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MACHINEISTS
SEND FOR CATALOGUE.

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

Vol. 41.

TORONTO, SEPTEMBER 7, 1900.

No 5.

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ANTI-FRICTION
Used by all the
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THE BEST ANTI-FRICTION METAL
FOR ALL MACHINERY BEARINGS

For Sale by all Dealers
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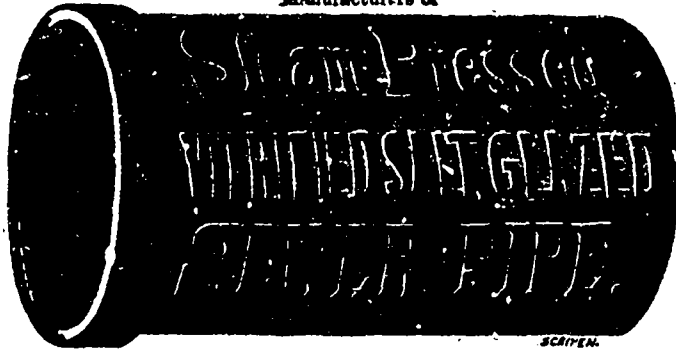
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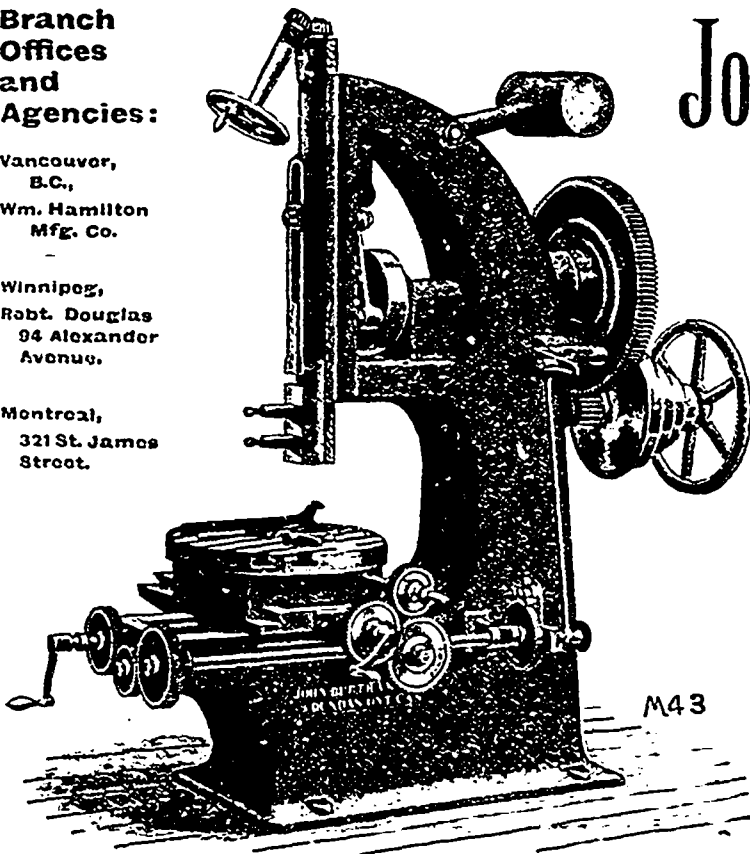
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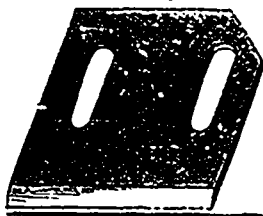


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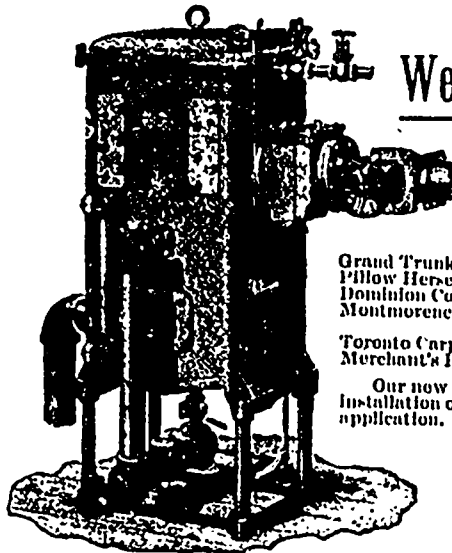
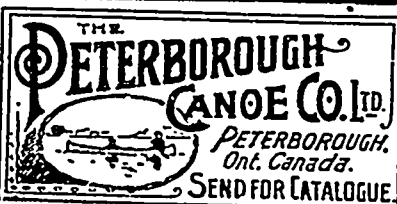
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Toronto Carpet Co., Toronto, Ont. (1)	100 "
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Our new Catalogue explains the saving to be effected by the
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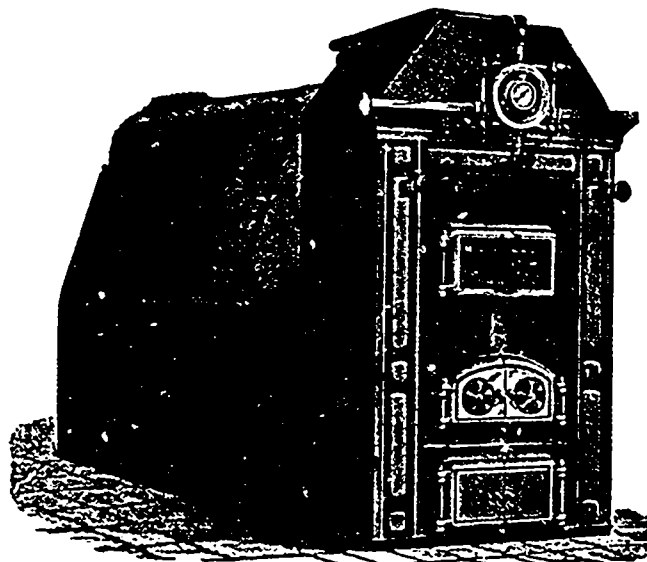
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A FUEL SAVER



This boiler is built with sheet steel case or for brick casing as desired.
It is internally fired, has perfect water circulation, is a quick steamer
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Two settling chambers are provided for catching deposits of scale, and
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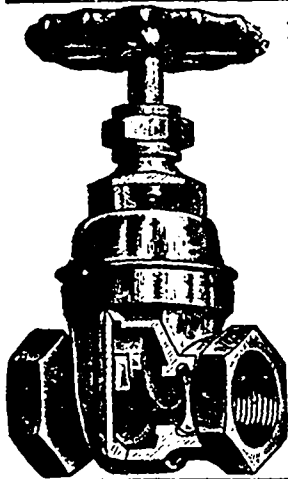
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 Prize Medal and Highest Award Philadelphia, 1876, for Superiority
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FRANK B. WHITE COMPANY.

The Fisher Building, CHICAGO. 150 Nassau St., NEW YORK.
Represent the Advertising Department of THE CANADIAN
MANUFACTURER in the United States.

OUR TARIFF EDITION.

Following are some of the expressions of opinion regarding the 1900 special tariff edition of THE CANADIAN MANUFACTURER received from friends:—

CANADIAN BOARDS OF TRADE.

The Board of Trade of the City of Toronto, E. A. Wills, Secretary:—The tariff edition of THE CANADIAN MANUFACTURER is a most valuable edition to the library of this Board, and on behalf of the Board I take great pleasure in acknowledging your courtesy. After careful examination there can be but one opinion as to the value of the publication. It is most complete, and should be greatly appreciated by the merchants and manufacturers. I am not surprised to know that it is meeting with a most flattering reception.

The Montreal Board of Trade, George Hadrill, Secretary:—I beg to acknowledge on behalf of this Board and the Corn Exchange Association receipt of two copies of special edition of THE CANADIAN MANUFACTURER containing the full texts of the tariffs of Canada, United States, Great Britain and Newfoundland; and to say that I have placed one copy in the Reading Room of this Board and the other on 'Change, where they are greatly appreciated by the members. I thank you for your courtesy in favoring us with copies of this valuable compilation.

