out.

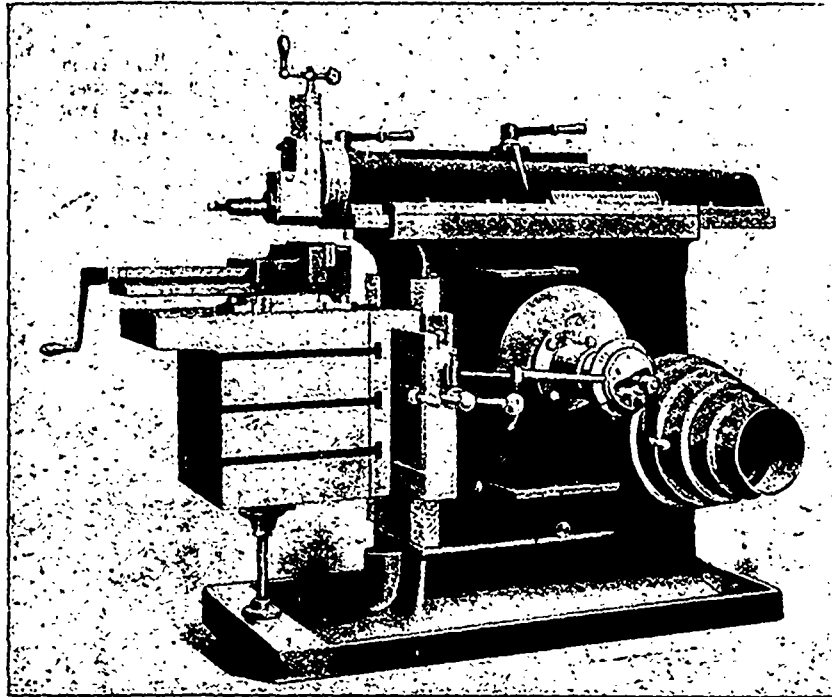
10th. In charging the crucible, don't

wedge the scrap in too tightly; expansion and contraction go on in the heating and cooling, and a careful charging will provide for this.

**TWENTY-FIVE INCH CRANK SHAPER.**

The accompanying illustration is of a new 25-inch crank shaper, recently put on the market by the John Steptoe Shaper Co., manufacturers of machine tools, Cincinnati, Ohio.

is also shown. The foot of the support slides across the planed surface on the front of the base, which the makers consider better than a roller, as the roller would roll over the top of any chips or other obstruction in its path, while the foot, as shown, will brush out any chips that may fall on the planed surface. The



Twenty-five inch Crank Shaper.

A special feature of this tool is its table support, which has but recently been added to their 20", 24", 25", 28" and 32" shapers. The support can be raised or lowered with the table by means of the hand wheel shown, and is held firmly in position by means of the lock nut which

table on these machines is now being enlarged, and the base extended.

The company are now getting out a new 20" back geared crank shaper with automatic down feed, which will, at an early day, be illustrated and described in these pages.

**ANTHRACITE IN BRITISH COLUMBIA.**

Mr. John Matthews, manager of the Comox, B.C., Coal Mines, writes an interesting account of the recent exposure of anthracite in No. 2 slope at Cumberland. The seam, which is 4 feet in thickness, and gives an analysis of 82 per cent, of fixed carbon, was encountered at a verticle depth of 80 feet, the slopes having been driven a distance of 650 feet. As Mr. Matthews points out, this coal has been formed in a most peculiar manner, and is found under quite unusual conditions. It is, he remarks, the same seam from which the Comox steam coal is mined; in fact, the anthracite and the bituminous coals merge, the former having become metamorphosed by heat. This heating has been effected by an overflow of andisite, ejected from the adjacent

mountain range during a period of volcanic action, and covering about a thousand acres of coal measures to an average depth of two hundred feet. Between the coal and the overflow, which appears to have preserved the lower layer from the great heat then prevailing, there are approximately a hundred feet of coal measures, sandstone and shale. Mr. Matthews affirms that the application of this large body of heated matter to the measures immediately overlying the coal (distilled from the lighter gases) converted the underlying coal from a soft to a hard coal. The ground lies at an easy angle, and shows little indication of the faulting which is characteristic of the district generally, and as the coal usually conforms to the contour of the surface, it can be reasonably assumed that the development of this large and valuable new area will not be handicapped by geological disadvantages.

## CAPTAINS OF INDUSTRY.

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

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woollen, 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, belt- ing, 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.

### IMPORTANT CUSTOMS REGULATIONS.

Importers of consigned goods exported to Canada will in future be required to produce in addition to the true invoices, contracts of sales, installation and delivery. Such invoices must include the actual price paid for the goods, cartons, coverings, cases, and all expenses incident to placing the goods in condition ready for shipment. No discount other than such as has been actually allowed must be shown.

All such goods consigned to a person other than the owner, must have the invoice from the exporter to the owner filed with the invoice to the consignee when the entry is made.

If machinery or other articles imported includes work to be done in Canada, similar to installing a plant or the assembling of machinery parts, a reduction may be made for the cost of the work done in Canada, provided such reduction will not reduce the value below that at which such goods are sold in the markets of the country whence and at the time they are exported direct to Canada.

Branch houses doing a wholesale business in Canada, receiving goods from the parent house, must be careful that the invoices show the value to be the fair market value of similar transactions to the trader in the country of export, the Customs Department, in special cases, reserving the right to fix the value for duty purposes.

Order-in-council, March 9, provides that petroleum for use in concentration of ores or metals, when brought in by miners or mining companies for use in their own concentrating establishment, may be imported free of duty.

Malleable sprocket or link belting chain, when imported by manufacturers of agricultural implements (except binders), is reduced from 30 per cent. to 20 per cent., and this also includes the preferential rate when the conditions are complied with.

Paper tubes and cones, all sizes, for use in winding yarn, may be brought in free of duty by manufacturers of cotton yarns or fabrics, for use in their own factories.

The Marshall Sanitary Mattress Co., Toronto, have been incorporated with a capital of \$100,000, to acquire the business of the Marshall Sanitary Mattress Co., and to manufacture mattresses, pillows, furniture, etc. The provisional directors include W. DeL. Wilson, J. A. Whaley and W. S. Scott, Toronto.

The Horn Bros. Woolen Co., Lindsay, Ont., have been incorporated with a capital of \$100,000, to manufacture woollen and cotton goods, and to acquire the business of Messrs. Horn Bros. The provisional directors include Alex. Horn, J. S. Horn and J. D. Flavelle, Lindsay.

The Lazier Paper Mills, Belleville, Ont., have been incorporated with a capital of \$50,000, to manufacture paper, pulp, etc., and to acquire the business of S. A. and R. E. Lazier. The provisional directors include A. E. MacColl, S. A. Lazier and R. E. Lazier, Belleville.

The Stratton Public Hall Society, Stratton, Ont., have been incorporated with a capital of \$2,000, to erect a concert hall building there. The provisional directors include F. J. Watts, A. Robertson and R. H. Switzer, Morley, Ont.

The Island Granite Co., Toronto, have been incorporated with a capital of \$200,000, to manufacture granite, marble, etc. The provisional directors include John Grant, M. A. Grant and J. L. Grant, Toronto.

The United Arts and Crafts, Toronto, have been incorporated with a capital of \$40,000, to manufacture furniture, decorations for houses, etc., and to acquire the business of A. Neilson & Co. The provisional directors include D. K. Ridout, A. B. de W. Neilson and C. A. Hulme, Toronto.

The Port Hope Brewing & Malting Co., Port Hope, Ont., will increase their capital from \$100,000 to \$150,000.

The Willson Carbide Works Co., St. Catharines, Ont., have been authorized to manufacture calcium carbide, and to treat ores, metals and minerals.

The Central Electric & School Supply Co. will increase their capital from \$24,000 to \$48,000.

Messrs. Baird Bros., Plattsville, Ont., whose furniture factory was recently destroyed by fire, will probably locate their new works at Preston, Ont.

The Eze Mfg. Co., Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture soaps, washing compounds, etc., and to acquire the business of the Eze Mfg. Co. The provisional directors include C. W. Barnes, Toronto, R. Barnes and S. M. Barnes, North Toronto.

Messrs. Claro Bros. & Co., Preston, Ont., will add to their works new pattern shops and a three-story stone steel range department, 60 feet square. They will also install new machinery.

The Roman Catholic Industrial School, Toronto, is being enlarged at a cost of \$20,000.

The Eagle Knitting Co., Hamilton, Ont., are looking for a site upon which to erect their new works.

A. W. Holmes, architect, Toronto, is preparing plans for the erection of a large Roman Catholic church, to be called St. Patrick's. The building will be 175x80 feet, the tower 200 feet high.

It has been found that a daily flow of thirteen million cubic feet of natural gas is escaping from the new oil well sunk by the Leamington Oil Co., Leamington, Ont., and steps will be taken to supply the town of Leamington.

The county bridge, known as O'Brien's Bridge, which spans the River Moira, near Belleville, Ont., was carried away by ice April 5. It was built of iron and steel, and cost \$21,000.

The Chairman of the Board of Control, Toronto, is inviting tenders for the supply of between 5,000 and 6,000 feet steel-riveted waterpipe.

The Davis Leather Co., Newmarket, Ont., are inviting tenders for the erection of a tannery building, size as follows: Main building, 310x42 feet, three stories; wing, 120x50 feet; power house, 52x40 feet; brick chimney, 95 feet high.

The Canada Poultry & Produce Co., Stratford, Ont., have been incorporated with a capital of \$40,000, to manufacture dairy produce, etc. The provisional directors include R. Burritt, T. G. Delamere and F. B. Deacon, Stratford.

Messrs. J. G. Ramsey & Co., Limited, Toronto, have been incorporated with a capital of \$50,000, to manufacture photographic supplies, etc., and to acquire the business of J. G. Ramsey & Co. The provisional directors include Geo. Eastman and S. H. Mora, Rochester, N.Y., and J. G. Palmer, Toronto.

Flavelles, Limited, Lindsay, Ont., have been incorporated with a capital of \$100,000, to acquire the business of Dundas & Flavelle Brothers, and also Flavelle Brothers at Belleville, Ont. The provisional directors include J. D. Flavelle, W. M. Flavelle and H. B. Clemes, Lindsay.

The Volta Electric Repair Works, 86 Adelaide Street West, Toronto, of which Mr. D. McGregor Johnson is proprietor, is an enterprise which owners of electrical apparatus will appreciate, inasmuch as Mr. Johnson makes a specialty of repairing and reconstructing electrical machinery of all kinds. Of course, manufacturers of dynamos, motors, etc., are

usually ready and glad to do repairs to any machinery which they make, but do not cater for a general repairing trade, but this is a branch of the business to which Mr. Johnson pays particular attention. He is an expert who has had large experience in general repair work.

The Leamington Canning Co., Leamington, Ont., have been incorporated with a capital of \$40,000, to manufacture jam, pickles, etc., and to carry on a general canning business. The provisional directors include L. Wible, W. J. Hazelton and A. L. Brown, Leamington, Ont.

The Rat Portage Lumber Co., Rat Portage, Ont., will increase their capital from \$500,000, to \$2,000,000.

Tenders will be received by the Counties Clerk at Cobourg, Ont., for the construction of a steel bridge across the river Trent at Campbellsford, Ont.

A new Methodist church will be erected on Euclid Avenue, Toronto, at a cost of \$75,000. The building will cover 10,000 square feet of ground.

The Commissioner of Crown Lands reports that the production of nickel in Ontario last year exceeded that of any previous year. The total amount was 6,998 tons, having a value of \$2,499,698.

The Department of Railways and Canals, Ottawa, will receive tenders for the supply and delivery of 28,000 barrels of Portland cement for use on the Trent canal works.

The Department of Public Works, Ottawa, are inviting tenders for the supply of coal for the Public Buildings at Ottawa.

The Penman Mfg. Co., Paris, Ont., knit goods manufacturers, are considering the establishment of mills at Brantford, Ont.

The Windsor, Ont., Board of Trade, is in communication with representatives of a carpet establishment of Birmingham, England, with a view to having a branch established at Windsor.

The Home Memorial church congregation, at Stratford, Ont., will erect a new church building.

The Rideau Hall, Ottawa, was partially destroyed by fire April 3. Loss \$50,000.

Messrs. G. Carter, Son & Co's. cereal mill at St. Mary's, Ont., was destroyed by fire March 29. Loss about \$15,000.

The Lake Erie & Detroit River Railway Co. will construct a branch line from a point on their railway south of Walkerville, Ont., westerly to navigable waters on the Detroit River at Sandwich, Ont., with power to construct dock and wharves and operate ferry boats.

The Interprovincial & James Bay Railway Co. are asking for authority to change their name to the Temiskaming & Abitibi Railway Co., and for power to build a line from their proposed terminus on the Des Quinze River to a point on Lake Abitibi.

The Shields Block, Smith's Falls, Ont., was destroyed by fire March 27. Loss about \$15,000.

Following is a statement of the total cost of the properties of the subsidiary companies of the Consolidated Lake Superior Co., as given in the return presented to the Legislature:

|                                  |                |
|----------------------------------|----------------|
| Lake Superior Power Co.          | \$3,289,492 60 |
| Michigan Lake Superior Power Co. | 5,665,195 31   |
| Pulp & Paper Co.                 | 1,100,895 78   |
| Algoma Iron Works.               | 295,159 81     |
| Tagona Water & Light Co.         | 373,256 58     |
| Algoma Commercial Co.            | 2,126,238 23   |
| Algoma Steel Co.                 | 5,331,925 63   |
| Algoma Central Railway.          | 9,017,297 27   |
| Manitoulin & N. Shore R'y.       | 538,186 95     |
| St. Mary's Traction Co.          | 217,784 41     |
| International Transit Co.        | 308,744 51     |

Total.....\$28,259,177 06  
The aggregate capital stock of the eleven companies (exclusive of British American Express Co., \$100,000) is \$46,250,000, and the total bond issue \$30,617,572.50.

The Petrie Cream Separator Works, Guelph, Ont., was destroyed by fire April 2. Loss about \$100,000. The company will rebuild at once.

The Rainy River Lumber Co's. new saw mill at Rainy River, Ont., will be in operation shortly. It will have a capacity for cutting 400,000 feet every twenty-four hours and will give employment to about 600 men. The company are now inviting tenders for the erection of fifty houses for their employees.

Messrs. M. C. Tynen and E. Huard are preparing plans for the erection of a new Roman Catholic church building at Rainy River, Ont., to cost about \$15,000.

The Canada Corundum Co., Toronto, announce the completion of their new mill. They are now ready to supply the wants of all customers.

The Turbine Steamship Co., Hamilton, Ont., are constructing a wharf and freight buildings at that city. They will operate the steamer Turbinia, which is being built in England, between Toronto and Hamilton.

The Leamington Oil Co., Leamington, Ont., shot their new No. 3 well a few days ago. Thirty quarts of nitro-glycerine was used, starting 600,000 cubic feet of natural gas. The same evening oil started to flow, and the following afternoon 80 barrels had flowed into the company's tanks.

The paddle wheel steamer which the Calvin Co. are building at Garden Island, Ont., is a 130 feet keel, 20 feet beam, and nine feet depth of hold. She is for raft towing work and for running the St. Lawrence rapids.

Plans have been received by the Cleveland & Georgian Bay Line at Detroit, Mich., for the new steel steamer which the company proposes to introduce into their Canadian service. The plans call for a steamer 250 feet over all, 235 feet keel, 41 feet beam and 14 feet deep. Mr. W. J. Brown, the general manager, reports that the company intends to bring three of these steamers to the lakes, and that they are to be placed on the route between Toronto, Hamilton and Fort William, sailing twice each week.

Secretary McGowan informed the Fire and Light Committee, Toronto, that he had made a thorough inspection of the city from the standpoint of new lights required, and that one hundred new arc lights were necessary.

Ald. Larg, Ottawa, Ont., is considering the establishment of a knitting mill at Morrisburg, Ont.

Messrs. Gourlay, Winter & Leeming have purchased a site and building on Queen Street East, Toronto, which they will convert into a piano factory and repair shop.

The Nasmith Bakery Co., Toronto, will erect a new bakery building to be 150x130 feet, three stories high, at a cost of about \$90,000.

The Balmoral Hotel at Little Current, Ont., was destroyed by fire April 8. Loss about \$7,000.

The Anticosti, the second of the lightships now being constructed for Dominion Government service in the Atlantic, was successfully launched at the Polson Ship Yards, Toronto, on April 9. The Anticosti has two steel pole spars, on which, 50 feet above the deck, are swung three powerful electric lamps on each spar. The galley surrounding the lamps serves for a day mark. There is a large automatic fog bell and fog siren worked by compressed air. Fresh-water tanks of 60,000 gallons capacity contain water for drinking and to supply waste in the machinery. The Anticosti, when completed, will be stationed off the Island of Anticosti, in the Gulf of St. Lawrence.

The Department of Public Works, Ottawa, are inviting tenders for an addition and alterations to the Drill Hall at Brantford, Ont.

The City Council of Peterboro', Ont., have accepted a proposition made by the Wallaceburg Sugar Co. for the erection of a large sugar-beet factory in that city.

The entire fleet of the Lake Superior Consolidated Co. at Sault Ste. Marie, Ont., is being fitted out to carry ore from the Michipicoten district. The pulp mill is being operated and will draw a good deal of timber from Lake Superior. The blast furnaces are practically completed, and there will be little delay in getting them and the rail mill into operation if the Ontario Government makes the expected loan. It is thought that if the Government advances the money asked, one of the requirements will be the construction of the Algoma Central through to Michipicoten. About forty miles of the road has been completed, and a good share of the grading for the balance is done. The construction of the road would open up a valuable mining region and add materially to shipments.

The Cullen & Johnson Brass Mfg. Co., Parkdale, Ont., near Welland, are considering the removal of their works to Port Colborne, Ont.

Jas. Fowler, North Bay, Ont., is inviting tenders for the erection of a Methodist Church building at that place.

The Property Committee of the Toronto City Council will require \$227,741 for extensions to the city school buildings



this year. This figure is a considerable increase on previous years, mainly due to the purchase of new sites for the enlargement of several of the schools where more accommodation is necessary. The building account needs an expenditure of \$124,845. The chief items in this are \$13,000 for enlarging Givens Street School and constructing two additional rooms for manual training and domestic science; \$6,000 for building similar rooms at Parkdale School; \$15,000 for enlarging the site at Ryerson School, and adding rooms as in the other cases; \$9,000 for enlargement of Cottingham Street School; \$50,000 for a completely new building to take the place of Hamilton Street School; \$23,000 for enlargements, and the installation of new steam heating plant at Huron Street; and \$7,720 for restoration at Jesse Ketchum School after the fire. The total cost of repairs in the Public Schools during the summer is reckoned at \$35,425, at the Technical School \$3,583, and at the three collegiates \$9,571.

A break occurred in the dam of the municipal plant at Ragged Rapids on the Severn River about twenty miles from Orillia, Ont., from which that town is supplied with power and electric lighting. The dam is about 180 feet wide with a head of 37 feet. The total cost of the plant was \$99,000, of which \$30,000 was expended on the dam. The repairs will probably cost from \$5,000 to \$10,000.

Mr. Joseph Barrett, late of the Humber Power & Light Co., Toronto Junction, Ont., states that he intends to install a power plant at Springfield-on-the-Credit.

A new scenic tunnel has been constructed on the Canadian side of Niagara Falls, from the Table Rock House out under the Horseshoe Falls. This tunnel has been driven by the Ontario Power Co., and has cost over \$25,000. A shaft was sunk for 127 feet, and from the bottom a tunnel was run following the contour of the horseshoe, coming out at a point where a great volume of water pours over the cataract. This main tunnel is over 800 feet long, and has lateral tunnels running into the gorge, affording magnificent views from the different points of observation reached. At these points, large rooms with glass ends for viewing, will be constructed. An Otis electric elevator has been installed in the shaft, capable of accommodating ten persons.

The Keewatin Milling Co., recently incorporated with a capital of \$2,000,000, will construct a flour mill at Lake of the Woods, Ont., with a capacity of 3,000 barrels per day.

The Empire Wall Paper Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture paper, pulp, etc. The provisional directors include G. W. Adams, Syracuse, N. Y., H. C. Jarvis and S. Johnston, Toronto.

The Dundas & Flavells, Limited, Lindsay, Ont., have been incorporated with a capital of \$100,000, to acquire the business of Dundas & Flavelle Bros., and to manufacture dry goods, etc. The provisional directors include J. D. Flavelle, W. McL. Flavelle and Wm. Dundas, Lindsay.

Messrs. O. B. Graves, Limited, London, Ont., have been incorporated with a capital of \$20,000, to manufacture mouldings, curtain poles, etc., and to acquire the business of O. B. Graves. The provisional directors include L. Graves, L. H. Graves and E. O. Graves, London.

The Canadian Consolidated Oil Co., Toronto, will change their name to The Canadian Oil Co., Ltd.

The Hamilton & Toronto Sewer Pipe Co., Hamilton, Ont., have been incorporated with a capital of \$250,000, to manufacture sewer pipe, brick, terracotta, etc. The provisional directors include J. H. New, J. T. Locke, Toronto, and T. H. Graham, Inglewood, Ont.

Messrs. McPhee & Mahoney, architects, are preparing plans for the new wood-working plant to be erected for Messrs. C. Kloefer & Co., at Guelph, Ont., at cost of about \$12,000.

The Durham Rubber Mfg. Co.'s factory at Bowmanville, Ont., was partially destroyed by fire March 28. Loss about \$2,000.

The Bertram Engine Works Co., Toronto, are building a passenger steamer for P. P. Young, of Young's Point, Ont., for the Kawartha lakes trade. Her dimensions will be: length, over all, 92 feet; breadth, 19 feet; depth, 6 feet. She will be fitted up in a most complete manner. The engines will consist of a fore and aft engine, cylinders, 6 in. and 18 in. by 12 in. stroke, to which steam will be supplied by a Fitzgibbon boiler, 54 in. by 96 in.

The Public Works Department at Ottawa are considering an appropriation of \$100,000 for the erection of a new drill hall at Hamilton, Ont.

The Ontario Lead & Zinc Co., Port Arthur, Ont., operating the Dorion lead and zinc mine, are installing new machinery and later on they will put in a concentration plant.

The Canadian Hardware Specialty Co., manufacturers of screen doors, metallic roofing, etc., are considering locating their works at Toronto Junction, Ont.

Among the new buildings to be erected in Guelph, Ont., are a wood-working plant for C. Kloefer, Collegiate Institute extension, Guelph foundry, Murton's mill and European hotel.

There are two perfectly safe tests relative to activity in real estate in Toronto, which can always be relied upon, and these are the reports from the offices of the architects and the building permits issued from the city architect's office. Inquiries made at the offices of the leading architects elicited the fact that they are working overtime to overtake the work pouring in on them. Plans for almost three hundred houses are in the offices of Toronto architects, and in addition there are plans for new warehouses, factories, churches, and many plans of alterations to existing large buildings.

The Polson Iron Works Co., Toronto, are constructing a fast river barge for the Roman Catholic mission in Peace River district. She is 80 feet long, 15-foot beam and 5-foot draught, having fore-and-aft compound engines, 7 and 14

inches diameter by 10-inch stroke, equipped with a Fitzgibbon boiler.

Hon. Mr. Prefontaine, Montreal, stated that the Government would probably provide two ice-breakers to open navigation on the St. Lawrence River.

Messrs. Corrigan, McKenny & Co., Cleveland, Ohio, extensive iron mine owners, and one of the largest proprietors of steamers and freight-carrying barges on the great lakes, will enter the grain trade of the St. Lawrence, and make the port of Quebec their terminal point of shipment of cereals to the European markets.

Messrs. Marion & Marion, patent attorneys, Montreal, have recently obtained patents in the United States for Canadian inventors, as follows:—A. C. Rioux, Toronto, mower bar; M. E. Sutherland, Westville, N.S., rifle sight; A. L. Mowry, St. John, N.B., lock nut; John McIntosh, Alexandria, Ont., carriage pole; H. M. Taylor, Hamilton, Ont., incandescent electric light; Auguste St. Pierre, River Three Pistoles, Que., tie plate.

John Lysaght, Limited, Bristol, England, through their Canadian managers, A. C. Leslie & Co., Montreal, have recently bought a lot of about 8,000 square feet on St. Paul St., Montreal, adjoining the Grand Trunk Railway offices, upon which they will proceed to erect a modern warehouse for handling their galvanized iron, etc., and in which they will fit up their business offices.

The City Council of Sherbrooke, Que., will grant a bonus of \$10,000 to the Eastern Townships Smelting & Mining Co., for the establishment in that city of a smelter with a capacity of 60 tons daily for the treatment of copper ore.

Babcock & Wilcox, Limited, Montreal, water-tube boiler manufacturers, report the following amongst their recent Canadian sales: Canadian Pacific Railway, Montreal Shops, 2,000 h.p. boilers, superheaters, economizers and induced draft plant, also Neemes shaking grates. Canadian Pacific Railway, Fort William, 1,700 h.p. boilers, superheaters, economizers and induced draft plant, and Neemes shaking grates. Canadian Pacific Railway, North Bay shops, 300 h.p. boilers and induced draft plant. Canadian Pacific Railway, McAdam shops, 300 h.p. boilers, superheaters and induced draft plant. Canadian Pacific Railway, Winnipeg shops, 1,000 h.p. boilers. Halifax Electric Tramway, 500 h.p. boilers and superheaters. St. John, N.B., 500 h.p. boilers and shaking grates. Toronto, 4,000 h.p. boilers. Town of Regina, N.W.T., 500 h.p. boilers. Calgary Water Power Co., 500 h.p. boilers. Bell Telephone Co. of Canada, Montreal, 110 h.p. boilers. S. Carsley & Sons Co., Montreal, 400 h.p. boilers. Clark Lithographic Co., Toronto, 86 h.p. boilers. Gowrie & Blockhouse Collieries, Port Morien, N.S., 500 h.p. boilers. Canada Foundry Co., Toronto, 300 h.p. boilers. King Edward Hotel Co., Toronto, 750 h.p. boilers. United Factories, Newmarket, Ont., 500 h.p. boilers. Belleville Portland Cement Co., 2,250 h.p. boilers, superheaters, economizers, Neemes shaking grates.

The Chicago, Soo & North Atlantic Railway & Steamship Co. are applying for incorporation with power to construct a line of railway north-east to James Bay, thence to the east shore of the Hudson's Bay, and also through Northern Quebec and Ungava to Hamilton Inlet on the Labrador coast.

Frothingham & Workman, Limited, Montreal, have been incorporated with a capital of \$550,000, to manufacture hardware, and to acquire the business of Frothingham & Workman. The provisional directors include Geo. W. Eadie, E. Archbald and E. C. Eaton, Montreal.

The Berry Building, Montreal, was destroyed by fire April 1. Loss about \$60,000.

La Compagnie du Magasin du Peuple, Montreal, have been incorporated with a capital of \$10,000, to manufacture jewelry, musical instruments, etc. The provisional directors include F. K. Malouin, J. Desjardins and A. X. Royal, Montreal.

W. H. Scroggie, Limited, Montreal, have been incorporated with a capital of \$600,000, to manufacture clothing, etc., and to acquire the business of W. H. Scroggie. The provisional directors include W. H. Scroggie, E. B. Scroggie and F. A. Scroggie, Montreal.

A public building will be erected at Actonvale, Que., the Dominion Government having granted \$10,000 for that purpose.

The Department of Public Works, Ottawa, are inviting tenders for the construction of an extension to the wharf at Father Point, Que.

Messrs. Finley & Spence, Montreal, are preparing plans for a large malting and elevator plant to be erected at St. Henry, Que., for the Canada Malting Co., of Toronto, at a cost of \$350,000. Messrs. Barnett & Record, Chicago, Ill., have been awarded the contract for constructing the elevator, and tenders will be asked for the malt house shortly.

The Montreal Pipe Foundry Co., Montreal, will increase their capital from \$150,000 to \$250,000.

Messrs. J. H. Poirier & D. McGrail, Roxton Falls, Que., have changed their name to the Roxton Mill & Mfg. Chair Co.

Contracts have been placed in Great Britain by Bowring Bros., St. John's, Nfld., for two steamers for the new coastal service, for which they have been given a contract by the Newfoundland Government. They will have the following dimensions: length, 200 feet; breadth, 31 feet; depth from main deck, 16 feet. They will have a specially raked design of stem to resist ice pressure, double frames fore and aft, and rudder frame of exceptional strength, and the hull generally will be of heavier construction than is customary. The hull will have a cellular double bottom for 150 feet and will be divided into seven water-tight compartments by five bulkheads, thus making them practically unsinkable.

The Town Council of Sackville, N.B., will borrow \$30,000 for improving the water and sewerage systems of the town,

and \$15,000 for the installation of a fire alarm system.

It is reported that the Singer Mfg. Co. of Elizabethport, N.J., will build a large plant outside the United States, and that a site has been secured in St. John, N.B., for the purpose. The local manager of the Singer Co. in St. John is Mr. W. A. Carroll.

Haley & Son, St. John, N.B., received by cable from Manchester, England, an order for 140,000 box shooks.

A snow-plow and widener combined, patented by Mr. Harris, of Sackville, N.B., has been turned out of Rhodes, Curry & Co.'s shop, Amherst, N.S. It can be used as an ordinary plow, or the steel sheets can be widened out at the will of the operator from the inside to take the tops off the snow-drifts.

The Dewitt Electric Co. of Sydney, N.S., have secured the contract for the construction of 100 miles of telegraph lines between Halifax, Mahone and Bridgewater and Liverpool, N.S.

The Aulac Station, on the Intercolonial Railway, near Amherst, N.S., was destroyed by fire April 8.

It is reported that a large new boot and shoe factory will be erected in St. John's, Nfld., during the coming summer.

The town of Bathurst, N.B., will install an electric light plant.

The Lewisville Brick & Mercantile Co., Lewisville, N.B., have been incorporated with a capital of \$24,000, to manufacture bricks, tiles, drain pipes, etc. The provisional directors include G. R. Jones, F. C. Jones, Lewisville, and A. H. Jones, Moncton, N.B.

The Western Counties Iron & Steel Co., Torbrook, N.S., capitalized at \$3,000,000, have purchased extensive iron ore deposits at Torbrook and are making preparations for the work of development. There are five veins of ore, each being about seven feet in thickness at the surface and increasing in depth as they dip, which is at an angle of 45 degrees. They propose sinking a shaft and at every hundred feet cutting a tunnel through the leads and mine ore by a back stopping. At a depth of 1,000 feet it is estimated that they will have 2,250,000 tons within reach. They are also contemplating the erection of blast and open hearth furnaces, blooming mills, rod, rail and billet mills, near Parrsboro, N.S.

The New Brunswick Southern Railway are having ten flat cars of 40,000 pounds capacity, and three box cars of 40,000 pounds capacity, built by Rhodes, Curry & Co., Amherst, N.S.

The new billet mill of the Dominion Iron & Steel Co., Sydney, N.S., will be in operation shortly. The rod mill was started last week and now only awaits the completion of the billet mill to turn out rods.

The School Board at Glace Bay, N.S., are considering the establishment of a mining school there.

Messrs. A. M. Bell & Co., hardware dealers at Halifax, N.S., have completed their new concrete building, which is 140x80 feet, six stories high. The walls,

mouldings, etc., are all made of concrete, the walls being twenty inches thick at the top; the piers on the front are two feet thick by four feet wide.

The Intercolonial Railway Co., Halifax, N.S., are inviting tenders for 175 platform cars, 60,000 pounds capacity, and 100 box cars, 60,000 pounds capacity.

The Dominion Atlantic Railway have placed an order with Rhodes, Curry & Co., Amherst, N.S., for 25 standard box cars, 60,000 pounds capacity.

The Dominion Coal Co. are increasing the output of some of their collieries at Glace Bay, N.S., by working double shifts, and as soon as navigation opens all of the operations will be put on double time. It is asserted that an output of at least 15,000 tons a day will be required this season to fill the company's contracts.

The Crow's Nest Pass Coal Co. have ordered from the Robb Engineering Co., Amherst, N.S., two 175-h.p. Robb-Mumford boilers for their mines at Fernie, B.C., in addition to three of the same style installed last year.

Edward Zwicker & Co., Halifax, N.S., have a contract to supply 650,000 feet of lumber to John G. Hall & Co., Boston, Mass., for shipment to South America.

The Canadian Coal Mining Co., are applying to the New Brunswick Legislature for power to build a railroad from Coal Branch, N.B., to their mines eight miles distant. They have acquired 80 miles of land, in which, it is estimated, that there are sixty million tons of bituminous coal. They will spend about \$140,000 in the development of these lands.

The New Brunswick Petroleum Co., Moncton, N.B., will erect a modern refining plant and are now purchasing material and machinery for same.

One of the recent notable developments in the metallurgy of steel has been the manufacture of self-hardening or high-speed steels, which are adapted for tools working at a high rate of efficiency. There is great variety of these steels on the market, and they show wide differences in composition, although usually containing some of the rarer metals, such as tungsten, molybdenum and chromium. Tools made from these steels can work without injury at a temperature of 500° or 600° C.