La Chambre de Commerce du District de Montreal, Jos. Haynes, Secretary:—I have pleasure in acknowledging receipt of the special tariff edition of THE CANADIAN MANUFACTURER, which will be placed before the Board of our Chamber at its next meeting.

Vancouver, B.C., Board of Trade, W. T. Stein, Secretary:—I will have pleasure in laying your special tariff edition before the next meeting of our Board. It is preserved in the library of the Board.

St. Stephen, N.B., Board of Trade, C. N. Vroom, Secretary:—On behalf of this Board of Trade I have to thank you for the special tariff edition of THE CANADIAN MANUFACTURER. It is certainly a very valuable publication, and your enterprise in issuing it is deserving of more than a passing notice. I am calling the attention of our members to its value.

Brandon, Man., Board of Trade, K. Campbell, Secretary:—It is a most useful publication. The arrangement of it is such as to make it readily understood. It should possess special value to all exporters and importers.

Okanagan Board of Trade, Vernon, B.C., R. J. Davies, Secretary:—Please except best thanks for copy sent of tariff edition of THE CANADIAN MANUFACTURER. It will be presented to our Board at its next meeting.

The City Hall, New Westminster, B.C., H. V. Glover, City Clerk:—I beg to acknowledge receipt of THE CANADIAN MANUFACTURER of July 6, in which is embodied the tariff of Canada, United States, Great Britain, and Newfoundland. Heretofore I was in receipt of your 1897 tariff edition, but it was taken away from this office and never returned, and I have ever since been wishing for just such a book as that now received. It is very complete in every respect, and enables one to compare the respective tariff with the greatest ease, and as a book of reference for importers and exporters it cannot be excelled.

OUR AMERICAN FRIENDS.

The Garfield Oil Co., Cleveland, Ohio:—We are in receipt of the 1900 tariff edition of your journal, and have to compliment you not only on its appearance, but also on the completeness of the tariff information it contains and the style in which the advertisements are presented. We also congratulate ourselves that we are numbered among these, and we feel confident that the results therefrom will more than repay us for the amount expended.

Cling-Surface Mfg. Co., Buffalo, N.Y.:—Allow us to congratulate you upon your very complete and excellently gotten up special tariff edition of July 6. It should certainly prove to be a profitable enterprise for you. Such efforts should be appreciated.

Crompton & Knowles Loom Works, Worcester, Mass.:—We thank you for the copy of your 1900 special tariff edition. It is a very valuable publication.

Magnolia Metal Co., New York:—We are in receipt of the copy sent us of the tariff edition of THE CANADIAN MANUFACTURER, and are loud in our praise of it.

Chicago Time Register Co., Chicago, Ill.:—The special tariff edition of your journal is certainly a very complete and valuable addition to the office of any concern doing any export or import business. We appreciate it very highly for the reason that we constantly have occasion to look up the rates of duty imposed on the various articles we use, and with this hanging on the wall of our office we are saved much valuable time.

F. E. Myers & Bro., Ashland, Ohio:—We consider your special tariff edition a very fine and valuable production.

J. H. Williams & Co., manufacturers of drop forgings, etc., Brooklyn, N.Y.:—Acknowledging receipt of your special tariff edition of July 6, would say that it is certainly of much value.

Eco Magneto Clock Co., Boston, Mass.:—It is a great pleasure to us to have your special tariff edition on file in our office. It must be invaluable to those who do exporting and importing business.

The Charles A. Strelinger Co., machinery, etc., Detroit, Mich.:—We thank you for sending us the July 6 special tariff edition of THE CANADIAN MANUFACTURER. It is a most valuable publication which will be quite useful to us.

Mollin's Food Co., Boston, Mass.:—We acknowledge the receipt of the Tariff edition of THE CANADIAN MANUFACTURER, and are much interested and pleased with the arrangement of it.

CANADIAN IMPORTS OF MANUFACTURES OF IRON AND STEEL.

During the fiscal year ending June 30, 1899, the imports into Canada of dutiable articles aggregated in value as follows:—

From Great Britain.	\$27,521,508
“ United States.	44,471,824

canal route, and will save time, interest and insurance from the cost of shipping via the Straits at the present time as indicated :

Binders—In freight.....	\$18 00
Interest.....	1 00
Insurance.....	20
	<hr/>
	\$19 20
Mowers—In freight.....	\$9 00
Interest.....	30
Insurance.....	08
	<hr/>
	\$9 38
Plows—In freight.....	\$1 80
Interest.....	12
Insurance.....	04
	<hr/>
	\$1 96

The third and fourth routes are used for shipments to Australia, and the cost of freight by the third route averages \$1.40 per 100 pounds, plus 25 cents per cubic foot, and takes an average of 40 days' time. This route is seldom used in the shipments of implements.

By the fourth route the average freight cost is 16 cents per cubic foot, and the time averages 110 days.

By canal the time should not be over forty days, and the rate should not be over 12 cents per foot, thus saving 4 cents per foot freight, 70 days' interest and insurance, which means a saving as follows :

Binders—For freight.....	\$2 40
Interest.....	1 16
Insurance.....	20
	<hr/>
	\$3 76
Mowers—For freight.....	\$1 20
Interest.....	35
Insurance.....	08
	<hr/>
	\$1 73
Plows—For freight.....	\$0 24
Interest.....	14
Insurance.....	04
	<hr/>
	\$0 42

There are no statistics available to show the number of cubic tons of agricultural implements shipped annually to Pacific ports by the routes stated, but the average value of a cubic foot of implements is, binders, \$1.50; mowers, \$1.00; plows, \$2.00, and by taking the statistical value given by the United States government for the year ending June 30 and dividing by the above, we can get the approximate tonnage of each class, and with the figures above given it will be seen that many thousands of dollars annually would be saved to manufacturers and importers of implements by an Isthmian canal.

Implements intended for the west coast and Australian trade now require to be shipped about the time trade in the United States is at its height, which makes the trade from those countries less desirable than it would be if shipments could be made sixty to ninety days later, which would thus extend the working season in factories, reduce cost of production and make the trade of more value to manufacturers and their workmen, and increase the producing power of all. Therefore manufacturers and dealers in every part of the country, including Canada, would be greatly benefited by the completion of an Isthmian canal.

A LESSON IN ECONOMICS.

The young country that does not protect its manufacturers must be content to take the backwash of its neighbors.

It must look on and see many of its brilliant young men snatched up by employers living under another flag. It cannot hope, under a policy that serves to supplant native with foreign products, to create places for native artisans. The latter will go to the most promising field.

Under Liberal rule our imports from the United States have in four years increased from \$45,000,000 to \$80,000,000. These returns indicate a reliance upon our neighbors at a time when we should be manufacturing nearly everything required to clothe and feed our people. Uncle Sam, with our tariff favoring him as it does, chalks up a balance of trade in his favor, amounting to \$40,000,000 annually, he and looks for even larger favorable balances in the future if Canadians keep on guard at Ottawa men who would obliterate every vestige of protection if they dared to put into practice the views they held while in Opposition.

Canada is not living up to its opportunities. With its immense natural resources, it should be more independent of the foreign producer. The latter has been given the right of occupation in our markets because a portion of our people have been taught by theorists in and out of Parliament that Free Trade, or something built on Free Trade lines, is the proper thing for Canada. No greater mistake, from a national point of view, could be made than to suppose that a vigorous nationality can profitably be made the prey of foreigners, who do not care a button how much we are injured so long as they can exchange their goods for our money.

Our watchword should be:—No surrender to the foreign manufacturer.—Galt Reporter.

OFFICERS OF THE ASSOCIATION.

Following is a list of Officers, Chairmen of Committees, etc., for the ensuing year, elected at the annual meeting of the Canadian Manufacturers' Association, held in Toronto, August 30th:—

President—P. W. ELLIS, Toronto.

Vice-President—C. C. BALLANTINE, Montreal.

Vice-Presidents—for Ontario: C. A. BIRGE, Hamilton; for Quebec: E. TAVGAS, Montreal; for Nova Scotia: D. W. ROBB, Amherst; for New Brunswick: C. J. OSMOND, Hillsborough; for Manitoba: F. W. THOMPSON, Winnipeg; for British Columbia: F. C. WOLFENDY, Armstrong.

Treasurer—GEORGE BOOTH, Toronto.