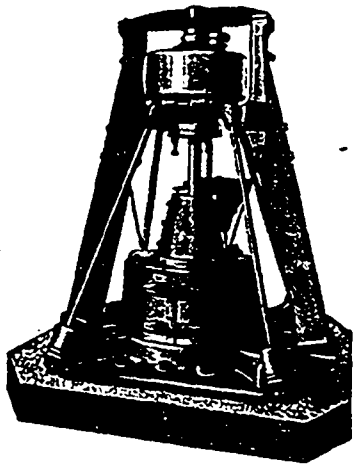
The Intercolonial Coal Co., Westville, N.S., have ordered a large new compressor, so that air can be supplied in sufficient quantity to the pumps and hoists in No. 4 slope.

The Fundy Coal Co., near Amherst, N.S., in which considerable American capital has been invested, are making improvements in their plant. The present output is 75 tons of excellent coal daily, which is being steadily increased; the area held by the company covers 10 square miles, one of the seams being 6 feet thick. The improvements will increase its capacity to 1,000 tons per day, with the best shipping facilities by rail and water.

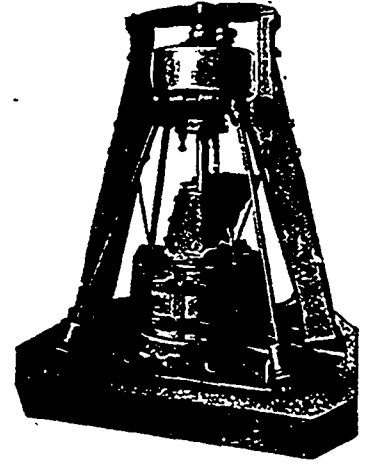
Messrs. Heyl & Patterson, of Pittsburg, Pa., have been awarded a contract to erect a coal-washing plant for the Do-

# THE "GRIF BALL AND T

VERSU



Not exactly WHAT  
WE SAY, but what  
the "GRIFFIN  
MILL" DOES,  
should determine



your choice. Where words fail, FACTS speak.

Practical use, extending wherever Portland Cement is made, has developed the fact that the  
"GRIFFIN MILL" is

## THE WORLD'S BEST PORTLAND CEMENT CLINKER PULVERIZER

That's a strong statement, but no stronger than the facts. In proof of this we have only to state  
a few of the many instances where the "GRIFFIN MILL" has supplanted Ball and Tube Mills.

THIS IS A POINTER WORTH NOTING.

We shall be glad to give you more

# BRADLEY PULVER

BOSTON, 92 State Street.

# “GRIFFIN MILL”

VERSUS

# TUBE MILLS

## THE ALPHA PORTLAND CEMENT COMPANY:

Installed Ball and Tube Mills in their No. 2 Mill, after using “Griffin Mills” in No. 1 Mill for eight years. After two years trial, they took out the Tube Mills in the clinker room in plant No. 2, and installed 21 Griffin Mills. Their output of 5,000 barrels a day is ground wholly by Griffin Mills.

## THE VULCANITE PORTLAND CEMENT COMPANY:

Equipped their No. 3 Mill with Ball and Tube Mills. (They had used Griffin Mills before). After the second season they took out the Tube Mills in their clinker room and substituted Griffin Mills. Their output of some 5,000 barrels a day is now ground entirely by Griffin Mills.

## THE MARTIN'S CREEK PORTLAND CEMENT COMPANY:

Replaced the Tube Mills in their clinker room with 18 Griffin Mills, and their product is now ground wholly by Griffin Mills.

## THE WHITEHALL PORTLAND CEMENT COMPANY:

After using Ball and Tube Mills in their No. 1 plant, installed 24 Griffin Mills in No. 2 plant, which do the entire grinding.

## THE NORTHAMPTON PORTLAND CEMENT COMPANY:

After using Ball and Tube Mills in their plant, has ordered 60 Griffin Mills for their new Mill, “Quaker.”

## LEHIGH PORTLAND CEMENT COMPANY:

Entire finished product (nearly 10,000 barrels per day) of the six mills of this company is ground in the Griffin Mill.

## AMERICAN PORTLAND CEMENT COMPANY:

All the mills of this company, producing some 5,000 barrels per day, are entirely equipped with the Griffin Mill.

## WORTH CONSIDERING:

The Griffin Mill has been adopted by the Associated Portland Cement Manufacturers (1900) Ltd., London, for use in all their new works. Large sales of this Mill have been made to German cement manufacturers; among others—a large number to the celebrated Dyckerhoff & Sohne, Germany, who have adopted the Griffin Mill to the exclusion of Ball and Tube Mills.

**THE LOGIC OF IT.** Do you think these shrewd concerns would have substituted the GRIFFIN MILLS for Ball and Tube Mills (which represented a large cash investment), if the GRIFFIN MILL wasn't the most perfect Portland Cement Clinker Pulverizer in the world, or if it wasn't the best money-making Mill in its line? Figure it out a bit, please? It's all a question of dollars and cents. That was their sole object in selecting the “**GRIFFIN.**” Surely such evidence can but show clearly and positively that all Portland Cement Works can make more money by using the “**GRIFFIN MILL**” than by using any other make.

more facts, if you write for them.

# PULVERIZER COMPANY

LONDON, 37 Walbrook.

minion Iron & Steel Co. at Sydney, N.S. The plant will equal in size and capacity the largest in the Pennsylvania coal districts, and will cost \$400,000. It will have a capacity of 1,000 tons per day and will be completed in September, 1904.

The Robb Engineering Co., Amherst, N.S., have received an order from J. G. White & Co., of London, England, for a 300-h.p. Robb-Armstrong tandem compound engine to be a duplicate of two engines supplied by them for the Perth Tramways, Western Australia, five years ago.

The output of the Dominion Coal Co. at Glace Bay, N.S., for March shows a material increase over February. Following is the detailed output:—Dominion No. 1, 27,033 tons; Dominion No. 2, 51,090 tons; Dominion No. 3, 35,925 tons; Caledonia, 41,203; Reserve, 72,762; Hub, 8,274; total, 236,290 tons. Increase over February, 50,000 tons.

A large shipping pier will be built at Amherst, N.S.

The Digby, N.S., Board of Trade, is interested in the formation of a company to construct a marine railway, capable of accommodating vessels of 1,000 tons, at that port.

Messrs. Metcalfe & Son's grain warehouse at Poriage la Prairie, Man., gave way April 4. Loss 1,500.

The first of the water-softening plants to be erected throughout the West by the Canadian Pacific Railway will be in operation within a month. It is estimated that the company will soon have expended between \$300,000 and \$400,000 for fighting alkali between Winnipeg and Moose Jaw.

Mr. William Whyte, second vice-president of the Canadian Pacific Railway Co., states that the recent action of that company has broken the lumber combine in the West, and that liberty of individual action among dealers now prevails.

The Winnipeg & North-West Sewer Pipe Co., Winnipeg, Man., have been incorporated with a capital of \$390,000, to manufacture sewer pipe, flue linings, bricks, etc. The provisional directors include H. New, R. W. New and E. F. Lazier, Hamilton, Ont.

J. O. Thorn, general manager of the Metallic Roofing Co., Toronto, has completed arrangements whereby the Gurney Standard Metal Co., Calgary, Alta., become the wholesale distributing agents for Alberta for his company's products.

The Gurney Stove & Range Co., Winnipeg, Man., will change their name to Tilden, Gurney & Co.

Three hotels will be erected at Banff, N.W.T., this spring, costing \$6,000, \$25,000, and \$50,000 respectively.

The Frontenac Cereal Co., Kingston, Ont., are considering the establishment of a plant at Medicine Hat, N.W.T., for the manufacture of their cereal goods.

The Northwest Machinery & Iron Co., Winnipeg, Man., will erect a new warehouse 70 x 30 feet.

The Northern Elevator Co., Winnipeg, Man., will erect a flour mill in that city with a capacity of 2,500 barrels.

The North-West Laundry Co., Winnipeg, Man., will increase their capital from \$20,000 to \$50,000.

The Ontario Wind Engine & Pump Co., Toronto, have been granted a license to do business in Manitoba. J. M. Reid, Winnipeg, Man., will be manager for the company in that province.

The New England Fish Co., operating from Vancouver, B.C., that has heretofore used two steamers has added a third. Last year, with two steamers, they sent 7,000,000 pounds of fresh halibut to Boston. With the three steamers the shipments will be considerably larger.

The Kootenay Water Co. have been incorporated at Victoria, B.C., with a capital of \$100,000, to construct a water-works system and to manufacture machinery, etc., for same.

The Rose Gulch Hydraulic Mining Co., have been incorporated at Victoria, B.C., with a capital of \$50,000, to carry on a mining, milling and smelting business.

The Crystal Laundry Co., Limited, have been incorporated at Victoria, B.C., with a capital of \$20,000, to acquire the business of the Crystal Laundry Co.

The Spokane Falls Placer Mining Co., Trout Lake, B.C., have been incorporated with a capital of \$250,000, to carry on a mining and refining business.

Slough Creek, Limited, Stanley, B.C., an English incorporation, have been licensed to do a mining business in British Columbia with a capital of £200,000. John Hopp, Stanley, B.C., is their attorney.

Robert Herd, a prospector, has made a strike of high grade copper ore, just north of the town of Ladysmith, B.C., near the Tye Copper Co's. smelter.

The Granby Consolidated Mining, Smelting & Power Co., Granby, B.C., report that they are smelting about 2,000 tons per day at the present time, and that the furnaces are kept in continuous operation.

The Rossland Power Co., Rossland, B.C., have been employing about sixty men in the work of constructing a 200-ton concentrating plant, which will be running in about three month's time. They will handle the low grade ores coming from the War Eagle and Centre Star Mines.

The International Coal & Coke Co., operating in the Eastern Crow's Nest Pass field, have been doing business since the first of the year. A battery of 100 coke ovens is now building, and railway spurs are being run to the different mines opened, some 200 men are employed, and the output at the present time is in the neighborhood of 3,000 tons of coal monthly.

The British-American Co., Victoria, B.C., which had a dredge built last year for recovering gold on Spruce Creek, B.C., have let a contract in San Francisco for a larger one. The present dredge will begin to work in a few days and is capable of handling 3,000 yards a day. The new one will have 5,000 yards capacity.

Moore & Whittington, builders, Victoria, B.C., have completed a large ad-

dition to their premises, and added more new machinery, and are now completing a dry kiln with a capacity of about 5,000 feet per week.

Messrs. McLennan, McFeely & Co., hardware dealers, Vancouver, B.C., will erect a new warehouse.

The Nanaimo Fisheries Co., Nanaimo, B.C., have been incorporated with a capital of \$15,000, to develop the herring industry. The provisional directors include E. Quennell, J. H. Cocking and A. W. Jervis.

Since the removal of the foundry and pattern departments from the B. F. Sturtevant Co's. plant at Jamaica Plain to its extensive new quarters at Hyde Park, Mass., the moving of the other departments has progressed in earnest. The fan, beater and electrical departments have already been moved and the engine and galvanized iron department are in the process of removal, and the erection of the machines in the machine-shop is well under way. These machines, as well as all the others throughout the works, will be of the most modern and improved type, and, with the systems of cranes and industrial railways will enable the work to be turned out accurately, rapidly, and at a minimum cost. The handsome office building is rounding into shape. The standing finish, quartered oak on the first and second floors and plain oak on the third and fourth floors, is completed and the walls and ceilings are being tinted. The headquarters are still at Jamaica Plain, but in a few months the entire plant will be moved.

Among the many large foreign orders received in the past few days by the Burt Mfg. Co., Akron, Ohio, is one from their agent at Durban, South Africa, for thirty gross of oil filters, and one from their agent at St. Petersburg, Russia, for oil filters for the Russian government. The company have gotten out an interesting picture, showing a 30-inch exhaust head they recently made for the Jones & Laughlin Steel Co., Pittsburg, Pa. It is ten feet high; nine feet four inches in diameter; and weighs two thousand seven hundred pounds.

The McCloskey Wire Fence & Construction Co., Toledo, Ohio, have purchased the entire business of the McCloskey Wire Fence Co., Detroit, Mich., and Windsor, Ont. The company will remove the Detroit plant to Toledo. The McCloskey Wire Fence Co., which has been operated in Toledo for the past three years, will be part of the new concern. The company will make a specialty of railroad fencing.

The Mexican Light & Power Co., the big Canadian concern that is installing the great water power and electric transmission plant in the state of Pueblo, 90 miles from the city of Mexico, have just completed moving a town of 1,000 population. The engineers found that the town of Necaxa occupied a site particularly suitable for the necessary reservoir, and the company forthwith purchased the entire town and moved it to a new location. All the buildings, including the Catholic cathedral, were

raised and reconstructed on the new site. The new town bears the name Canadita. The initial capacity of the company's plant will be 45,000 h.p., and this will be increased to 80,000 h.p.

H. A. Metz & Co. New York City, importers and manufacturers of aniline colors, dye-stuffs and chemicals, who have a branch in Montreal, report a good business in Canada.

#### \$50.00 TO CALIFORNIA AND RETURN.

Via The Chicago, Union Pacific & North-Western Line, from Chicago, April 23 to May 1. Choice of routes going and returning. Correspondingly low rates from all points. Two trains a day from Chicago through without change. Daily and personally conducted tourist car excursions. Write for itinerary and full particulars regarding special train leaving Chicago, April 26. B. E. Bennett, 2 East King St., Toronto, Ont.

#### PERSONALS.

The Jamaica Telegraph, published at the city of Kingston, Island of Jamaica, B. W. I., speaking of Mr. G. E. Burke, Canadian commercial agent in that island, says: "As the Daily Telegraph has more than once stated, Mr. Burke discharges with consummate ability all the duties that are performed by American consuls in the foreign countries which furnish a field for American business enterprise. In one respect, American consuls differ materially from ordinary British representatives of the same standing. The last mentioned gentlemen, as a general rule, have hitherto exhibited a somewhat unhealthy contempt for the details of business and trade tendencies. Not so the consular representatives of the United States. To these gentlemen the drift of trade is almost 'the be-all and end-all' of existence; and if American manufacturers have gradually been ousting their British rivals from many of the markets of the world, the credit has been due as much to the energy and enterprise of the consuls as of the manufacturers themselves. In the performance of his important duties, Mr. G. Eustace Burke has taken the consular agents of America as his models; and if within the past few years, the direct trade between Canada and Jamaica has not increased by leaps and bounds, it has certainly not been the fault of Mr. Burke.

The Canadian Westinghouse Co., of Hamilton, Ont., have recently engaged Mr. C. C. Starr, who was formerly connected with the firm of John Starr, Son & Co., Halifax, N.S., to act as their representative in the Maritime Provinces, with headquarters at 134 Granville street, Halifax. The Maritime Provinces are included in the district of the Canadian Westinghouse Co.'s Montreal office, and Mr. Starr will be consequently an attaché of that office.

Mr. W. F. Warden, president and general manager of the Burt Mfg. Co.,

makers of the Cross oil filter and the Burt exhaust head, Akron, Ohio, will sail for Europe from New York, April 15. Mr. Warden goes in the interest of his company, which has a large foreign trade in all the principal countries of the world, in fact there is not a place on the globe where lubricating oils are used and steam plants are in evidence that the Burt Mfg. Co., and their celebrated Cross oil filter and Burt exhaust head have not been adopted. Mr. Warden will confine this trip to visiting agents of his company in England, France, Germany, Belgium, Norway, Sweden, Denmark, Russia, Switzerland, Greece and Spain. In Mr. Warden's absence, Mr. J. A. Palmer, secretary of the company, will have direction of affairs.

The editor of THE CANADIAN MANUFACTURER is under obligations to the president and Board of Governors of the American Cotton Manufacturers' Association (formerly the Southern Cotton Spinners' Association), for an invitation to attend the eighth annual convention of their association to be held in the city of Washington, D. C., on May 11-12 proximo. Judging from the places of residence of most of the officers and members of the Association, they are citizens of the "Tar Heel State," of which they are no doubt very proud—as they ought to be. We imagine that in their forthcoming convivial assemblage in Washington, they will, in the language of the late Judge William Gaston, unite in singing:

"Carolina! Carolina! Heaven's blessings attend her;  
While we live we will ever protect and defend her."

The leave of absence of Mr. J. G. Jardine, Canadian commercial agent in South Africa, has been extended owing to ill-health. He will, therefore, not leave for the Cape until towards the last week in May.

It is with much regret that we have to record the death of Mr. J. L. Weeks, general manager of the American Steam Gauge & Valve Mfg. Co., Boston, Mass. Mr. Weeks died at his residence at Boston on April 1, instant, after having undergone an operation for complications which had set in as the result of an operation for appendicitis several years ago. His death is a severe blow to his many friends, and the concern with which he was connected has lost an able and efficient manager.

The Geigy Aniline & Extract Co., heretofore located at Nos. 104 and 106 Murray street, have removed their offices to No. 69 Barclay street, between West Broadway and Greenwich street, New York City.

Dr. Haanell and party sailed on April 6 from London, England, and expressed great satisfaction with the results of their mission, having found in France a smelting plant working successfully as well as economically. The object of the mission was to examine and report upon the operation of electricity as applied to smelting processes in works in Sweden

and upon the continent of Europe with a view to consider their usefulness in Canada.

Mr. John Samson, editor of the South American Journal, 9 New Broad St., E. C., London, England, has recently made an extended tour through Brazil, Uruguay, Argentina and Chili, South America, and has now become associated with the South American Commercial Corporation, incorporated under the laws of the Argentine Republic, with head offices at Buenos Ayres. Mr. Samson will act as local director in London for the corporation. The company was formed to undertake all kinds of commercial and financial business in Argentina with the object of acting as agents for merchants, manufacturers and others desiring representation there. Argentina is enjoying a period of unprecedented prosperity, and there is a good demand there for many classes of Canadian manufactured products, but unless the producers are represented by active and energetic agents, they will have but little chance of participating in the benefits to be obtained in that fine market. Those who may be interested in this feature of foreign trade should write Mr. Samson as above.

#### THE EMPLOYERS' ASSOCIATION.

The second annual meeting of the Toronto Employers' Association was held in Toronto, April 7.

The Secretary's report showed that the association during the past year had satisfactorily settled two differences by arbitration, where large numbers of workmen were affected. The form of apprenticeship articles issued by the association had been well received by all classes of trade. The association is at present engaged in the compilation of a set of shop rules, to be issued at an early date. During the year about fourteen hundred workmen applied at the office for situations, and in nearly every case places were found for them, where the applicants were capable.

The treasurer's report showed a surplus over the working expenses. The reserve fund established a year ago was sufficiently large to assist members who might be attacked by labor organizations.

It was decided to amend the constitution, so as to permit of the admission of employers in other parts of the Province.

The following officers were elected:—President, F. B. Polson; first vice-president, A. F. Rutter; second vice-president, D. H. McKay; treasurer, W. T. Kernahan.

Executive Committee—A. D. Harris, J. P. Murray, J. O. Thorn, William Stone, Emil C. Boeckh, W. J. Smith, Robert Bertram, Noel Marshall, W. H. Carrick, Edwin Hill, James Pearson, A. E. Chatterton, Frederick Diver, S. H. Chapman, Chas. Adams, W. H. Moore, W. H. Johnson, Atwell Fleming, E. B. Brown, Gerhard Heintzman, Henry Newcome, P. W. Ellis, J. H. McGregor, S. Harris, Joseph Wright, J. M. Turnbull, Henry A. Taylor, S. B. Brush, Thos. Roden, C. F. Wheaton, Hedleigh Bond, Wm. Wilkie, W. C. Phillips, Ed. Freyseng, H. L. Thompson, S. Brown.

## INDUSTRIAL PUBLICATIONS.

(The publishers of THE CANADIAN MANUFACTURER solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.)

The Billings & Spencer Co., Hartford, Conn., have just issued a booklet describing their adjustable shop and pocket wrenches which they are placing on the Canadian market.

Messrs. Fairbanks, Morse & Co., Chicago, Ill., have sent us literature having reference to the gasoline engines manufactured by them. A class of these engines is made with special reference to the wants of those who desire small power, the operating expense of which is nominal, there being no waiting to get up or keeping up steam for the sake of being prepared for work.

The Canadian General Electric Co., Toronto, are sending out literature regarding the "Noark" three-pole, 220 volt fuse boxes for which they are Canadian agents.

The Dodge Mfg. Co., Toronto, publish monthly a brochure entitled "Power Transmission Economics," the object of which is to describe their system and products. The leading descriptive article in the issue before us is concerning the "Utility of Friction Clutch Mechanism."

The Underfeed Stoker Co., Toronto, have sent in the April issue of their monthly periodical, "The Jones," which is devoted to proclaiming the merits of their Jones underfeed stoker. It contains descriptions of some of the power plants in which their stoker is in use.

The Jeffrey Mfg. Co., Columbus, Ohio, have sent us their Bulletin No. 7 descriptive of an Alabama electric coal-hauling plant, as prepared by Mr. C. B. Peck, of that company. The Bulletin is not intended to be a complete treatise on electric haulage machinery for use in coal mines, but the company hope that it will prove of interest to the managers of coal mines who have either already installed in their properties electric haulage, or who have the problem before them of reducing the underground haulage of their coal. The company promise in a later bulletin, to cover the question of gathering loaded pit cars in the mine by mechanical means, as the time is near at hand, they say, when horses and mules will no longer be used to advantage for that purpose.

"Something Pneumatic" is the title of a monthly magazine, the publication of which has just been begun by the Chicago Pneumatic Tool Co., Chicago, Ill. It is announced in the introductory editorial that the publishers do not intend to enter the legitimate trade journal field, but rather to give publicity more widely, if possible, than through the advertising columns of trade papers, to the advantages resulting from the use of pneumatic appliances. Among the illustrated articles included in the magazine are the Redfield pneumatic saw which shows the operation of that mechanism in cutting

into desirable lengths, the immense trees of the Pacific coast, as they are felled in the forest; others relating to "Chipping" new designs for an air compressor, "Pneumatic Hammer," "Stone Dresser," "Rock drills," "Pneumatic Appliances for Foundry," "Torpedo Propulsion," etc. The magazine will be sent free to any interested in the field which it covers.

The Packard Electric Co., St. Catharines, Ont., have sent us a circular describing their "Skedoodle," or self-flashing sign lamps. These lamps are of the regular Hylo type with big and baby filament. Inside an ordinary Edison base there is a mechanism which turns the light up and down from the big to the baby filament at irregular intervals. This mechanism is operated solely by the lamp itself. As the large filament burns, it generates a certain amount of heat in the socket which causes a small brass thermostat to expand, thus breaking the connection for the high light and switching on the low filament. While the low light burns of course the filament rapidly cools off and the high light again comes on. This is continued at intervals which are varied all the way from one second to half a minute. The contacts are heavy platinum and the scientific construction of the lamp makes them perfectly sparkless, thus giving extreme durability. These "Skedoodle" plugs fit any Edison type socket, and hold any Edison ordinary-base lamps, and make lamps flash on and off about fifteen times per minute.

The Turbine Engineering Co., New York City, are making a specialty of installing complete water-power plants and giving a single guarantee covering efficiency and economy of entire installation. Interested parties can obtain printed matter relative to the work by writing the company.

The American Conduit Co., New York, are sending out printed matter relating to their products. The Canadian General Electric Co. and the Richmond Conduit Co. of Toronto, are manufacturers of similar products.

"Band Saw Talk" is the title of a folder sent us by the New Britain Machine Co., New Britain, Conn. In it reference is made to their self-acting vise for filing band saws, of which it is claimed that better work is done in half the time, with half the labor, and only one adjustment, than with other appliances. Mention is also made of their equal blow setting machine for band-saw blades, which sets the saw in five minutes on machine or at bench, setting two teeth at once.

The Midland Publishing Co., publishers of Farm Machinery, St. Louis, Mo., are publishing The Implement Blue Book, in which is given very extensive and complete information regarding the manufacture of agricultural and farming machinery in the United States, and to some extent in Canada. It contains 340 pages, handsomely bound, excellent press work, and should be of much value to every implement dealer.

The Jeffrey Mfg. Co., Columbus, Ohio, have sent us an illustrated circular having reference to the bits for coal-cutting ma-

chinery made by them. The illustrations show the shapes and styles of the bits and their applicability to the chains used in the machines.

Mines and Minerals, published at Scranton, Pa., has sent us a classified directory of reliable manufacturers of and dealers in mining and milling machinery, instruments, tools, etc. It is a convenient little booklet to have close at hand.

The Industrial Publication Co., 16 Thomas Street, New York, have sent us an improved specification blank, prepared by Palliser, Palliser & Co., architects, that city, which consists of specifications for frame or brick buildings of low cost, relating to work to be done by masons, carpenters, tanners, plumbers, painters, etc.

## OPPORTUNITIES.

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

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

1253. A manufacturers agent in Sheffield, England, is open to represent Canadian manufacturers of starch.

1254. A firm in Cairo, Egypt, seeks the agency of a Canadian Life Insurance Co.

1255. A firm manufacturing specialties in machine tools would like to be placed in touch with Canadian importers.

1256. A large commercial firm in Christchurch, New Zealand, is anxious to open up business relations with Canadian manufacturers and exporters who desire to sell their goods in that country.

1257. A large manufacturer of cocoa and chocolate in Coventry, England, have among their range of goods some specialties of which they are the only makers, and for which they seek openings in Canada.

The city of Colima, Mexico, is desirous of arranging with some party to install the electric light power for lighting the city and public and private buildings. The city is also about to build a new iron market and will accept bids and plans for that work. Full particulars may be secured by addressing Governor Enrique O. Madrid, Colima, Estado de Colima, Mexico.

Mr. Edgar Tripp, Canadian commercial agent at Port of Spain, Island of Trinidad, B.W.I., has inquiries for houses built in sections ready for shipment, and desires to receive catalogues, etc., which might lead to business. Mr. J. S. Larke, Commercial Agent at Sydney, Australia, also has inquiries for the materials of frame houses ready to be put together. The class sought for is a simple, cheap

cottage intended for summer residence. Mr. Larke desires catalogues and prices.

Mr. D. H. Ross, Canadian commercial agent at Melbourne, Australia, desires catalogues, price lists, etc., from manufacturers of wind engines, for which there is a good demand in that country. Mr. Ross also speaks of the large demand for cheap hand pumps, the bulk of the requirement there being supplied by American makers.

The Canadian commercial agent at Manchester, England, thinks that a good trade can be built up by manufacturers of hot-water furnaces, radiators, and gas and oil heaters, and in this connection writes:—The average house in England is dependent for its heat upon grate fires in parlor, dining room, and bedrooms. The halls and bathrooms are cold and uncomfortable. It is true the temperature rarely falls below 32° in the middle and southern portions of the Kingdom, yet the houses are the reverse of comfortable. Many of the large office buildings have no system of heating installed and the occupants must rely on a small grate fire and gas stove. A few private houses have a crude system of heating by hot air (in conjunction with grate fires), and I am confident, in my knowledge of the cost of hot-air heating, that a business in this line also could be worked up in

supplying houses of the better class with indispensable comfort in the winter months.

**INEXPENSIVE ICE-MAKING MACHINE.**

United States Consul Van Buren, at Nice, France, reports as follows:

A new ice-making machine constructed entirely of metal, consisting of two parts, very simple and compact, has been introduced here. One part, hermetically closed, contains the mechanism and the other is the ice producer.

The apparatus may be made of any dimension. The smallest size made here is one of 30 by 50 centimeters (11½ inches by 1 foot 7¾ inches). This may produce 2 kilograms (4.4 pounds) per hour, and is worked by a motor of one-eighth h.p. or by hand. The ice is produced in blocks, the first block in a very few minutes after the machine is put in motion. The largest model here is 1 by 1.5 meters (39.37 by 59.05 inches), and with a 4 h.p. motor produces 220 lbs. of ice per hour.

It should be noted that the principal feature of this machine is that the ice is produced without the aid of any ingredients or preparatives of any kind. Whatever requisite is needed for its operation is supplied at the time of its manufacture. Once the machine is delivered it produces

ice indefinitely and as long as the metal work used in its construction holds out, and this is of such a character as to last for many years. The cost of manufacture here of the small model above mentioned is stated to be about \$20, but it should be borne in mind that this calculation is based upon rudimentary and expensive methods of manufacture and high-priced metals. It would not be asserting too much to say that this model could be manufactured in the United States at not over one-third of this price, and perhaps much less.

I may add that all systems known up to the present time and all machines existing for the manufacture of ice in a rapid and economical manner have been compared with the one forming the subject of this report, and experts have unanimously declared this to have insuperable advantages over any of the systems and machines in question.

Persons desiring further particulars or details should address Mr. J. B. Cognet, at Carnes, France.

**THE LUMBERMEN'S ASSOCIATION.**

The regular annual meeting of the Ontario Lumbermen's Association was held in Toronto, March 18, at which the officers of last year were re-elected as follows:

**CORUNDUM WHEELS,  
EMERY WHEELS and  
GRINDING MACHINERY**

**CANADIAN CORUNDUM  
WHEEL CO.  
HAMILTON, - ONT.**

**NORTHERN ALUMINUM CO., LIMITED**

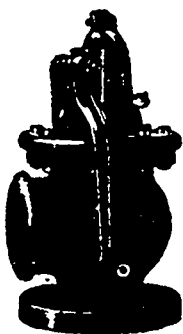
Shawinigan Falls, P.Q. Business Office Pittsburgh, Pa.

**ALUMINUM**

INGOTS—SHEETS—TUBING, ETC.

*Aluminum Stamped, Cast, Spun Articles of any Description to Order.*

**ALUMINUM WIRE and CABLES (BARE OR INSULATED) for Electrical Conductors.**



A VALVE YOU CAN RELY ON  
SEND FOR PRICES

**GROSBY STEAM APPLIANCES EXCEL**

Steam Engine Indicators.  
Recording Gages.  
Revolution Counters.  
Pressure and Vacuum Gages.  
Lubricators, etc.



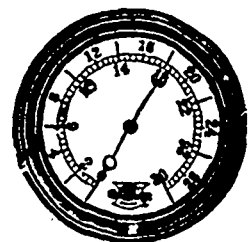
Stationary and Marine Valves.  
Water Relief Valves.  
Blow-off Valves.  
Globe and Angle Valves  
Single Bell Chime Whistles.

SEND FOR CATALOGUE

**CROSBY STEAM GAGE and VALVE CO.**

BOSTON, NEW YORK, CHICAGO, LONDON

A TRUTHFUL GAGE IS THE ONLY GOOD GAGE



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



W. D. Lummis, president; R. Laidlaw, first vice-president; George Cook, second vice-president; W. B. Tindall, secretary-treasurer.

The president, in presenting his report, announced that prices would probably be 10 per cent. higher than last year, the Ottawa men having practically secured that advance. Owing to severe weather conditions, the cost in the woods would be increased, and the cut considerably curtailed.

The financial and statistical reports of the secretary were also presented, showing that the output of logs for 1904 would be considerably less than for the previous year, and that stocks held at the mills are largely sold.

Mr. Lummis submitted statistical information based upon such replies as had been received.

The total production of mills in North-Western Ontario which embraces all mills on the Georgian Bay, Northern Division of the Grand Trunk Railway to Callender and Canadian Pacific Railway, North Bay to Rat Portage.

The total production for 1903 is 475,-

000,000 feet. The comparison with former years is as follows:—1899, 351,000,000; 1900, 476,000,000; 1901, 466,000,000; 1902, 510,000,000; 1903, 48,000,000; a decrease between 1903 and 1902 of 25,000,000 feet.

There is in pile at the mills about 150,000,000 feet, of which 100,000,000 feet is sold, waiting spring delivery, and the balance is unsold. There seems to be a great scarcity of the low grade lumber, absolutely none in first hands, and what is available being held by dealers for distribution. The comparison with previous years follows:—1899, 120,000,000; 1900, 216,349,000; 1901, 181,000,000; 1902, 170,000,000; 1903, 150,000,000.

The probable production of 1904 logs will be 420,000,000 feet.

Statistics were also given for the competing points of the United States. The figures given for the States of Michigan, Minnesota, and Wisconsin, are as follows:

Production—1899, 6,056,508,000 feet; 1900, 5,485,261,000 feet; decrease, 571,247,000 feet; 1901, 5,336,448,000 feet; decrease, 48,818,000 feet from 1900;

1902, 5,294,395,000 feet; decrease, 42,053,000 feet from 1901; 1903, 4,791,852,000 feet; decrease, 502,543,000 feet from 1902.

Stocks on hand (same period)—1899, 2,728,271,000 feet; 1900, 2,839,706,000 feet; increase, 111,435,000 feet; 1901, 2,388,256,000 feet; decrease, 451,450,000 feet; 1902, 2,112,719,000 feet; decrease, 275,537,000 feet; 1903, 1,904,532,000 feet; decrease, 148,187,000 feet.

Total decrease since 1900, 875,274,000 feet.