Chairman Railway and Transportation—J. M. TAYLOR, Toronto.

Industry and Membership—J. P. MURRAY, Toronto.

Tariff—FREDERIC NICHOLS, Toronto.

Commercial Intelligence—S. M. WICKETT, Toronto.

Parliamentary—C. H. RICHES, Toronto.

Reception—THOMAS ROBB, Toronto.

Representatives to Technical School Board—R. Y. ELLIS, Toronto; F. B. HAYES, Toronto.

Representatives to Toronto Industrial Exhibition Association—W. K. McNaught, Toronto; GEORGE BOOTH, Toronto; J. O. TROON, Toronto; FREDERIC NICHOLS, Toronto; R. E. MENZIE, Toronto.

Auditors—GEORGE EVANS, Toronto; J. M. TAYLOR, Toronto.

EDITORIAL NOTES.

The Minister of Trade and Commerce has received a report from Mr. Thomas Moffatt, Dominion Trade Commissioner in South Africa, dealing with the trade of that country for the year 1899. Natal had then joined the customs union, and the beneficial effect of that course is shown in enormous increases in the output of tea and sugar from that colony. The unsettled political state of the country in the beginning of that year prevented the prosperous increase of trade that was to be expected, but the total trade about equalled that of 1898. The imports were:—Cape Colony, about \$96,000,000, Natal, over \$33,000,000; Delagoa Bay, over \$10,000,000; total, \$140,000,000. This does not include British war material. The exports (including gold) were:—Cape Colony, \$114,591,000; Natal, \$15,925,000; Deingoa Bay, \$7,000,000; total, \$137,739,000. There was only a slight reduction in the imports of Cape Colony itself, though quite a large reduction in the amount of goods entered there for transit to the Transvaal. The decrease of exports from 1898 was more than covered by the decrease in the diamond output, and the export of other products of the colony actually increased. With regard to the gold industry in South Africa, Mr. Moffatt states that the total product of that industry from its inception has been about \$400,000,000. As to the general trade in South Africa at present, it appears that by reason of the troubles merchants had on hand very small supplies, and in Cape Colony by no means enough for its own people, to whom have been added so many refugees from the Transvaal, and Mr. Moffatt points out that British and foreign manufacturers are ready to "swoop down" on the whole country as soon as possible, and that the first in the field will reap a rich harvest of large orders.

The New York Sun says, at the close of an article on Canadian trade with the West Indies:—"Primarily, however the Dominion now is, and long must be, not a manufacturing, but an agricultural country. Her manifest destiny is to supply raw products and food staples to the great American republic, and to receive therefrom such manufactures as cannot be produced more cheaply on Canadian soil." Canada is a great agricultural country, no doubt, but one of the leading features of recent years is the growth of manufacturing industries. For instance, the export of agricultural implements has increased nearly six times in ten years.—The Toronto Globe.

Protection did it. Under protection, which gave the virtual control of the home market to the Canadian manufacturers of agricultural implements, the industry grew and expanded, and now such goods are in active demand wherever grain is harvested. And so with a hundred other articles. Protection did it.

It is abundantly clear, from the large number of travellers and agents of British firms who have already left for South Africa since the news of the occupation of Johannesburg and Pretoria was announced that the outward flight has set in in earnest. These do not, of course, represent a tithe of those that are to follow, forward passages for whom are rapidly being booked with each outgoing steamer. It is, however, clear that many of our manufacturers are alive to their opportunities, as the early despatch of their travellers would seem to indicate, and in this we are bound to say they have shown considerable foresight. Although it is probable that the

Orange River Colony and the Transvaal will not for some time to come be thrown open to general trade, there is much to be done at the coast towns meanwhile. It is particularly advisable that British houses should be represented on the spot as soon as possible, for all our advices go to show that foreign firms have made their every arrangement for an active campaign in South Africa, many of their representatives, indeed, being already in the country, with others to follow. It is mistaken parsimony, as many of those who are not so wide-awake will find to their cost later on, to refrain from entering the market now, because of the fear that, as the war is not yet at an end, travellers will have to cool their heels at either Cape Town, Port Elizabeth or Durban, with resulting loss to their principals. Although the immediate business to be done will naturally not be anything like the volume that will follow the cessation of hostilities, with the expectation of the country being again thrown open to commerce at an early date it is highly desirable that those who wish to garner the harvest to come should be on the spot if they do not desire to be hopelessly forestalled by their competitors.—British and South African Export Gazette.

Cheap labor at the Coast promises to have a far reaching effect on business. A Vancouver letter says:—Perhaps the most startling development of the past month in the industrial world is the advent of the Jap into the households of British Columbia. There was a great cry raised regarding cheap John Chinaman when the hired girl had to make way for the heathen Chinese, because John worked cheaper and did the work well, never entertained callers, and never wanted to go out. Now John Chinaman has to go to make way for the little Brownies. John would not work in the kitchen under \$6 a month, and would not do the cooking under \$12. Now the little Brownies are offering to work for \$2 a month and board and are a glut on the market at that, while at the ranches and farms on Lulu island they are replacing white and Chinese farm hands—doing the work of a farm laborer for \$5 a month and board. They have almost entirely driven out the white fisherman on the Fraser, having rented all the fishermen's cabins and boarding houses in advance of the season and are applying to join the unions in the different trades, so that British Columbia is facing a worse evil than the Chinese immigration, in the Japanese tidal wave.—Bradstreet's.

Canadian capitalists, especially those who are interested in the pulp and paper problem, are taking a little more stock in themselves and in their country just now than they took a while ago. This is made evident by the advance in values of timber-bearing lands. A year ago Canadian spruce lands were not in great demand, except by American purchasers, and the man who had options on such lands had great difficulty in making use of them. To-day Canadian capital is looking for investments in just this direction, and the man who had such land to sell a year ago and could not sell it, can get about twice as much for it to-day as he asked for it then. Some part of this advance in value is due undoubtedly to the generally improved condition of business at large, but in a great measure it is due to the greater interest taken at home in the possibilities offered by the pulp and paper industry.—The Paper Mill.

THE CANADIAN MANUFACTURER

ESTABLISHED IN 1880.

Devoted to the Development of Canadian Trade,
Foreign and Domestic.

THE INTERNATIONAL BUREAU OF COMMERCE

.. OF CANADA ..

In connection with The Canadian Manufacturer, works to attain this end.

Any inquiry addressed to THE CANADIAN MANUFACTURER will result in placing the writer, if he so desires, in communication with Manufacturers, Buyers or Sellers of any sort of merchandise in Canada or any other country.

Merchants, Importers, Exporters, Boards of Trade, Chambers of Commerce and Commercial Organizations in any part of the world are invited to make full use of the facilities afforded by THE CANADIAN MANUFACTURER whenever they may desire information about any article produced in Canada, Tariff Law, Customs Regulations, Routes of Transportation, etc.

We especially request Canadian manufacturers to send us lists of the different lines of goods produced by them so that we may address to them special letters of inquiry as soon as information is received by us.

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

ARGENTINE REPUBLIC.

Bicycles.
Writing Paper and Envelopes.
Typewriting Paper.
Office Furniture and Safes.

Desks.
Typewriters.
Cash Registers.

AUSTRALIA.

Steel Team Plows (iron handles).
Contractors' }
Carpenters' } Tools.
Machinists' }
Blacksmiths' }
Paints, Varnishes and Oils (3).
Window Glass (2).
Rope and Twine (2).
Wagon and Carriage Parts.
Builders' }
Household } Hardware.
Carriage }
Axles and Springs.
Horse and Mule Shoes.
Bar Iron and Steel.
Pumpkin Materials.
Pumping }
Metal-working } Machinery.
Children's Vehicles.
Building }
Printing } Paper.
Wrapping }
Corrugated Iron.
Wooden and Willow-ware.
Kitchen Utensils.
Refrigerators.
Office Furniture and Safes.
Sole and Belting Leather.
Shafting, Hangers and Pulleys.
Belting.
Factory Supplies.
Wrought Iron Pipe.
Valves, Pipe, Fittings, etc.
Portable Forges.
Wire Rope.
Telephone Material.
Wire for Electrical Purposes.
Mowers and Reapers.
Planters and Seeders.
Plows and Cultivators.
Threshers and Farming Tools.
Dairy Supplies.
Windmills and Tanks.
Barb Wire and Fence Materials.