In reference to these districts, attention was called to the fact that it is the first time since 1879 that their output has dropped to the 4,000 million figure. In 1879 it stood at 4,806,943,000. The highest point was reached in 1890, being 8,597,623,000, and the falling off in thirteen years to 1903 has been 3,805,771,000 feet, or 44.26 per cent., the decrease being steady since 1898.

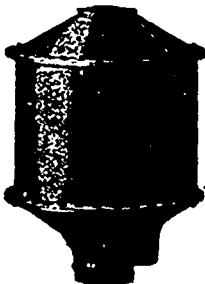
#### CANADA'S MINERAL WEALTH.

Mr. E. D. Ingall, mining engineer of the Geological Survey of Canada, in his

We make over forty different shapes of stoppers, all made with a care and thoroughness unapproached by others. Write us when next in the market.

McCULLOUGH-DALZELL CRUCIBLE CO., - PITTSBURG, PA.

## A HOLE IN THE ROOF



Steam from the exhaust pipe will rust the roof and rot the walls. The

### Burt Exhaust Head

will not allow the water or oil to escape from the exhaust pipe, and will deaden the noise of the exhaust, too.

"The Burt Exhaust Heads are giving entire satisfaction."—Western Automatic Machine Screw Co., Elyria, Ohio.

Don't wait until the damage is done. Send your order NOW, with size of pipe. If dissatisfied, return.

## THE BURT MFG. CO.

LARGEST MFRS. OF OIL FILTERS IN THE WORLD.

212 Main Street, AKRON, OHIO, U.S.A.

A complete stock carried by the

FAIRBANKS CO., Montreal.

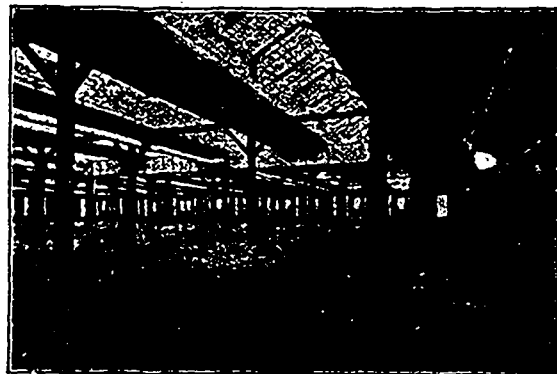
Supplied also by Oil Companies, Engine Builders and Power Contractors.

## Heat and Ventilate

Your  
CAR SHOPS

By the

## STURTEVANT SYSTEM



The above cut shows part of the system as applied to the N. Y., N. H. & H. Railroad shops at Readville, Mass., by the

**B. F. STURTEVANT CO.**  
BOSTON, MASS.

New York Philadelphia Chicago London 367

report for 1903, says:—The main feature presented by the mineral industry of Canada as a whole consists in the decrease in the grand total of production of a little over one per cent. in comparison with the figures for 1902. A comparison of the items for the two years shows the reason for this falling off. The shrinkage in the production of the Yukon placer gold fields accounts for \$2,250,000 of the total diminishment of over \$2,500,000 in the gold output of the country. This is augmented by over \$1,000,000 decrease in the values of the output credited to others of the metallic class, viz., pig iron, silver, lead, and nickel. To offset this, the copper, iron ore, and zinc industries exhibit increases aggregating nearly \$1,500,000, leaving a minus amount of a little over \$2,000,000 against the metallic class as a whole equivalent to nearly 6 per cent.

Advances were shown in several of the non-metallic class, notably in coal and coke, limestone, mica, salt, cement, and in some of the clay products. The total growth in all the non-metallics showing increases amounted to nearly \$2,000,000, the advance in the coal and coke output accounting for over \$1,600,000 of this. As against these non-metallic industries showing increases, decreases are exhibited in the values of the production in asbestos, natural gas, petroleum, and a number of others, aggregating about \$500,000, leaving a net gain in this class of somewhat under \$1,500,000, or a little over 5 per cent., to offset the above-mentioned falling off in the metallic class,

the final difference in the grand totals for the two years amounting to nearly \$660,000, or a proportional decrease of close on one per cent.

With reference to coal and coke, Mr. Ingall says an increased production is reported from all the provinces in which coal mining is being carried on. The Dominion Coal Co., the largest producing company in Nova Scotia, increased its output notwithstanding the serious check caused by the fire in Dominion No. 1 Colliery in March. The Nova Scotia Steel and Coal Co. also shows a very largely increased output from their Sydney mines.

Considerable activity has been displayed in the operation of the mines in the North-West Territories, especially on the eastern slope of the Rocky Mountains in the district about Blairmore.

Values of the metallic ores produced in Canada during the year 1903 were:

|                              |                     |
|------------------------------|---------------------|
| Copper .....                 | \$5,728,261         |
| Gold .....                   | 18,834,490          |
| Iron ore (exports) .....     | 922,571             |
| Pig iron from Canadian ore.. | 707,838             |
| Lead .....                   | 762,680             |
| Nickel .....                 | 5,002,204           |
| Silver .....                 | 1,700,779           |
| Zinc .....                   | 48,600              |
| <b>Total .....</b>           | <b>\$83,707,403</b> |

In the non-metallic class the production included:

|                                 |            |
|---------------------------------|------------|
| Asbestos .....                  | \$891,033  |
| Coal, 7,996,635 tons, valued at | 15,957,946 |
| Coke .....                      | 1,683,725  |

|                          |         |
|--------------------------|---------|
| Gypsum .....             | 384,259 |
| Limestone for flux ..... | 259,244 |
| Mica .....               | 159,437 |
| Petroleum .....          | 922,672 |
| Pyrites .....            | 126,133 |
| Salt .....               | 334,088 |

Of structural materials:—

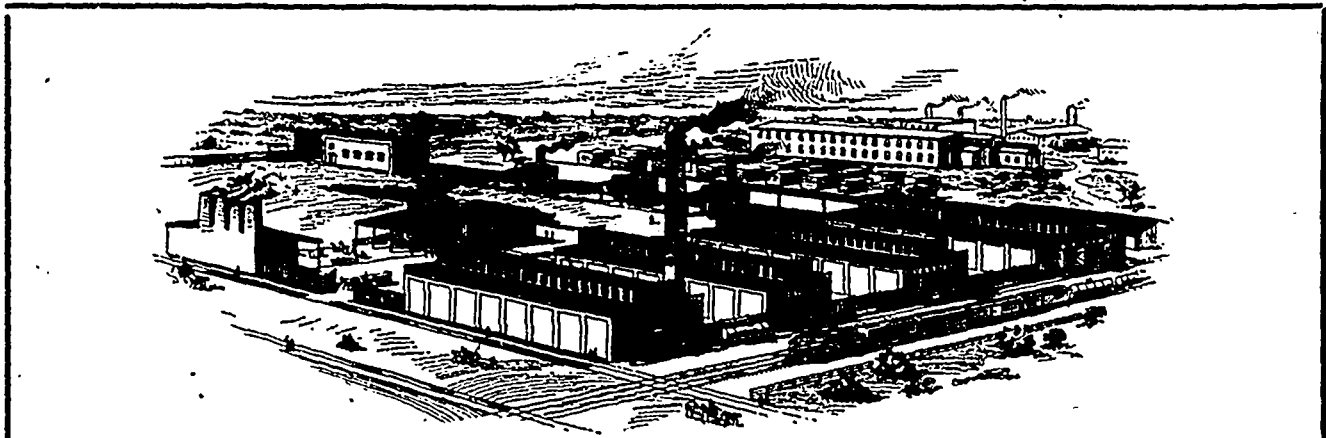
|                                                              |             |
|--------------------------------------------------------------|-------------|
| Cement .....                                                 | \$1,690,842 |
| Sewer pipe, terra cotta, pressed bricks .....                | 386,532     |
| Building materials, including brick, tile, stone, lime, etc. | 5,650,000   |

The total production in pig iron in Canada in 1903 from Canadian and imported ores, amounted to 297,855 tons, valued at \$3,742,710, of which it is estimated 42,052 tons, valued at \$707,836, should be attributed to Canadian ore, and 255,833 tons, valued at \$3,934,872, to the ore imported.

**THE CANADIAN FURNITURE INDUSTRY.**

Speaking of the representative exhibit recently made in the Canadian Court at the recent fair held in the Crystal Palace, in London, Commercial Intelligence says:

This industry is one particularly adapted to Canada on account of the great variety of wood available for furniture and cabinet making. It is of comparatively recent origin, having arisen from very feeble beginnings twenty years ago, when you might have counted on the fingers the Canadian furniture factories worthy of name; whereas now



# It is nearly Half a Century

since we commenced to make Varnish. During this period we have acquired a knowledge not only of Varnish, but of the varied needs of varnish consumers that nothing but time can impart, and have also learned how to cater successfully to every varnish want.

Our experience belongs to those who use and sell Berry Brothers' Varnishes. Safest goods to handle, surest and most reliable goods to use.

WRITE FOR CATALOGUE.

**BERRY BROTHERS, Limited, - Walkerville, Ont.**



the industry is one of first-class importance, with an annual output valued at some seven to eight million dollars. Canada's position is superior to any nation in the world in the manufacture of the cheaper class of furniture, such as of elm and ash. But the finer goods are not neglected, and the factories turn out articles in mahogany, walnut, oak, and birch, which cannot be excelled anywhere in artistic design, workmanship, and finish. This feature is very apparent in the variety and quality of the exhibits at the Canadian Court at the Crystal Palace.

The great point in favor of Canada, so far as the export market is concerned, is the inexhaustible supply of cheap woods which will always give her an advantage in the manufacture of medium and cheap lines. As to the distribution of the furniture industry, the Province of Ontario, especially the western peninsula, stands first in the number of factories and the extent of output. Practically 75 per cent. of the whole furniture trade of Canada is located in this district in towns of from two to ten thousand inhabitants, charmingly situated in the most fertile and highly cultivated part of the Dominion. The principal centres are Berlin and Waterloo, with some twelve factories, followed by Guelph and the neighborhood with eight, Hanover and district with eleven, and Stratford with five factories. Other furniture making localities are Owen Sound, Goderich, Strathroy, Walkerville, Ingersoll, Hamilton, and

Toronto. In Quebec, Montreal and the adjacent towns furnish some twelve factories, in addition to similar growing establishments at Beauharnois, Danville, Granby, Coaticook, and Waterville; in the Maritime Provinces, Windsor, Amherst, and New Glasgow, in Nova Scotia, and St. John, in New Brunswick, deserve special mention.

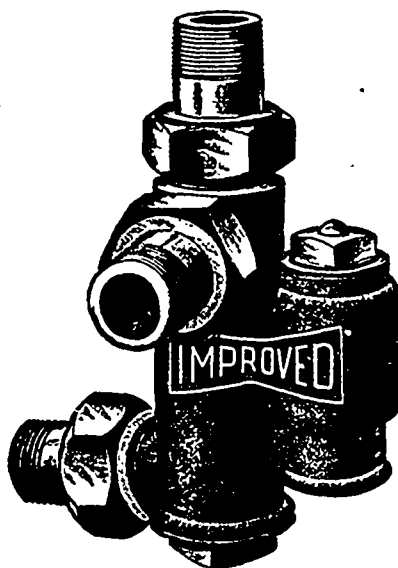
Until quite recently the factories have confined their attention to the home trade, but a large export is now being built up, which is already running into considerable figures. In connection with these changes, many skilled men have been brought in from various countries to produce the styles adapted to the different markets which it is desired to enter, with the result that success is crowning the efforts of Canadian manufacturers all along the line. Several of the factories devote their whole energies to foreign trade, and there is plenty of scope for the investment of further capital in developing this feature of the industry. Practical men with from £2,000 to £5,000 could not do better than investigate these openings for themselves. No difficulty need be experienced in getting at the facts, especially if the proper course be adopted, as has already been set forth in previous articles on the industrial opportunities in Canada. Certain it is that the next five or ten years will witness an extraordinary development. The conditions of the country are the guarantee, and if further proof be wanted it may be found in the investment of American

capital taking place in every part of Eastern Canada. Great Britain has been so far the largest consumer of Canadian furniture—domestic, office, church, and school—but Australia, New Zealand, and British West Indies, and especially South Africa, are becoming every day larger buyers of these articles.

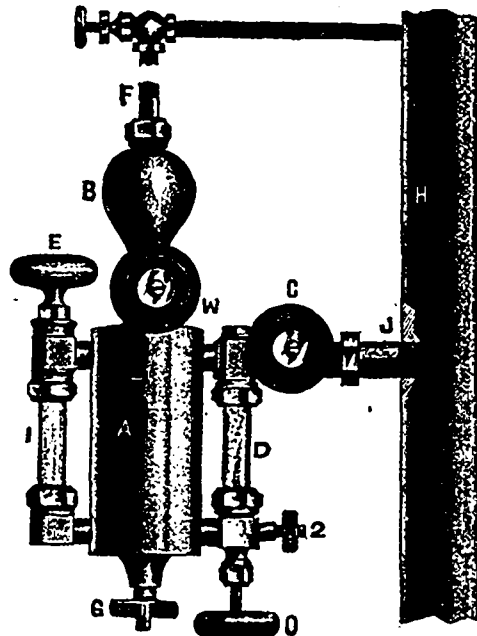
The only competition to be met is that of the United States, but in general household furniture Canada has pronounced advantages in cheaper production; in office desks and fittings the conditions are about equal.

Contracts for electrical plant for the Welland Canal have been awarded the Canadian Westinghouse Co., Hamilton, Ont., who will furnish arc lamps, current transformers and switch boards along the entire stretch of the canal, a distance of 28 miles. The lamps will be placed 400 feet apart on each side of the waterway. The Canadian General Electric Co., Toronto, will supply independent arc lamp "cut-outs" and one testing transformer, while the Packard Electric Co., St. Catharines, Ont., are the contractors for reactance type regulators and constant potential transformers.

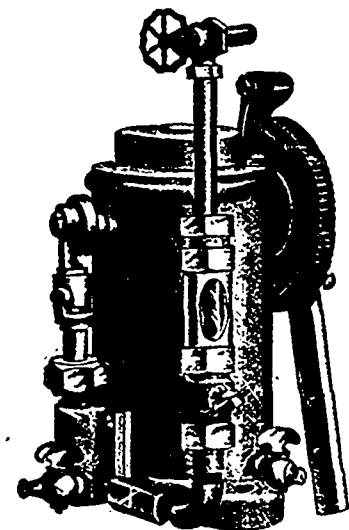
The Canadian Pacific Railway Co. have placed orders for 21 freight locomotives with the Canadian Locomotive Works at Kingston, Ont., and the Locomotive & Machine Works at Montreal.



IMPROVED T. J. C. INJECTOR  
No. 2.



IMPROVED MICHIGAN LUBRICATOR.



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OIL PUMP

with and without Sight Feed.

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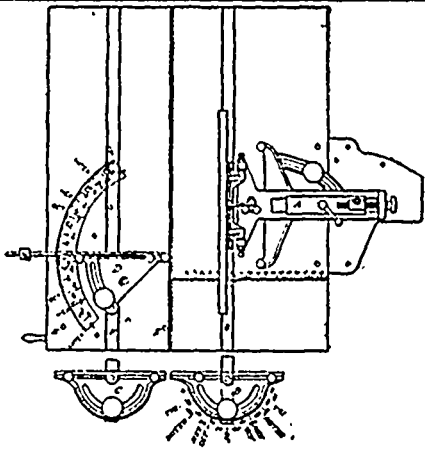
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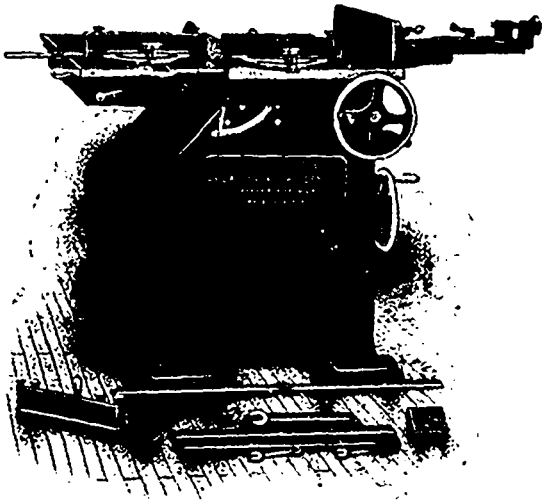
**Free Sites—Tax Exemptions.**

Head Office—PETERBORO',  
(Cor. George & Hunter Sts.)

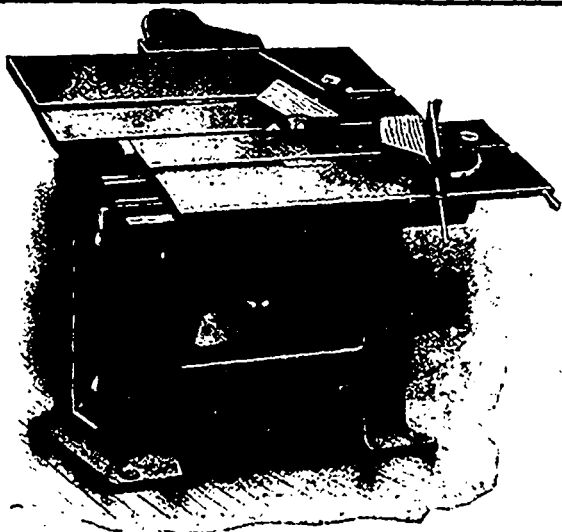
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# SAW BENCH

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It is built with all the care and accuracy of the best machine tools and not on the line of ordinary wood-working machinery.

Ask us for catalogue giving further details regarding this machine.

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Wood Lathes,  
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Pattern Shop Equipments.

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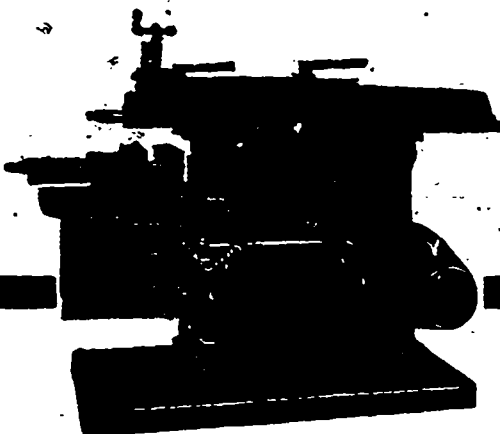
Economy is in most need around a steam plant. It is astonishing how much money can be unnecessarily shovelled away in coal. How much money is wasted in steam not used.

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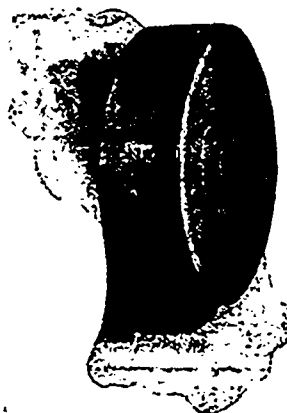
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Persons having business with any of the Inspectors will find them at the above address.  
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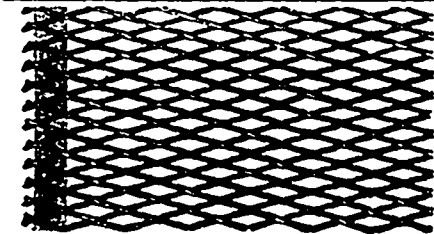


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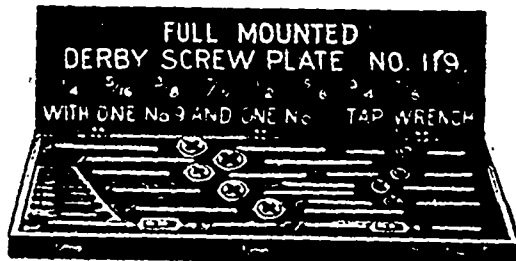
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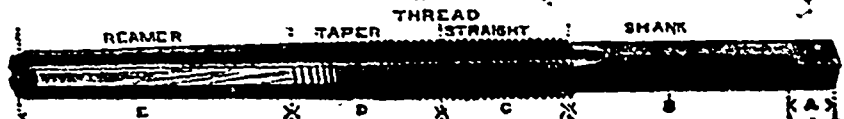


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**Milner Petrolia Wagon Co.**

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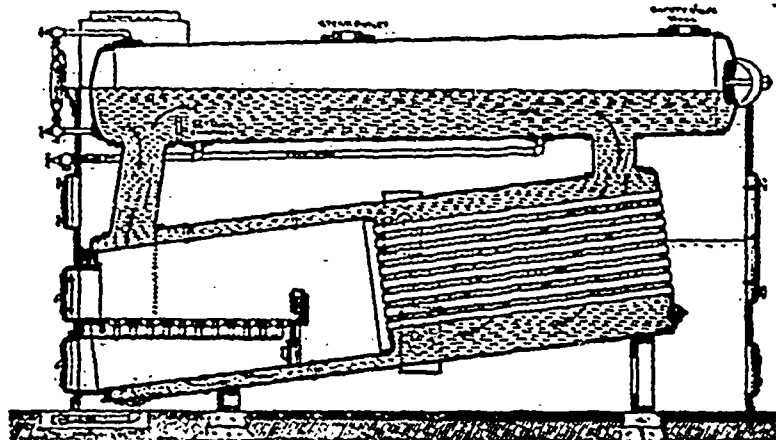
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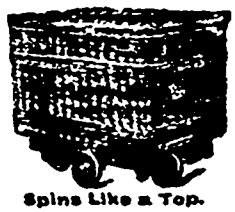
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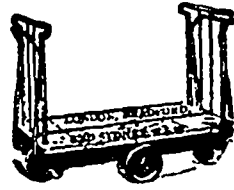


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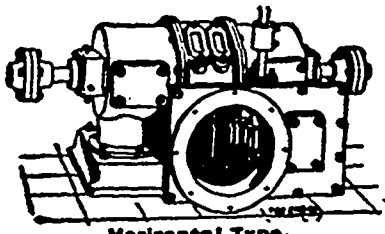
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**HAVE YOU SEEN IT?**  
We also make special Trucks. Simply give us your ideas.

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Runs either way



Horizontal Type.

**"LITTLE GIANT" TURBINE**

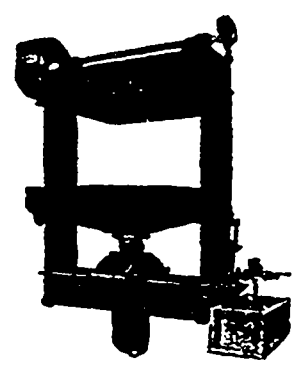
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BUILT IN 44 SIZES.

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

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

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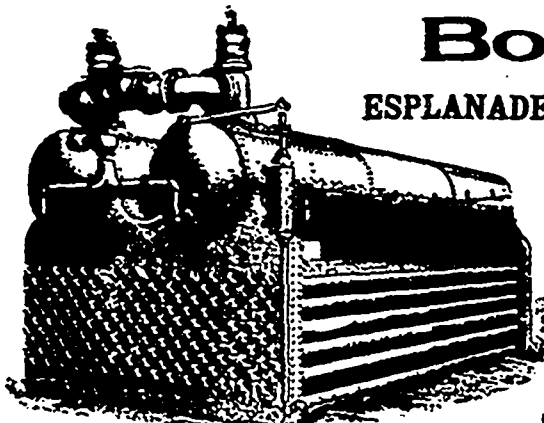


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**Filter Presses..**

**WILLIAM R. PERRIN & COMPANY, Limited**  
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**The Canadian Heine Safety Boiler Co.**

**JOHN J. MAIN**  
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HIGH-CLASS  
**Water Tube Steam Boilers..**

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DUTIES AND FUEL

From 75 to 600 H.P. Each

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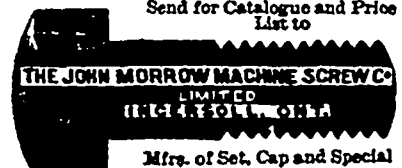
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## CLASSIFIED INDEX.

### Abrasives.

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

### Air Compressors

American Steam Pump Co., Battle Creek, Mich.  
Canada Foundry Co., Toronto.  
Canadian Hand Drill Co., Shorbrooke, Que.  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Darling Bros., Montreal.  
Shaw, Willis, Chicago, Ill.

### Aluminum

Northern Aluminum Co., Pittsburgh, Pa.  
Syracuse Smelting Works, Montreal.

### Angles, Beams and Girders

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Cooper, Estate late James, Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

### Aniline Colors and Dyewood Extracts

Bellhouse, Dillon & Co., Montreal.  
Benson, W. T. & Co., Montreal.  
Brunner, Mond & Co., Northwich, England.  
Cassella Color Co., New York City.  
Goly Aniline & Extract Co., New York City.  
Kilpstein, A. & Co., New York City.  
McArthur, Cornelle & Co., Montreal.  
Winn & Holland, Montreal.

### Annealing Muffles and Furnaces (Wire)

Morgan Construction Co., Worcester, Mass.  
Leslie, A. C. & Co., Montreal.  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

### Antimony

Syracuse Smelting Works, Montreal.

### Anvils and Vises

Cooper, Estate late James, Montreal.  
Leslie, A. C. & Co., Montreal.  
Rice Lewis & Son, Toronto.

### Architects

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

### Assayers.

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

### Axles

Cooper, Estate late James, Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

### Rabbit Metal

Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Syracuse Smelting Works, Montreal.

### Banks

Bank of Hamilton, Hamilton, Ont.

### Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.  
Cooper, Estate late James, Montreal.  
Leslie, A. C. & Co., Montreal.  
Rice Lewis & Son, Toronto.

### Belt Dressing.

McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Rosendale Belting Co., Toronto.  
Williams, A. R., Machinery Co., Toronto.

### Belt Fasteners.

Bristol Co., Waterbury, Conn.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Rosendale Belting Co., Toronto.  
Williams, A. R., Machinery Co., Toronto.

### Belting (Cotton.)

Dominion Belting Co., Hamilton, Ont.  
Fleming, W. A. & Co., Montreal.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Rosendale Belting Co., Toronto.  
Wilby, P. H., Toronto, Ont.

### Belting (Leather.)

Canadian Oak Belting Co., Brockville, Ont.  
Fleming, W. A. & Co., Montreal.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Rice, Lewis & Son, Toronto.  
Wilby, P. H., Toronto, Ont.  
Williams, A. R., Machinery Co., Toronto.

### Belting (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto.  
McLaren, D. K., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.

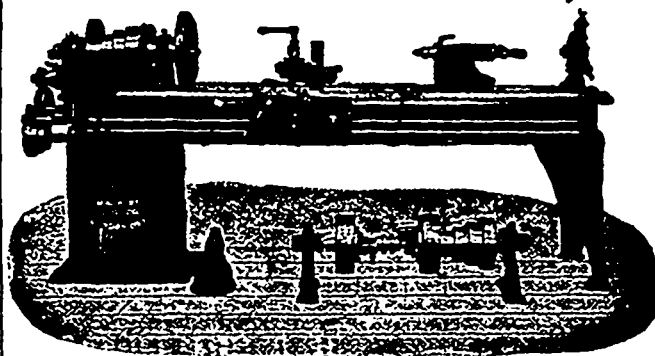
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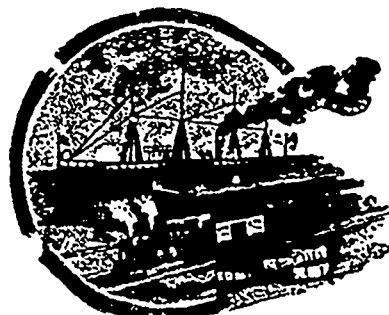
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Melbourne, Sydney, Dunedin, Cape Town, etc.

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### Belting and Supplies

Bristol Co., Waterbury, Conn.  
Canadian Oak Belting Co., Brockville, Ont.  
Carrier, Laine & Co., Levis, Que.  
Dominion Belting Co., Hamilton, Ont.  
Flaming, W. A. & Co., Montreal.  
Gutta Percha & Rubber Mfg. Co., Toronto.  
Jeffrey Mfg. Co., Columbus, Ohio.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Rice Lewis & Son, Toronto.  
Rossendale Belting Co., Toronto.  
Wilby, P. H., Toronto.  
Williams, A. H. Machinery Co., Toronto.

### Billet Heating Furnaces

Morgan Construction Co., Worcester, Mass.

### Bobbins

Wilson Bros. Bobbin Co., Liverpool, England.

### Boiler Inspection

Canadian Casualty & Boiler Insurance Co., Toronto.

### Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.  
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.  
McKinnon Dash & Metal Works Co., St. Catharines, Ont.  
Penorthly Injector Co., Windsor, Ont.

### Building Iron and Steel.

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Expanded Metal & Fireproofing Co., Toronto.

### Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.  
Canada Foundry Co., Toronto.  
Canadian Otis Elevator Co., Toronto.  
Canadian Portland Cement Co., Deseronto, Ont.  
Cooper, Estate late James, Montreal.  
Dodge Mfg. Co., Toronto.  
Expanded Metal & Fireproofing Co., Toronto.  
Gartshore, John J., Toronto.  
Metalite Roofing Co., Toronto.  
Owen Sound Portland Cement Co., Owen Sound, Ont.  
Pittsburgh Shafting Co., Detroit, Mich.  
Rice Lewis & Son, Toronto.  
Sheldon & Sheldon, Galt, Ont.

### Cables

Dominion Wire Rope Co., Montreal.  
Wire & Cable Co., Montreal.

### Canada Plates

Leslie, A. C. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

### Canoes

Peterborough Canoe Co., Peterborough, Ont.

### Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

### Card Clothing

McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.

### Cast Iron Pipe

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

### Castings (Iron and Brass.)

Kerr Engine Co., Walkerville, Ont.  
Toronto Iron & Brass Bedstead Co., Toronto.

### Cement Machinery.

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

### Chain Making Machinery (Welded Coil Chain)

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

### Channels

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Leslie, A. C. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

### Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.

### Chemists

Archbold, Dr. Geo., Prescott, Ont.  
Hays, Thos. & Son, Toronto.  
Wentz, R. F. Engineering Co., Toronto.

### Clay Working Machinery.

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

### Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.  
Brownlee, J., Galt, Ont.  
Hoffman, Jules G., Detroit, Mich.  
Milnes, James H., & Co., Toronto.  
Pittsburgh Coal Co., Pittsburgh, Pa.  
Shipman, O. W. Co., Detroit, Mich.

### Coal Cutting Machines

Canadian Hand Drill Co., Sherbrooke, Que.  
Jeffrey Mfg. Co., Columbus, Ohio.

### Coal Tipples.

Jeffrey Mfg. Co., Columbus, Ohio.

### Coil Chains.

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

### Coke Oven Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.

### Collection Agency

Petrie, H. D., Hamilton, Ont.

### Concrete Mixers

Cooper, Estate late James, Montreal.

### Continuous Rolling Mills

Morgan Construction Co., Worcester, Mass.

### Contractors' Machinery

Carlin's, Thomas Sons Co., Allegheny, Pa.  
Cooper, Estate late James, Montreal.  
Gartshore, John J., Toronto.  
Shaw, Willis, Chicago, Ill.

### Contractor's Plants

Shaw, Willis, Chicago, Ill.  
Von der Osten, E. & Co., Toronto.

### Conveying Machinery

Babcock & Wilcox, Limited, Montreal.  
Canada Foundry Co., Toronto.  
Buhl Malleable Co., Detroit, Mich.  
Dodge Mfg. Co., Toronto.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Perrin, William R. & Company, Limited, Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Rossendale Belting Co., Toronto.  
Stevens, Alfred J., Toronto.

### Copper Materials

Greening, B. Wire Company, Hamilton, Ont.  
Syracuse Smelting Works, Montreal.  
Wire & Cable Co., Montreal.

### Corundum.

Canada Corundum Co., Toronto.

### Corundum Wheels.

Canadian Corundum Wheel Co., Hamilton, Ont.  
Hart Corundum Wheel Co., Hamilton, Ont.  
Rice Lewis & Son, Toronto.

### Covers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

### Crayons

Lowell Crayon Co., Lowell, Mass.

### Crucibles

Nixon, Joseph, Crucible Co., Jersey City, N.J.  
McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.  
Syracuse Smelting Works, Montreal.

### Crucible Caps and Nozzles

McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

### Crucible Covers and Stoppers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

### Dies (Socket, Sewer Pipe and Tile)

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

### Directories

Kelly's Directories, Limited, Toronto.

### Draw Benches (Wire.)

Morgan Construction Co., Worcester, Mass.  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

### Drills

Bertram, John, & Sons Co., Dundas, Ont.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
London Machine Tool Co., London, Ont.  
Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Shaw, Willis, Chicago, Ill.

### Drills (Pneumatic and Rock)

Canadian Hand Drill Co., Sherbrooke, Que.  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Jeffrey Mfg. Co., Columbus, Ohio.

### Drills (Twist)

Cleveland Twist Drill Co., Cleveland, Ohio.  
Pittsburgh Shafting Co., Detroit, Mich.

### Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

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(CONTINUED).

**Drop Forging Dies**  
Globe Machine & Stamping Co., Cleveland, Ohio.

**Dry Kiln Apparatus**  
Sheldon & Sheldon, Galt, Ont.  
Stevens, Alfred J., Toronto.  
Sturtevant, B. F. Co., Boston, Mass.