Lamps (2).
Stoves and Ranges.
Battan Furniture.
Brass and Iron Bedsteads.
Mattresses and Pillows.
Writing Paper and Envelopes.
Fishing Tackle.
Cut Soles and Findings.
Brushes.
Gymnasium Supplies.
Billiard and Bar Fittings.
Sportsmen's Clothing.
Games and Toys (1).
Picture Frames and Moldings.
Glassware.
Imitation Tweeds (cotton).
Cutlery (3).
Clocks and Jewelry.
Gilt and Plated Jewelry.
Playing Cards.
Musical Instruments.
Toilet Articles (2).
School Slates.
Feather Dusters.
Oilcloths and Linoleums (2).
Carpets and Rugs.
Musical Instruments (other than pianos and organs).
Musical Instrument Materials (for repairs and manufacturing).
Music for Brass Bands only.
Draperies and Upholsteries.
Dress Goods.
Prints, Gingham, etc.
Sheetings, Shirtings, etc.
Blankets and Counterpanes.
Army and Navy Uniforms.
Trunks and Travellers' Requisites.
Table Linen and Towels.
Handkerchiefs.
Hosiery and Underwear.
Millinery.
Smallwares and Notions (2).
Clothing.

AUSTRALIA—Continued.

Hats and Caps (2).
Boots and Shoes.
Haberdashery.
Umbrellas and Canes.
Rubber Clothing.
Druggists' Sundries.
Toy Books and Periodicals (2).
Fancy Goods.

Artists' Materials. (2)
Canned and Bottled Goods.
Confectionery.
Bicycle Sundries and Accessories.
Electric Bells and Fittings for Household Purposes.
Files.

Stationery.

CHINA.

| Paper.

White Glue.

CUBA.

| Hat Bands.

Drugs.
Fine Chemicals.
Druggists' Sundries.

HOLLAND.

| Heavy Chemicals and Acids.
| Photographic Chemicals.

MEXICO.

Writing Paper and Envelopes.
Pharmaceutical Preparations.
Druggists' Sundries.
Stationery Supplies.
Drugs.
Blacksmiths' }
Carpenters' } Tools.
Machinists' }
Household Hardware.
Bicycles.
Paints, Varnishes and Oils.
Window Glass.
Wagon and Carriage Parts.
Pumping.
Metal-working }
Wood-working } Machinery.
Sole and Leather.
Mowers and Reapers.
Planters and Seeders.
Plows and Cultivators.

Farming Tools.
Toys and Games.
Dairy Supplies.
Windmills and Tanks.
Barb Wire and Fence Materials.
Light Business Wagons.
Heavy Wagons and Carts.
Carriage Materials.
Sashes, Doors and Blinds.
Building Papers.
Carpets and Rugs.
Window Shades and Fixtures.
Lamps.
Stoves and Ranges.
Upholstered }
Hardwood } Furniture.
Battan }
Brass and Iron Bedsteads.
Printing Papers.

TURKEY.

Builders' }
Household } Hardware.
Carriage }
Blacksmiths' }
Carpenters' } Tools.
Machinists' }
Cutlery.
Bicycles.
Paints, Varnishes and Oils.
Window Glass.
Rope and Twine.
Wagon and Carriage Parts.
Axles and Springs.
Horse and Mule Shoes.
Bar Iron and Steel.
Pig Iron.
Plumbing Materials.
Wrought Iron Pipe.
Wire Rope.
Clothing.
Writing }
Wrapping } Paper.
Rags and Twine.
Folding Boxes.
Wooden Dishes.
Blank Books.
Canned or Bottled Goods.
Confectionery.
Fine Chemicals.
Toilet Articles.

Belting }
Harness } Leather.
Cut Soles and Findings.
Children's Vehicles.
Carpets and Rugs.
Oilcloths and Linoleums.
Window Shades and Fixtures.
Lamps.
Stoves and Ranges.
Wooden and Willow-ware.
Kitchen Utensils.
Refrigerators.
Brass and Iron Bedsteads.
Dress Goods.
Prints, Gingham, etc.
Shirtings, Sheetings, etc.
Blankets and Counterpanes.
Table Linen and Towels.
Handkerchiefs.
Hosiery and Underwear.
Millinery Goods.
Hats and Caps.
Boots and Shoes.
Umbrellas and Canes.
Rubber Clothing.
Army and Navy Uniforms.
Trunks and Travellers' Requisites.
Clocks.
Printing Office and Stationers' Sundries.

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

If You want Information, Ask for It.

Address, THE CANADIAN MANUFACTURER, Toronto, Canada.

It is undoubtedly true that the reduction of the tariff on agricultural implements by the late Conservative government has been followed by a considerable increase in imports. Under the old tariff the duty on reapers, harvesters, mowing machines, plows, drills, etc., was 35 per cent. In 1894 the value of reapers imported was \$421, harvesters \$74,853, mowing machines \$37,216, sulky and walking plows \$11,255, seed drills \$4,848. The duty was reduced in 1895 to 20 per cent. and in the fiscal year 1896 the imports of reapers were \$2,330, harvesters \$131,080, mowing machines \$72,338, plows \$51,543, seed drills \$40,496. The new government did not change the duty on implements, but left it at 20 per cent. as fixed by the Tory majority in parliament in 1895, and in the fiscal year 1899 the imports of reapers were \$25,066, harvesters \$664,610, mowing machines \$348,735, plows \$192,158, seed drills \$64,683.—Hamilton Times.

To which the Spectator replies:—Thus we see that last year, for five articles alone, there was no less than \$1,295,252 sent out of the country. That would have employed a lot of men in Canada. But surely they would have done better if they had had the making of that \$1,295,252 worth of machines last year. And how much will it be next year?

What the Spectator desires is to put a stop to all foreign trade in the importation of articles which can be and are made—as good and as cheap as the imported article—in this country. We don't need to go back to maple sugar and homespun clothing. Redpath's sugar, the best in the world, is made in Canada, and Canadian tweeds have reached such a point of excellence that they are generally sold for imported Scotch tweed. And as in sugar and tweed, so in agricultural machinery.

Sir John C. R. Colomb, writing in The Fortnightly Review of the foolishness of Great Britain's tendency to centralization, says:—

Although since the Napoleonic wars, a whole hemisphere has been added to British responsibilities, we ignore the fact in our naval policy of to-day. Producing power to meet naval requirements in the other hemisphere is localized and limited to one island in this. Every ship, however small—almost every appliance, however insignificant—every gun, rifle or revolver, every pound of powder and every shot required for naval purposes at the other side of the world, must be produced at home and pass over half the circumference of the globe to their destination. This is our policy and our practice. Can it be fairly said it is unavoidable and inevitable, in view of the fact that the Dominion of Canada and Australasia are integral portions of our Empire, with sea-boards in the Pacific? They are rapidly developing in

the pursuit of wealth manufacturing power rivalling our own. Those who assert that this policy we pursue is unavoidable and inevitable, are bound to explain why Australasia and Canada so differ from the United States and Japan as to forbid the establishment, in these great limbs of Empire, of the means of production and manufacture, necessary for purposes of war, which those foreign states possess. The truth is, our present policy of centralizing the manufacture and supply of appliances and munitions of war to meet not merely naval, but military requirements of a world state, is wholly indefensible and fraught with peril. The broad fact that the whole Empire now looks to this wonderful Island of ours to supply almost everything necessary to carry on war, is in itself sufficiently remarkable. How much more ominous becomes its contemplation when we remember that the number of establishments in this Island, on which the whole Empire so relies, may almost be counted on the fingers. It may here be parenthetically observed the Admiralty already are driven to officially declare the United Kingdom has reached the limit of producing power in the matter of armor-plates and ships' engines.

OPPORTUNITIES FOR CANADIAN TRADE.

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

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

312. A Scotch firm ask to be furnished with the name of a good and reliable freight broker in Montreal.

313. The manufacturers of steam derrick cranes, cableways and other hoisting and conveying devices, desire to be placed in touch with Canadian mine and quarry owners, and others likely to be interested in their goods.

314. The names of several reliable Canadian firms engaged in the packing of evaporated fruits, etc., are asked for.

315. A Glasgow firm enquire through the government agent in that city, for shippers of gypsum in large quantities—a large demand existing for a certain quality of this mineral.

316. Enquiry has been received from Cape Breton, Nova Scotia, respecting the demand that exists in Great Britain for eel grass for packing, mattress stuffing, etc.

317. An agent in the city of Quebec desires to represent a British firm manufacturing wire rope and other wire goods.

318. The owners of an extensive tract of land in New Brunswick, covered with poplar, are desirous of hearing from parties importing "Excelsior," which they are prepared to manufacture.

Transfer Ornaments, AMERICAN MADE.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

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Canadian Travelling Representative,
CHAS. H. JAGGAR, Buffalo, N.Y.

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When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CAPTAINS OF INDUSTRY.

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

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

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, bolting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalis, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The Viv Co., Toronto, has been incorporated with a capital stock of \$25,000, to manufacture foods, foodstuffs, etc. The provisional directors include T. C. Martindale, Philadelphia, Pa., and F. David and D. Scott, both of Toronto.

The Morton Co., Toronto, has been incorporated with a capital stock of \$40,000, to acquire the business of the Automatic Check Book Co. The provisional directors include Louis Huffman and J. A. Densem, both of Toronto, and T. W. Old, of Montreal.

The Canada Baling Co., Montreal, has applied for incorporation with a capital stock of \$1,000,000, to manufacture machinery for compressing hay, straw, hemp, cotton, etc. The applicants include F. R. Hart, Boston, Mass., James Scott, and J. D. Wood, Montreal.

The Hughes Owens Co., Montreal, has been incorporated with a capital stock of \$35,000, to acquire the business now carried on by Hughes, Owens & Co. The provisional directors include F. R. Lannigan, W. H. Butters and J. H. Hough, all of Montreal.

The American Silk Waist Mfg. Co., Montreal, has applied for incorporation with a capital stock of \$10,000. The applicants include H. Cohen, J. A. Cars and Isaac Rose, all of Montreal.

The carriage works of Thos. Young, Listowel, Ont., were destroyed by fire recently.

The Electric Fire-Proofing Co., Montreal, has been incorporated with a capital stock of \$300,000. The charter members include T. B. Stillman, New York City, R. W.

Smith and G. H. Meldrum, both of Montreal.

The Crown Corundum & Mica Co., Toronto, has been incorporated with a capital stock of \$1,000,000. The provisional directors include E. H. Hilborn, W. H. Irving and S. M. Hay, all of Toronto.

The Cowan Co., Toronto, has increased its capital stock from \$50,000 to \$100,000.

The Lyman Knox Co., Montreal, has been incorporated with a capital stock of \$150,000, to manufacture drugs, chemicals, etc. The charter members include Chas. Lyman, J. W. Knox, both of Montreal, and G. H. Clarkson, Toronto.

The mills of the National Paper Co., Indian Lorette, Que., were destroyed by fire recently. Loss about \$15,000.

The name of the Hamilton Oak Extract Tanning Co., Hamilton, Ont., has been changed to the Hamilton Oak Tanning Co.

The sash and door factory of Messrs. J. Briggs & Sons, Brockville, Ont., was recently destroyed by fire. Loss about \$20,000.

The Lakefield Portland Cement Co., Owen Sound, Ont., has been incorporated with a capital stock of \$500,000. The provisional directors include J. M. Kilbourn, R. P. Butchart and W. H. E. Bravender.

The Adams Waggon Co., Brantford, Ont., has been incorporated with a capital stock of \$250,000, to manufacture vehicles, automobiles, refrigerators, etc., and to acquire business now carried on by Adams & Sons. The provisional directors include James Adams, Paris, Ont., and J. A. Sanderson, and M. E. Harris, both of Brantford, Ont.

The Toronto Bolt & Forging Co., Swansea, Ont., has been incorporated with a capital stock of \$500,000, to manufacture products of ores and minerals. The provisional directors include George Gillies, Gananoque, Ont., T. H. Watson, Toronto, and James Gillies, Carleton Place, Ont.

The Walkerton Binder Twine Co., Walkerton, Ont., has been incorporated with a capital stock of \$125,000, to manufacture cordage, rope, twine, etc. The provisional directors include John McLean, Walkerton, Ont., and Adam Seggniller of the township of Carrick, Ont.

Doolittle's sawmill near Aylmer, Ont., was recently destroyed by fire.

The machine shop of John A. Bunn, Cayuga, Ont., was recently destroyed by fire. Loss about \$5,000.

The flour and feed mill of H. Brown & Sons, Brockville, Ont., was recently damaged by fire. Loss about \$1,000.

R. B. Miller's sawmill near Rossland, E.C., was recently destroyed by fire. Loss about \$22,000.

A by-law has been passed at St. Catharines, Ont., granting the Ham Nott Co. of Brantford, Ont., \$5,000 cash and a loan of \$10,000 for fifteen years, to locate a bicycle factory at that place.

The Dunnville Planing Mills Co., Dunnville, Ont., has been incorporated with a capital stock of \$20,000. The provisional directors include Wm. Shirton, Chas. Shirton and Chas. Swayze.

The Wolsey, N. W. T., mill and elevator was recently destroyed by fire. Loss about \$20,000.

George Bradshaw's sash and door factory in Montreal was destroyed by fire August 18. Loss about \$5,000.

The Goderich correspondent of the Sault Ste Marie, Ont., Pioneer says:—We learn that F. H. Clergue is negotiating for the purchase of the Ogilvie mill and elevator at Goderich, which has a great capacity of making salt. If the report is true Goderich is on the highway to prosperity beyond any of its former days. Mr. Clergue wants salt and lime in his manufactories, and Goderich can supply all he requires in that line.

The Michipicoton Falls Power Co., with head office at Toronto, has been incorporated with a capital stock of \$40,000, to manufacture lumber, pulp wood, etc. The provisional directors include Wm. Thoburn, Almonte, Ont., E. W. B. Snider, St. Jacobs, Ont., D. B. Detweiler, Berlin, Ont., and G. F. Francis, Pakenham, Ont.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET Air Compressors

STRAIGHT LINE
 DUPLEX and
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

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

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Comfort Swing Chair Mfg. Co., Ottawa, has been incorporated with a capital stock of \$20,000. The provisional directors include D. Storey, W. J. Kidd, and J. R. L. O'Connor, all of Ottawa.

The Toronto Woolen Machinery Co., are furnishing M. Staunton & Co., of Toronto, one of their engine power baling presses for handling waste paper, also one goes to R. Walker, Montreal. Large size, for handling rags and mill stock.

Mr. A. E. Rose, general manager of the J. C. Ayer Co., of Lowell, Mass., was in Toronto last week concluding arrangements with reference to a new Canadian laboratory, which is to be located in Toronto. Their Canadian headquarters are now in Montreal, where they have manufactured for several years. With the development of the business comes the need of better facilities, and the intention is to reorganize on a much more extensive scale, adopting newer and improved methods in the preparation of the Ayer remedies. The contracts signed by Mr. Rose call for the finest establishment of the kind in Canada, to be located in the new Nordheimer building, now in course of erection on York street.

Nearly two hundred coal dealers doing business in Ontario convened in Brantford a few days ago and formed themselves into The Ontario Coal Association for the purpose of advancing the interests of their guild. The following officers were elected:—President, T. Elliott, Brantford; First Vice-President, Noel Marshall, Toronto; Second Vice-President, Captain Fairgrieve, Hamilton; Treasurer, C. B. Bowman, London; Secretary, G. Hatley, Brantford; Executive Committee:—C. C. Ray, Ottawa; R. E. Gibson, Toronto; A. J. McIntosh, Woodstock; J. N. Peregrine, Hamilton; J. M. Daly, London. The meeting adjourned until the second Wednesday in May, when the Association will convene at Toronto.