**Dust and Shavings Separators**  
Sheldon & Sheldon, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

**Dye Stuffs and Chemicals**  
Bollhouse, Dillon & Co., Montreal.  
Henson, W. T. & Co., Montreal.  
Brunner, Mond & Co., Northwich, England.  
Cassella Color Co., New York City.  
Golgy Anilino & Extract Co., New York City.  
Klipstein, A. & Co., New York City.  
McArthur, Cornouille & Co., Montreal.  
Winn & Holland, Montreal.

**Electric Motors and Transformers**  
Packard Electric Co., St. Catharines, Ont.

**Electric Mine Locomotives**  
Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Shaw, Willis, Chicago, Ill.

**Electrical Supplies**  
Bristol Co., Waterbury, Conn.  
Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Electrical Construction Co., London, Ont.  
Forman, John, Montreal.  
Jones & Moore Electric Co., Toronto.  
Packard Electric Co., St. Catharines, Ont.  
Phillips, Eugene F., Electrical Works, Montreal.  
Toronto & Hamilton Electric Co., Hamilton, Ont.  
United Electric Co., Toronto.  
Worth & Martin, Toronto.

**Elevators**  
Canadian Otis Elevator Co., Toronto.  
Darling Bros., Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.

**Elevator Insurance**  
Canadian Casualty & Boiler Insurance Co., Toronto.

**Emery and Emery Wheels.**  
Canadian Corundum Wheel Co., Hamilton, Ont.  
Forman, John, Montreal.  
Hart Corundum Wheel Co., Hamilton, Ont.  
Petrie, H. W., Toronto.

**Engineers (Cement).**  
Wontz, R. F. Engineering Co., Toronto.

**Engineers (Chemical.)**  
Heys, Thos. & Son, Toronto.  
Hunt, Robert W. & Co., Chicago, Ill.

**Engineers (Civil)**  
DeLano-Osborn Engineering Co., Toronto.  
Kelsch, R. S., Montreal.  
Parke, R. J., Toronto.  
Vogel, C. H., Ottawa.

**Engineers (Consulting)**  
DeLano-Osborn Engineering Co., Toronto.  
Electrical Construction Co., London, Ont.  
Hunt, Robert W. & Co., Chicago, Ill.  
Kelsch, R. S., Montreal.  
Marion & Marion, Montreal.  
Morgan Construction Co., Worcester, Mass.  
Parke, R. J., Toronto.  
Perrin, William R. & Company, Limited, Toronto.  
Simpson, T. T., Deschambes, Que.  
Vogel, C. H., Ottawa.  
Von der Osten, E. & Co., Toronto.  
Wontz, R. F. Engineering Co., Toronto.

**Engineers (Contracting)**  
Babecock & Wilcox, Limited, Montreal.  
Canada Foundry Co., Toronto  
Darling Bros., Montreal.  
Electrical Construction Co., London, Ont.

**Engineers (Electrical)**  
Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
DeLano-Osborn Engineering Co., Toronto.  
Electrical Construction Co., London, Ont.  
Electric Engineering & Supply Co., Montreal.  
Kelsch, R. S., Montreal.  
Jones & Moore Electric Co., Toronto.  
Marion & Marion, Montreal.  
Toronto & Hamilton Electric Co., Hamilton, Ont.  
United Electric Co., Toronto.  
Worth & Martin, Toronto.

**Engineers (Mechanical)**  
Babecock & Wilcox, Limited, Montreal.  
Buhl Malleable Co., Detroit, Mich.  
Carrier, Laine & Co., Levis, Quebec.  
Darling Bros., Montreal.  
DeLano-Osborn Engineering Co., Toronto.  
Electrical Construction Co., London, Ont.

Hunt, Robert W. & Co., Chicago, Ill.  
Kelsch, R. S., Montreal.  
Kerr Engine Co., Walkerville, Ont.  
Marion & Marion, Montreal.  
Morgan Construction Co., Worcester, Mass.  
Robb Engineering Co., Amherst, N.S.  
Sheldon & Sheldon, Galt, Ont.  
Wontz, R. F. Engineering Co., Toronto.

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Buhl Malleable Co., Detroit, Mich.  
DeLano-Osborn Engineering Co., Toronto.  
Vogel, C. H., Ottawa.

**Engineers (Mining.)**  
Buhl Malleable Co., Detroit, Mich.  
Heys, Thos. & Son, Toronto.  
Mills, S. D., Toronto.

**Engineers (Municipal)**  
Von der Osten, E. & Co., Toronto.  
**Engineers and Contractors.**  
Buhl Malleable Co., Detroit, Mich.  
Jeffrey Mfg. Co., Columbus, Ohio.

**Engines and Boilers**  
Babecock & Wilcox, Limited, Montreal.  
Canada Foundry Co., Toronto.  
Canadian Heating Safety Boiler Co., Toronto.  
Cooper, Estato late James, Montreal.  
Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Hyde Bros. & Co., Pittsburgh, Pa.  
Leonard, E. & Sons, London, Ont.  
Petrie, H. W., Toronto.  
Petroleum Iron Works Co., Washington, Pa.  
Pittsburgh Shafting Co., Detroit, Mich.  
Robb Engineering Co., Amherst, N.S.  
Shaw, Willis, Chicago, Ill.  
Sheldon & Sheldon, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.  
Williams, A. R., Machinery Co., Toronto.

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

**Exhaust Fans**  
Sheldon & Sheldon, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

**Exhaust Heads**  
Burt Mfg. Co., Akron, Ohio.  
Darling Bros., Montreal.

**Exporters**  
Canadian Export Co., Toronto.

**Factory Sites**  
Central Ontario Power Co., Peterboro, Ont.

**Feed Water Heaters**  
Babecock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.  
Petroleum Iron Works Co., Washington, Pa.

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

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Bradstreet's, New York City.  
Dun, R. G. & Co., Toronto.  
Neff & Postelthwaite, Toronto.  
Petrie, H. D., Hamilton, Ont.

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Burt Mfg. Co., Akron, Ohio.  
Darling Bros., Montreal.  
Perrin, William R. & Company, Limited, Toronto.

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Babecock & Wilcox, Limited, Montreal.

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Dunbar Fire Brick Co., Pittsburgh, Pa.  
Hamilton Facing Mill Co., Hamilton, Ont.  
Pennsylvania Fire Brick Co., Lock Haven.  
Seloto Fire Brick Co., Selotville, Ohio.  
Wynn, W. H. & Co., West Decatur, Pa.

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Canada Foundry Co., Toronto.  
Sheldon & Sheldon, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

**Founders**  
Canada Foundry Co., Toronto.  
Cowan & Co., Galt, Ont.  
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.  
Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Karch, H. W., Hespeler, Ont.

**Foundry Facings and Supplies**  
Hamilton Facing Mill Co., Hamilton, Ont.

**Fuel Economizers**  
Babecock & Wilcox, Limited, Montreal.

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

**Galvanizing**  
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## ORNAMENTAL IRON AND BRASS

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OF ALL KINDS.

WRITE FOR PRICES

## CLASSIFIED INDEX.

(CONTINUED).

### Galvanizing and Tinning Machinery and Furnaces (Wire)

Morgan Construction Co., Worcester, Mass.  
Turner, Vaughn & Taylor Co., Cuyahoga Falls  
Ohio.

### Gas and Gasoline Engines

Goldie & McCulloch Co., Galt, Ont.  
Morrison, T. A. & Co., Montreal.

### Gas Producers.

Morgan Construction Co., Worcester, Mass.

### Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

### Gauges (Steam)

American Steam Pump Co., Battle Creek, Mich.  
Crosby Steam Gauge & Valve Co., Boston, Mass.  
Penberthy Injector Co., Windsor, Ont.  
Petrie, H. W., Toronto.  
Williams, A. R. Machinery Co., Toronto.

### Gauges (Water)

Babcock & Wilcox, Limited, Montreal.  
Penberthy Injector Co., Windsor, Ont.

### Generators

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

### Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

### Government Notices

Factory Inspectors.  
Minister of Agriculture.

### Grease Cups

Penberthy Injector Co., Windsor, Ont.

### Grinding Machinery

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

### Grinding Fans

Carlin's, Thomas Sons Co., Lilegheny, Pa.

### Hand Traveling Cranes

Morgan Construction Co., Worcester, Mass.

### Hardware

Butterfield & Co., Rock Island, Que.  
Cleveland Twist Drill Co., Cleveland, Ohio.  
Cooper, James, Montreal.  
Empire Machine & Metal Stamping Co., Toronto.  
Cartshore, John J., Toronto.  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Morrow, John, Machine Screw Co., Ingersoll, Ont.  
Rice Lewis & Son, Toronto.  
Ryall Machine Screw Co., Montreal.

### Heating and Ventilating Apparatus

Darling Bros., Montreal.  
Leonard, F. & Sons, London, Ont.  
Sheldon & Sheldon, Galt, Ont.  
Stevens, Alfred J., Toronto.  
Sturtevant, B. F. Co., Boston, Mass.

### Noists (Chain and Pneumatic)

Canadian Rand Drill Co., Sherbrooke, Que.  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Cooper, Estate late James, Montreal.

### Hose (Fire and Pneumatic)

Chicago Pneumatic Tool Co., Chicago, Ill.  
Gutta Percha & Rubber Mfg. Co., Toronto.  
McLaren, J. C. Bolting Co., Montreal and Toronto.

### Hydrants

Kerr Engine Co., Walkerville, Ont.

### Hydraulic Accumulators

Morgan Construction Co., Worcester, Mass.

### Hydraulic Cranes

Morgan Construction Co., Worcester, Mass.

### Hydraulic Machinery

Canada Foundry Co., Toronto.  
Darling Bros., Montreal.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Morgan Construction Co., Worcester, Mass.  
Perrin, William R. & Company, Limited, Toronto.  
Petrie, H. W., Toronto.  
Wilson, J. C. & Co., Glenora, Ont.

### Industrial Plants

Von der Osten, E. & Co., Toronto.

### Insulated Wires and Cables

Wire & Cable Co., Montreal.

### Iron and Steel Specialties

Abbott, William, Montreal.  
Armstrong Mfg. Co., Bridgeport, Conn.  
Bourne-Fuller Co., Cleveland, Ohio.  
Brown & Co., Paris, Ont.  
Buhl Malleable Co., Detroit, Mich.  
Canada Foundry Co., Toronto.  
Cleveland Twist Drill Co., Cleveland, Ohio.  
Dodge Mfg. Co., Toronto.  
Karch, H. W., Hoopler, Ont.  
Leslie, A. C. & Co., Montreal.  
Meadows, Geo. B. Wire, Iron & Brass Works Co.,  
Toronto.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Petrie, H. W., Toronto.  
Petroleum Iron Works Co., Washington, Pa.  
Pittsburgh Shafting Co., Detroit, Mich.  
Rice Lewis & Son, Toronto.  
Ryall Machine Screw Co., Montreal.

### Injectors

Canada Foundry Co., Toronto.  
Hamilton Brass Mfg. Co., Hamilton, Ont.  
Penberthy Injector Co., Windsor, Ont.  
Williams, A. R. Machinery Co., Toronto.

### Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

### Lamps—Electric

Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Forman, John, Montreal.  
Packard Electric Co., St. Catharines, Ont.

### Lathes

Bertram, John, & Sons Co., Dundas, Ont.  
London Machine Tool Co., London, Ont.  
Petrie, H. W., Toronto.  
Williams, A. R. & Co., Toronto.

### Lathes (Wood-Working).

American Machinery Co., Grand Rapids, Mich.  
Cowan & Co., Galt, Ont.  
Goldie & McCulloch Co., Galt, Ont.  
Petrie, H. W., Toronto.  
Williams, A. R. Machinery Co., Toronto.

### Lubricators

Penberthy Injector Co., Windsor, Ont.

### Machinists.

Buhl Malleable Co., Detroit, Mich.  
Goldie & McCulloch Co., Galt, Ont.  
Worth & Martin, Toronto.

### Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.  
Buhl Malleable Co., Detroit, Mich.  
Butterfield & Co., Rock Island, Que.  
Cleveland Twist Drill Co., Cleveland, Ohio.  
Cooper, James, Montreal.  
Dodge Mfg. Co., Toronto.  
Goldie & McCulloch Co., Galt, Ont.  
Gutta Percha & Rubber Mfg. Co., Toronto.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Morrow, John, Machine Screw Co., Ingersoll, Ont.  
Petrie, H. W., Toronto.  
Pittsburgh Shafting Co., Detroit, Mich.  
Ryall Machine Screw Co., Montreal.  
Worth & Martin, Toronto.

### Machine Tools

Abbott, William, Montreal.  
Bertram, John, & Sons Co., Dundas, Ont.  
Cleveland Twist Drill Co., Cleveland, Ohio.  
Darling Bros., Montreal.  
Petrie, H. W., Toronto.

### Malleable Iron Castings

Buhl Malleable Co., Detroit, Mich.  
McKinnon Dash & Metal Works Co., St. Catharines, Ont.  
Smith's Falls Malleable Castings Co., Smith's Falls,  
Ont.

### Mechanical Draft

Babcock & Wilcox, Limited, Montreal.  
Sheldon & Sheldon, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

### Metal Gates

Page Wire Fence Co., Walkerville, Ont.

### Metal Shears

Morgan Construction Co., Worcester, Mass.

### Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.  
Globe Machine & Stamping Co., Cleveland, Ohio.

### Metallurgists.

Mills, S. D., Toronto.  
Wentz, R. F. Engineering Co., Toronto.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# CLASSIFIED INDEX.

(CONTINUED).

## Mill Machinery and Supplies

American Machinery Co., Grand Rapids, Mich.  
 Armstrong Mfg. Co., Bridgeport, Conn.  
 Buhl Malleable Co., Detroit, Mich.  
 Cleveland Twist Drill Co., Cleveland, Ohio.  
 Cooper, Estate late James, Montreal.  
 Cowan & Co., Galt, Ont.  
 Darling Bros., Montreal.  
 Dodge Mfg. Co., Toronto.  
 Fleming, W. A. & Co., Montreal.  
 Gartshore, John J., Toronto.  
 Goldie & McCulloch Co., Galt, Ont.  
 Gutta Percha & Rubber Mfg. Co., Toronto.  
 Hamilton Brass Mfg. Co., Hamilton, Ont.  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Hay, Peter Knife Co., Galt, Ont.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Karch, H. W., Hespeler, Ont.  
 Leonard, E. & Sons, London, Ont.  
 London Machine Tool Co., London, Ont.  
 Morrow, John, Machine Screw Co., Ingersoll, Ont.  
 McLaren, D. K., Montreal and Toronto.  
 Penberthy Injector Co., Windsor, Ont.  
 Petrie, H. W., Toronto.  
 Pittsburgh Shafting Co., Detroit, Mich.  
 Rice Lewis & Son, Toronto.  
 Robb Engineering Co., Amherst, N.S.  
 Ryall Machine Screw Co., Montreal.  
 Spence, R. & Co., Hamilton, Ont.  
 Wilson, J. C. & Co., Glenora, Ont.

## Mining Machinery

Buhl Malleable Co., Detroit, Mich.  
 Canadian Rand Drill Co., Shorbrooke, Que.  
 Chicago Pneumatic Tool Co., Chicago, Ill.  
 Cleveland Twist Drill Co., Cleveland, Ohio.  
 Cooper, Estate late James, Montreal.  
 Gartshore, John J., Toronto.  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Ferrin, William R. & Company, Limited, Toronto.  
 Petrie, H. W., Toronto.  
 Shaw, Willis, Chicago, Ill.  
 Williams, A. R. Machinery Co., Toronto.

## Motors and Dynamos

Canadian General Electric Co., Toronto.  
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
 Electrical Construction Co., London, Ont.  
 Forman, John, Montreal.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Jones & Moore Electric Co., Toronto.  
 Petrie, H. W., Toronto.  
 Toronto & Hamilton Electric Co., Hamilton, Ont.  
 United Electric Co., Toronto.

## Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

## Novelty Manufacturers.

Worth & Martin, Toronto.

## Nozzles.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
 Pittsburg Crucible Works, Pittsburg, Pa.

## Office and Bank Fittings

Canadian Office & School Furniture Co.,  
 Preston, Ont.  
 Meadows, Geo. B., Wire, Iron & Brass Works Co.,  
 Toronto.

## Oils and Lubricants

Chicago Pneumatic Tool Co., Chicago, Ill.  
 Dixon, Jos., Crucible Co., Jersey City, N.J.  
 Fleming, W. A. & Co., Montreal.  
 Hart & Co., Chicago, Ill.  
 Imperial Oil Co., Petrolia, Ont.  
 Queen City Oil Co., Toronto.

## Oil Cloth

Dominion Oil Cloth Co., Montreal.

## Oil Cups

Penberthy Injector Co., Windsor, Ont.

## Paints and Colors

Bellhouse, Dillon & Co., Montreal.  
 Fleming, W. A. & Co., Montreal.  
 Geigy Aniline & Extract Co., New York City.  
 Kilpatin, A. & Co., New York City.  
 McArthur, Cornelle & Co., Montreal.

## Paper Manufacturers

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

## Patents

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

**Pattern Makers' Machinery and Supplies**  
 American Machinery Co., Grand Rapids, Mich.

## Pattern Shop Equipments

American Machinery Co., Grand Rapids, Mich.

## Perforated Metals

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

## Personal Accident

Canadian Casualty & Boiler Insurance Co.,  
 Toronto.

## Phosphorizers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
 Pittsburg Crucible Works, Pittsburg, Pa.

## Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.  
 Canada Iron Furnace Co., Montreal.  
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
 Syracuse Smelting Works, Montreal.

## Pipe (Riveted, Iron and Steel)

Babcock & Wilcox, Limited, Montreal.  
 Petroleum Iron Works Co., Washington, Pa.

## Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.  
 Butterfield & Co., Rock Island, Que.  
 Petrie, H. W., Toronto.  
 Rice Lewis & Son, Toronto.

## Pipes and Tubes

Abbott, William, Montreal.  
 Bourne-Fuller Co., Cleveland, Ohio.  
 Canada Foundry Co., Toronto.  
 Gartshore-Thomson Pipe & Foundry Co., Hamilton,  
 Ont.  
 Montreal Pipe Foundry Co., Montreal.  
 Rice Lewis & Son, Toronto.

## Plaster

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

## Plates

Bourne-Fuller Co., Cleveland, Ohio.  
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
 Rice Lewis & Son, Toronto.

## Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.  
 McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
 Pittsburg Crucible Works, Pittsburg, Pa.

## Pneumatic Tools

Canadian Rand Drill Co., Shorbrooke, Que.  
 Chicago Pneumatic Tool Co., Chicago, Ill.

## Pointer Rolls (For Rods and Wire.)

Morgan Construction Co., Worcester, Mass.  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls,  
 Ohio.

## Portland Cement

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

## Power—Electric and Water

Central Ontario Power Co., Peterboro, Ont.

## Power Plants—Equipments

Babcock & Wilcox, Limited, Montreal.  
 Canadian General Electric Co., Toronto.  
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
 Cleveland Twist Drill Co., Cleveland, Ohio.  
 Darling Bros., Montreal.  
 DeLano-Osborn Engineering Co., Toronto.  
 Dodge Mfg. Co., Toronto.  
 Electrical Construction Co., London, Ont.  
 Goldie & McCulloch, Galt, Ont.  
 Gutta Percha & Rubber Mfg. Co., Toronto.  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Jones & Moore Electric Co., Toronto.  
 Kolsch, R. S., Montreal.  
 Leonard, E. & Sons, London, Ont.  
 Packard Electric Co., St. Catharines, Ont.  
 Perrin, William R. & Company, Limited, Toronto.  
 Petrie, H. W., Toronto.  
 Phillips, Eugene F. Electrical Works, Montreal.  
 Pittsburgh Shafting Co., Detroit, Mich.  
 Robb Engineering Co., Amherst, N.S.  
 Stevens, Alfred J., Toronto.  
 Sturtevant, B. F. Co., Boston, Mass.  
 Toronto & Hamilton Electric Co., Hamilton, Ont.  
 United Electric Co., Toronto.  
 Wilson, J. C. & Co., Glenora, Ont.

**Presses (Tire, Sewer Pipe, Nozzles and Sieves.)**

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

## Pulleys

Darling Bros., Montreal.  
 Dodge Mfg. Co., Toronto.  
 Goldie & McCulloch Co., Galt, Ont.  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 McLaren, J. C. Belting Co., Montreal and Toronto.  
 Petrie, H. W., Toronto.  
 Pittsburgh Shafting Co., Detroit, Mich.  
 Wilson, J. C. & Co., Glenora, Ont.



**Eastlake**  
**Steel Shingles**

either Galvanized or Painted

**Are Always** They are more economically durable and quicker to apply than any others, fitting accurately—and therefore most easily laid.

**Reliable** They have been thoroughly tested in all kinds of climates, invariably proving **Fire, Lightning, Rust and Weather Proof.**

If you're building, make sure of satisfaction by ordering **EASTLAKE'S** for the roof—fullest information if you write.

**Metallic Roofing Co., Limited,**  
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**ONTARIO WIND ENGINE AND PUMP CO.** Limited

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



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J. TURNBULL, General Manager.

HEAD OFFICE, HAMILTON, ONT.

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| London, Ont.    | Montreal, Que. |
| Ottawa, Ont.    | Quebec, Que.   |
| St. John, N.B.  | Toronto, Ont.  |
| Vancouver, B.C. | Winnipeg, Man. |

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TORONTO.

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| VANCOUVER, | HALIFAX.  |

W. C. MATTHEWS, Toronto,  
General Manager for Canada.

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Original Makers. Samples Sent.

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FOR ADVERTISING PURPOSES.  
CATALOGUES, MAGAZINES, &c

J. L. JONES ENG. CO.  
168 BAY ST. - TORONTO

# CLASSIFIED INDEX.

(CONTINUED).

## Pumps and Pumping Machinery

Canada Foundry Co., Toronto.  
Downie Pump Co., Downsville, Pa.  
Goldie & McCulloch Co., Galt, Ont.  
Kerr Engine Co., Walkerville, Ont.  
Ontario Wind Engine & Pump Co., Toronto.  
Petrie, H. W., Toronto.

## Punches and Shears

Globe Machine & Stamping Co., Cleveland, Ohio.  
Petrie, H. W., Toronto.

## Purifiers

Babcock & Wilcox, Limited, Montreal.  
Goldie & McCulloch Co., Galt, Ont.

## Purifying and Softening Systems (Water)

Babcock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.

## Railroads

Chicago & North-Western Ry., Toronto & St. Paul, Minn.  
Quebec Central Railway, Shorbrooke, Que.

## Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.  
Cooper, Estate late James, Montreal.  
Gartshore, John J., Toronto.  
Greening, B. Wire Co., Hamilton, Ont.  
Gutta Percha & Rubber Mfg. Co., Toronto.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Phillips, Eugene F., Electrical Works, Montreal.

## Roamers

Butterfield & Co., Rock Island, Que.  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Cleveland Twist Drill Co., Cleveland, Ohio.

## Rivets

Bourne-Fuller Co., Cleveland, Ohio.

## Roll Lathes

Morgan Construction Co., Worcester, Mass.

## Roller Bearings

Pittsburg Shafting Co., Detroit, Mich.

## Rolling Mills

Morgan Construction Co., Worcester, Mass.

## Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.  
Morgan Construction Co., Worcester, Mass.

## Roofing

Bourne-Fuller Co., Cleveland, Ohio.  
Metallic Roofing Co., Toronto.

## Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.  
Pittsburg Shafting Co., Detroit, Mich.

## Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

## Rubber Washing Tubs

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

## Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

## Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

## Saws (Band)

American Machinery Co., Grand Rapids, Mich.

## Screws

Morrow, John, Machine Screw Co., Ingersoll, Ont.  
Ryall Machine Screw Co., Montreal.

## Screw Plates

Armstrong Mfg. Co., Bridgeport, Conn.  
Butterfield & Co., Rock Island, Que.

## Shafting

Bourne-Fuller Co., Cleveland, Ohio.  
Goldie & McCulloch Co., Galt, Ont.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Petrie, H. W., Toronto.  
Pittsburg Shafting Co., Detroit, Mich.

## Shear Knives

Carlins, Thomas Sons Co., Allegheny, Pa.  
Hay, Peter Knife Co., Galt, Ont.

## Sheets (Iron and Steel)

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

## Sheet Metal Goods

Empire Machine & Metal Stamping Co., Toronto.  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Metallic Roofing Co., Toronto.

## Sheet Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Metallic Roofing Co., Toronto.  
Ryall Machine Screw Works, Montreal.

## Ship Builders

Clyde Steel Works, Toronto.

## Smoke Stacks.

Hamilton, Wm., Mfg. Co., Peterborough, Ont.  
Petroloum Iron Works Co., Washington, Pa.

## Solder

Globe Machine & Stamping Co., Cleveland, Ohio.  
Syracuse Smelting Co., Montreal.

## Special Machinery

Empire Machine & Metal Stamping Co., Toronto.  
Globe Machine & Stamping Co., Cleveland, Ohio

## Speed Recorders

Bristol Co., Waterbury, Conn.  
Chicago Pneumatic Tool Co., Chicago, Ill.

## Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

## Stamps & Stencils

Globe Machine & Stamping Co., Cleveland, Ohio.  
Hamilton Stamp & Stencil Works, Hamilton, Ont.

## Steam Pumps

American Steam Pump Co., Battle Creek, Mich.  
Canada Foundry Co., Toronto.  
Darling Bros., Montreal.  
Goldie & McCulloch Co., Galt, Ont.  
Leonard, E. & Sons, London, Ont.  
Petrie, H. W., Toronto.  
Pittsburg Shafting Co., Detroit, Mich.  
Shaw, Willis, Chicago, Ill.  
Williams, A. L., Machinery Co., Toronto.

## Steam Separators

Babcock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.

## Steam Specialties

Darling Bros., Montreal.  
Ponberthy Injector Co., Windsor, Ont.  
Sheldon & Sheldon, Galt, Ont.

## Steam Valves

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

## Steel Plants

Morgan Construction Co., Worcester, Mass.

## Steel Rails

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

## Steel Shafting

Darling Bros., Montreal.  
Dodgo Mfg. Co., Toronto.  
Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm., Mfg. Co., Peterborough, Ont.  
Leslie, A. C. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Pittsburg Shafting Co., Detroit, Mich.  
Wilson, J. C. & Co., Glenora, Ont.

## Stocks and Dies

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

## Stoppers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

## Structural Steel.

Abbott, William, Montreal.  
Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Cooper, Estate late James, Montreal.

## Suspension Furnaces

Continental Iron Works Co., New York City.

## Tanks (Oil and Water)

Canada Foundry Co., Toronto.  
Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm., Mfg. Co., Peterborough, Ont.  
Ontario Wind Engine & Pump Co., Toronto.  
Petroloum Iron Works Co., Washington, Pa.

## Taps and Dies

Butterfield & Co., Rock Island, Que.  
Cleveland Twist Drill Co., Cleveland, Ohio.  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Hamilton Stamp & Stencil Works, Hamilton, Ont.

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(CONTINUED).

### Tees

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.

### Textile Manufacturers

Canadian Colored Cotton Mills Co., Montreal.  
Dominion Oil Cloth Co., Montreal.  
Hamilton Cotton Co., Hamilton, Ont.  
Morris, D., Sons & Co., Montreal.  
Smith Mfg. Co., Toronto.  
Storey, W. H. & Sons, Acton, Ont.

### Textile Supplies

McLaren, J. C. Belting Co., Montreal and Toronto.

### Thermometers (Recording)

Bristol Co., Waterbury, Conn.

### Tin

Leslie, A. C. & Co., Montreal.  
Syracuse Smelting Works, Montreal.

### Tool Steel

Abbott, William, Montreal.  
Bourne-Fuller Co., Cleveland, Ohio.  
Cooper, Estate into James, Montreal.  
Leslie, A. C. & Co., Montreal.

### Trucks

Cooper, Estate into James, Montreal.  
Morgan Construction Co., Worcester, Mass.  
Sheldon & Sheldon, Galt, Ont.  
Slingsby, H. C., Montreal.

### Trucks (Railway)

Canada Foundry Co., Toronto.

### Trucks (Wire Mill Supplies)

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

### Tubs (Cleaning and Coating Wire)

Morgan Construction Co., Worcester, Mass.  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

### Tumbling Barrels

Globe Machine & Stamping Co., Cleveland, Ohio.

### Turbines

Canada Foundry Co., Toronto.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Wilson, J. C. & Co., Glenora, Ont.

### Typewriters and Supplies

United Typewriter Co., Toronto

### Valves

American Steam Pump Co., Battle Creek, Mich.  
Babcock & Wilcox, Limited, Montreal.  
Canada Foundry Co., Toronto.  
Hamilton Brass Mfg. Co., Hamilton, Ont.  
Kerr Engine Co., Walkerville, Ont.  
Petrie, H. W., Toronto.  
Williams, A. R., Machinery Co., Toronto.

### Valves (Rubber)

Chicago Pneumatic Tool Co., Chicago, Ill.  
Gutta Percha & Rubber Mfg. Co., Toronto.

### Ventilators

Darling Bros., Montreal.  
Sheldon & Sheldon, Galt, Ont.  
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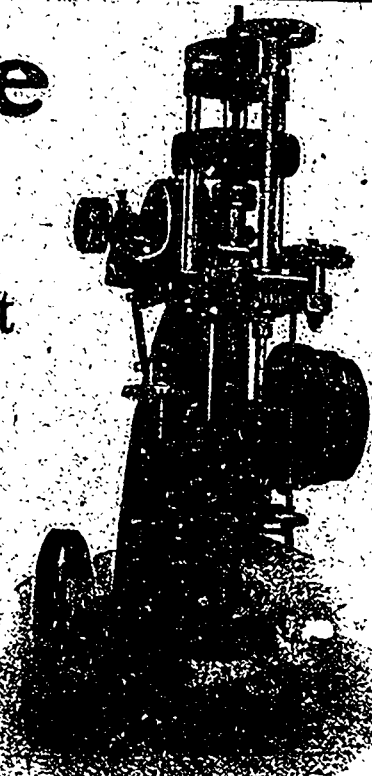
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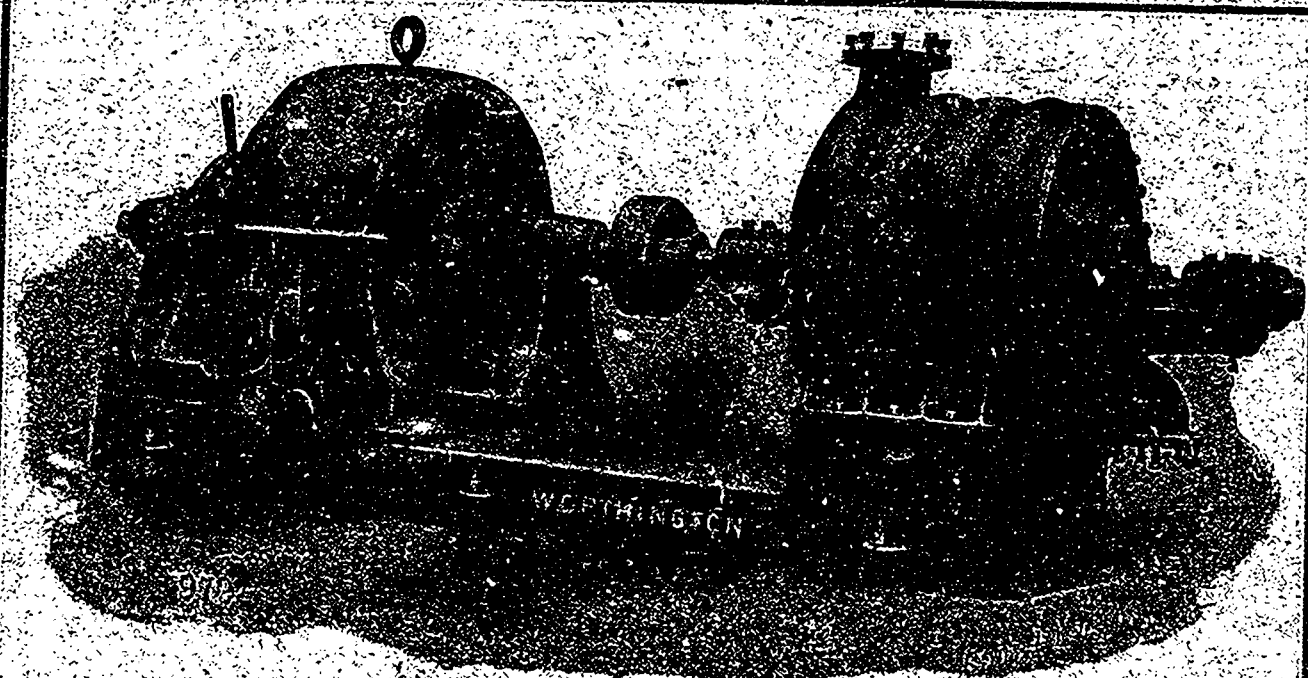
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