The Oil, Paint & Drug Reporter of August 27 says:—"The American Cotton Oil Co., has received notification from its representative in Paris that the management of the Paris Exposition have awarded to it the Grande Prix d'Honneur for its exhibit, which comprises a whole series of cotton seed products, beginning with the seed and running through several grades of refined oils, both white and yellow cotton seed oil, stearines, soap, soap powders, and including laundry soaps, toilet and bath soaps and

other soaps made by The N. K. Fairbank Co." An important branch of this company has been in existence in Montreal for a number of years where all the products of the company required for the Canadian market are manufactured.

An interesting study in methods of publicity and promotion is presented by the progress of the B. F. Sturtevant Co., of Boston, Mass., during the past few years. This company devoting itself principally to the manufacture of blowers, had gradually evolved many special types designed for specific uses. It has not been deemed sufficient to merely advertise these types, but exhaustive study has been made of the conditions and best methods of application, special treatises have been prepared upon these subjects, purely educational articles regarding them have appeared in the technical press, and special illustrated lectures have been delivered before technical schools and societies. Some of these lectures, devoid of all reference to the B. F. Sturtevant Co., have been published for free distribution with gratifying results. Among recent publications are lectures by Walter B. Snow, of the engineering staff, entitled "The Influence of Mechanical Draft Upon the Ultimate Efficiency of Steam Boilers," "Mechanical Ventilation and Heating by a Forced Circulation of Warm Air," and "The Application of Mechanical Draft to Stationary Boilers." Any one of these publications will be sent upon request.

The Metallic Roofing Co., Toronto, a few days ago issued in circular to the members of the Canadian Manufacturers' Association and others directing their attention to some facts in connection with the construction of the Temple Building in which the meetings of the Association and its banquet were held last week. The circular says:—"That building is ten stories high. There are nearly 500 doors in it. It's a fact, and they are made of steel, duplex copper-plated, lined with wood and asbestos. They can't burn or warp out of shape with the hottest fire. There are over 1,000 windows cased with the same indestructible material. Forty thousand dollars was paid for the doors, window trim and dado. It was the first job of the kind done in Canada. We did it. We are Canadian Manufacturers. Didn't we do it well?"

Fire in the Montreal Pipe Foundry Works, Lachine, Que., caused \$2,000 damage.

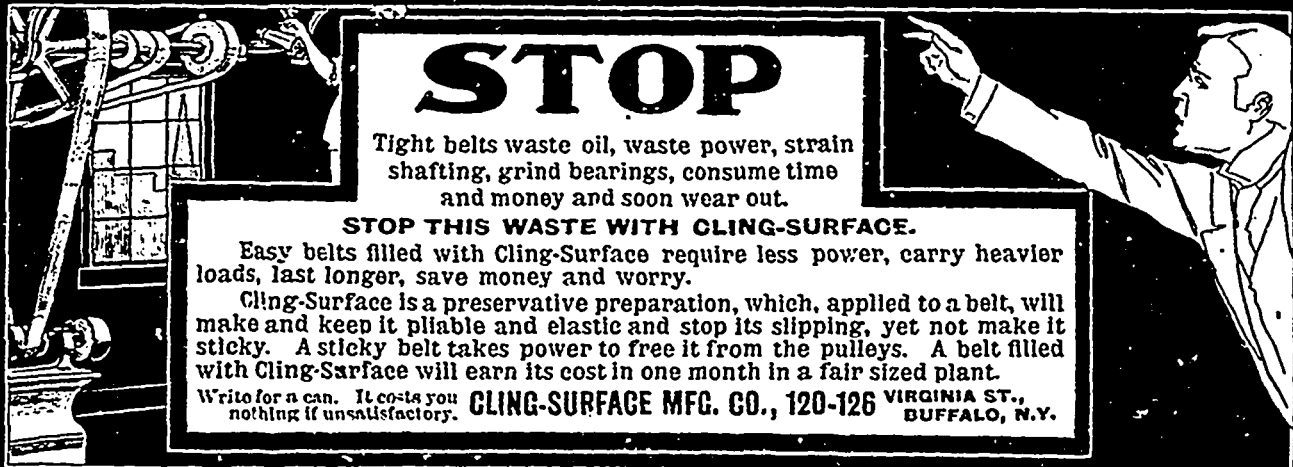
R. A. L. Gray & Co., Toronto, recently secured the order from the McLean Publishing Co., Toronto, for a slow speed multi-polar motor for direct belt connection to one of their presses.

The New York Central people contemplate putting on steamers from Lewiston, Charlotte, and Oswego to Alexandria Bay. The steamer Arundel is on the route, and is taking trade from the central branches. The steamer Toronto is also securing many passengers from Rochester, Syracuse, and Buffalo, that would otherwise go to the Central. The boats to be put on will be chartered for the first season. They will be the largest, swiftest, and staunchest to be had for Lake Ontario navigation. During the spring and fall they can be put into other trade.

The town of Boulder, in the new gold-fields of West Australia, was recently equipped by the B. F. Sturtevant Co., of Boston, Mass., with generating sets for lighting and power purposes and electric motors for operating hoists, etc., in the mines.

Highly interesting demonstrations of the properties of bioxide of sodium have recently been given before the French Academy of Science at Paris. Bioxide of sodium is found to possess the property of renewing oxygen in air that had been breathed and in absorbing carbonic acid gas given off. Thus, with an apparatus containing sodium, shown by Desgray and Balthouard at the Academy, a diver can remain under water and walk about without having the air renewed by the pumping apparatus at present employed. Moreover, by means of the new apparatus miners will be able to penetrate into poisonous gases and foul air, and firemen into smoke, without fear of asphyxiation. It will also render practicable submarine boats. The experiments are creating the greatest interest in scientific circles.

As will be observed in another column, a prominent American typewriter manufacturing company desire to establish connection with a reliable Canadian concern, with a view to manufacturing in Canada and placing upon the Canadian market a most excellent visible typewriting machine. This machine is meeting with very large sale in the United States, where it is meeting with much favor because of its intrinsic excellence and low cost.



STOP

Tight belts waste oil, waste power, strain shafting, grind bearings, consume time and money and soon wear out.

STOP THIS WASTE WITH CLING-SURFACE.

Easy belts filled with Cling-Surface require less power, carry heavier loads, last longer, save money and worry.

Cling-Surface is a preservative preparation, which, applied to a belt, will make and keep it pliable and elastic and stop its slipping, yet not make it sticky. A sticky belt takes power to free it from the pulleys. A belt filled with Cling-Surface will earn its cost in one month in a fair sized plant.

Write for a can. It costs you nothing if unsatisfactory. **CLING-SURFACE MFG. CO., 120-126 VIRGINIA ST., BUFFALO, N.Y.**

RESURGAM.

Great progress is being made in rebuilding and re-equipping the great factories of the E. B. Eddy Co., at Hull, Que. The pulp, fibre, paper, paper bag, indurated ware, wooden-ware and saw mills are rising up almost as if by magic.

The large machine shop, smithy and carriage shops are already in full day and night running order.

The match factory is completed, the machines arriving, so that the oldest branch of the Eddy Co.'s industries is ready to start, and will be in full swing in a short time.

The walls are repaired, and new roofs are on the Jumbo warehouse. The other two warehouses are both well stocked with paper, paper bags, induratedware, and fibre-ware.

One pulp mill is ready for the grinders, and screens are being put in place. The sulphite fibre mill, which at the time of the big fire was being got ready to produce double its former capacity, and which was the only mill not consumed, is completed, and turning out some forty tons of fibre per day.

In "B" paper mill the foundation piers and plates are in place, and the building ready to receive the two Wood machines, which are expected to be set up in about a month.

The "C" paper mill, where the Foudriere machines and the new bag machines are to be placed, is well forward. The piers and plates are ready for these machines, shortly after which the paper bag machine is expected to be ready to turn out bags.

"A" mill, where the big No. 1 mill formerly stood, is hereafter to hold four machines. Foundation walls are going up.

The smaller saw mill is completed and the

machines being installed. The large saw mill is ready for the roof.

The woodwork shop is finished and nearly filled with machinery.

A new equipment entirely has arrived for the pail and tub factories. All these will be in place in a few weeks. It looks as if the result of the consuming conflagration in April will be that the Eddy Co.'s mills will produce over 40 per cent. more pulp, paper and other goods than formerly.

THE CUSHING SULPHITE MILL.

It is expected that the sulphite fibre mill of the Cushing Sulphite Fibre Co., at St. John, N.B., will be in operation in October. The construction of the mill was begun in June of last year, and a wharf 400 feet long has been built which encloses a pond used for the storage of pulp wood. The output of the mill is intended to be about fifty tons of fibre per day.

The boiler house, engine room, conveyor room, wood room and drying department are on a level with the wharf. Above them are the cleaning room, wash room, blow-off room and machine shop. Higher still is the digester room. At the eastern end is the sulphur room. In the boiler house, which is 101x13 feet, there are twelve boilers, each eighteen feet long and sixty-six inches in diameter. A double conveyor is to carry the wood from the sawmill to the pulp mill. What is fit to make pulp of will go to the wood room, the rest to one of the boilers using wood. The engine room is 43x35 feet, and two stories high. The engine is of 500 horse-power. Another engine has been put in for lighting purposes only.

The chip loft is eighty feet from the ground, and will hold about 250 cords of

wood. Under this are three digestors. These are thirty-five feet eleven inches long and seventeen feet six inches in diameter. In the same department is room for three more digestors. All the machinery in the mill, except that in the wood room and that in the drying room, is run by electricity, the motors deriving their power from the engine room.

THE CANADIAN WOOD PULP INDUSTRY.

The London correspondent of The Paper Mill, speaking of Canada's opportunity as viewed from the standpoint of an English newspaper, says:—

A London evening paper (the St. James Gazette) has been having something to say on the views recently expressed by Colonel Haskell, of Boston, when he was in London lately. (Objection is taken to Colonel Haskell's opinions on the prospects of Canada as a pulp and paper producing country. The Colonel admits that spruce wood can be procured cheaply in some parts of Canada, but contends that there are no material advantages, when cost of labor, development of water power, transportation expenses, etc., are considered, that are not offset by decided advantages possessed by American mills. The St. James Gazette states that the Americans are jealous of Canada, and then gives its views on the actual prospects of the Dominion with regard to the paper industry. These are as follows:—

After due investigation, English capital is actually engaged in the construction of mills at points especially adapted for export trade in New Brunswick, Nova Scotia, Quebec and Ontario, and if practical English paper makers like Messrs. Lloyd and Capt. Partington are content with the out-

W. A. FLEMING & CO.

MILL SUPPLIES

CAMEL BRAND BELTING

HOSE of all kinds

DRIVING ROPE

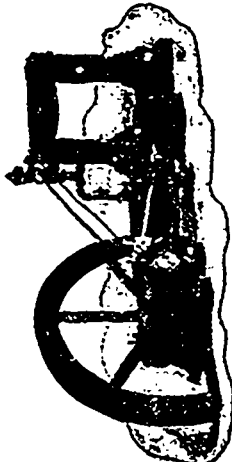
BELTING of all kinds



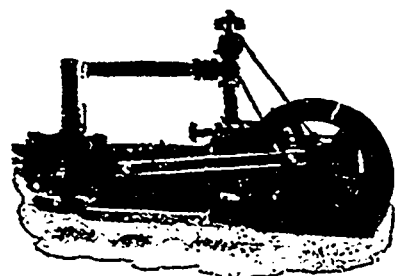
771. CRAIG STREET, MONTREAL.



**R
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**R
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D**



**MINING
MACHINERY**

**The Canadian
Rand Drill Co.**

**MONTREAL.
SHERBROOKE,
HALIFAX, N.S.
TORONTO, ONT.
RAT PORTAGE, ONT.
ROSSLAND, B.C.
GREENWOOD, B.C.
NELSON, B.C.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CRUSHERS--ROLLS

Roll Jaw Fine Crushers Reduce Large Rocks at once to Gravel and Sand. Centrifugal Rolls. Cost half and do three times as much as Common Rolls of equal dimensions, and do finer work.

SEND FOR CIRCULAR.

STURTEVANT MILL CO., 104 Clayton St., BOSTON, MASS.

look, the obviously interested remarks of Col. Haskell may be conveniently disregarded. It is notorious also that Americans, who generally know a good thing when they see it, are already heavily interested in the Canadian wood pulp industry and American capital is still seeking investment therein. One illustration will suffice, i. e., that of the Clergue group of capitalists from Philadelphia, which, at Sault Ste. Marie, Ontario, has already invested over £500,000 in wood-pulp mills, which are rapidly approaching a daily output of 400 tons of dry wood pulp. The addition of a mill of a similar capacity for sulphite pulp, according to Mr. Clergue's recent admission, is also under way. The

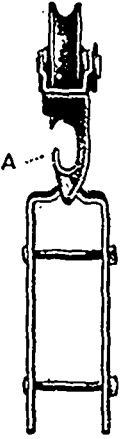
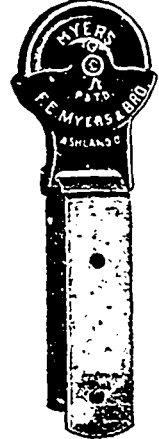
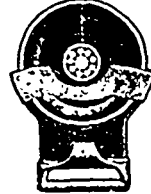
product of their establishment is regularly dispatched to all parts of Europe, and the output is alleged to be sold for months ahead. The so-called inherent disadvantages attaching to Canada enumerated by Col. Haskell do not seem therefore to have any terrors for American capital, and English capitalists whose mills are going up at points more proximate to, and in some cases on the seaboard, with open harbors adjacent at all times of the year, have no cause for anxiety.

The paper quoted concludes by stating: Col. Haskell's soreness in regard to Canada may be understood when we hear in mind the rapidly diminishing spruce forests of the New England States, and the practical prohibition of exports of pulp wood from Canada under the steps recently taken by the Provinces of Ontario and Quebec to secure the conversion locally of wood into pulp by an export duty on pulp wood. The next year or two will see the completion of at least six or seven gigantic concerns in Canada for the production of wood pulp and of the commoner classes of paper, which will enable that country to hold her own against any competition which the United States mills or those in Sweden and Norway may be able to offer.

THE MYERS "STAYON" FLEXIBLE DOOR HANGER.

Messrs. F. E. Myers & Bro., Ashland, Ohio, are just placing upon the market a flexible door hanger that possesses much

ROLLER BEARING



merit, and is adaptable to a wide variety of uses. As will be seen in the illustrations,

Shipping Tags.

Invoice Tags.

DUPLICATING BOOKS

HEAD OFFICE:

AUTOMATIC CHECK BOOK COMPANY

46 & 48 Richmond St. W., Toronto.

We are the largest manufacturers of Shipping Tags in Canada. We make all the standard sizes and a great variety of special sizes.

Branch Office: 200 St. James St., MONTREAL.

BLACK IS BLACK

Extra C is our best grade. We cannot make anything better than the best. You cannot buy anything better, try where you will. When you buy, see that our Trade Mark and grade are stamped on it and quality will be there.

D. K. McLAREN

Mfr. "GENUINE OAK" BELTING

88 Bay St., TORONTO

Factory, MONTREAL

DOVERCOURT TWINE MILLS

Manufacturers of

Cotton, Jute, Hemp and Flax,
Twines and Cordage,
Mill Banding and Driving Ropes,
Chalk and Fishing Lines,
Seine Twine, Hammocks, Tennis,
Cricket and Fly Nets,
Cotton Rope and Clothes Lines,
Plough Lines, etc.

HUTCHISON, SHURLY & DERRETT,
1078 Bloor St. West, TORONTO.

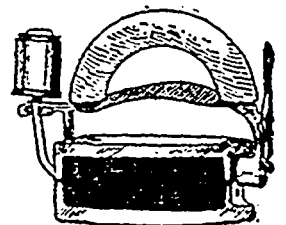
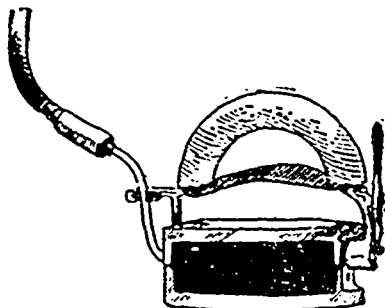
ONE AGENT ONLY IN EACH TOWN WANTED

WRITE US FOR PARTICULARS ABOUT

"PERFECTION"

Self-Heating Sad Iron

Something New. Sells Well.



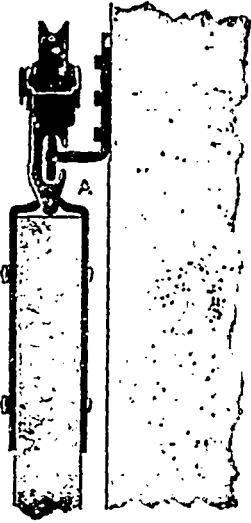
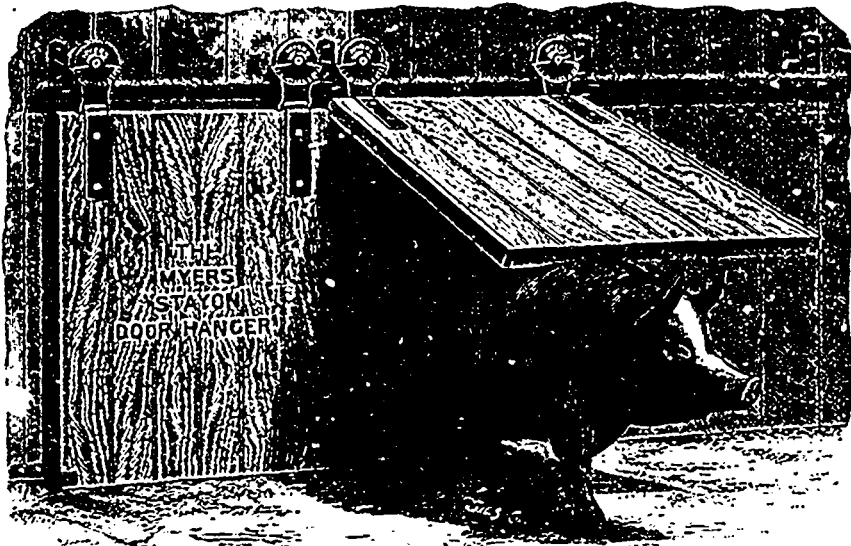
The EDWARDS SAD IRON CO., Confederation Life Building, Toronto, Canada.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

it is impossible to throw it off the track, which entitles it to the name "Stayon."
 The hanger is so constructed that when once in position, it cannot be thrown off the track no matter how roughly it is handled. The lug (A) locks over the underside of the steel rail, preventing it from being thrown off.

The wheels revolve on steel roller bearings and are attached to the door by a steel strap clamped over the top of door extending down on each side and bolted through. The material is malleable iron and steel.
 The hanger has a loop joint between the wheel and the top of the door, which allows each door to be raised or shoved outward

independent of the other, a feature not found on other door hangers. The door can be held rigid by means of the stay roller when desired.



The track, which is made in suitable lengths, is of heavy special high carbon, stiff steel supported by a rigid bracket with square shoulder mortised through the track

THE CUMMER DRYERS.

FOR Mechanically Drying Everything

THE F. D. CUMMER & SON CO.,

HUNDREDS IN OPERATION.

CLEVELAND, OHIO.

John R. Barbor, President.

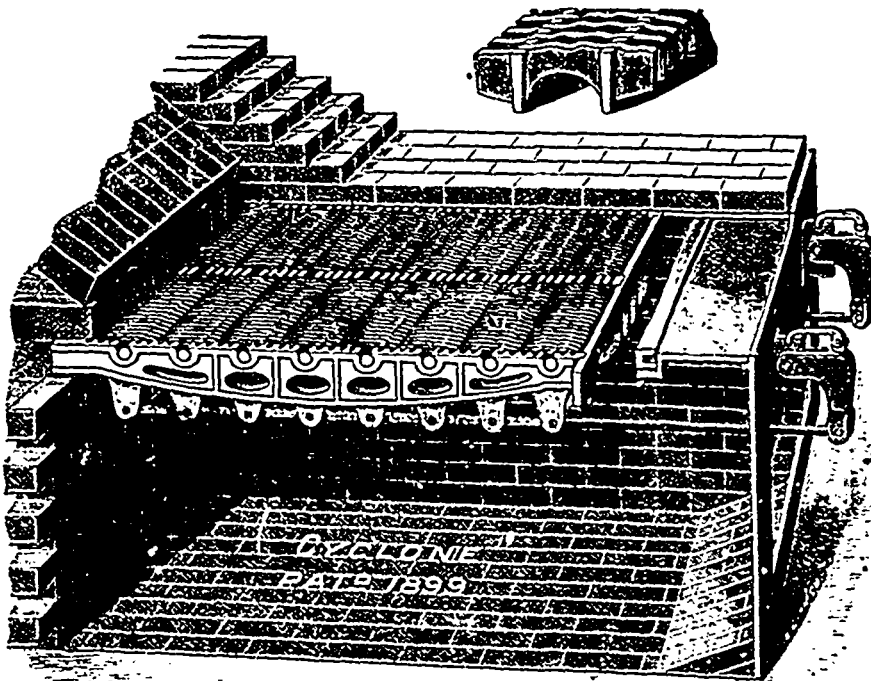
Geo. E. Chaffos, Sec.-Treas.

Henry Truesdell, Bus. Man.

THE CYCLONE GRATE BAR

Economy of Fuel and Increased Boiler Efficiency Guaranteed.

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



Simplicity, Durability, Economy.

Burns the Cheapest Fuel with the Best Results.

A BOY CAN OPERATE IT.

Send for Descriptive Circulars and Testimonials.

COPY OF TESTIMONIALS.

Toronto, Jan. 19, 1900.

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

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

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

Wishing your Company every success,

We are, yours truly,
 "SEAMAN, KENT & Co."

W. G. BLACKGROVE,

Gen'l Agent for Ontario,
 Office, 10 KING ST. WEST,
 TORONTO, CAN.

Manufactured by...

Cyclone Grate Bar Co. Limited,

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

every 17 in., thus making a very substantial fastening and adds materially to the stiffness of the track. An important feature of this track is that it can be reversed, that is, can be placed with either side up, which is a great convenience in many places as it often occurs that the building is not suited to place track as regularly intended.

For further information, circulars, prices, etc., apply as above.

MANUFACTURE OF GAS FROM WOOD.

Written for THE CANADIAN MANUFACTURER by James M. Neil, Montreal.

To manufacture from wood or other such cheap and plentiful combustible matter, a rich stable gas, at a low cost price, has been the aim of many of the world's most eminent and clever chemists and engineers for the last twenty years, and to be able thus to utilize, with the minimum loss possible, that energy which is stored up in Nature's products.

Everyone knows that the enormous loss that takes place, from the thermal energy

into its mechanical energy, in the conversion of coal or other substance into heat, and then its utilization in the production of steam, the waste of heat that goes up the chimney the loss of heat in the boiler, the condensation in the pipes and then the loss of energy itself in the steam engine.

To get over this heavy loss, the gas engine was invented, and this machine has so far proved itself to be the factor that most nearly attains that desired object of obtaining the highest possible result from one pound of combustible matter as Hours Power, but the difficulty then lay in the producing of a gas which would be practical, economical and easy to produce from a cheap and plentiful combustible matter, and which in its chemical composition and power would be equal, or nearly so, to that of coal gas, which has proved itself to be the "par excellence," but the exorbitant price and difficulty of manufacture of which has shut it out from an universal application.

In order to determine the value of any kind of combustible matter, it is necessary to consider the following two properties: 1, Its calorific power. 2, Its pyrometric ef-

fect; and without going into details of many results and observances made, it has been proved, that no matter what may be its price, that wood could in no way compete with coal as a steam generator, but I hope to show that to-day wood can produce its horse power, not only as cheap as coal, but in a manner so simple, practical and economical, that its application will not be long before it is of universal use, and it places before manufacturers the means of producing their horse power, heat, and light from wood at a cost equal to that of their more favored brethren who have a coal field at their very door.

It is needless for me to go over the ground of the many gases invented to supply the gas for the gas engine, and have the passing of air and steam over red hot carbon as their principal, and which go in the industries under the name of poor gases, such are the Dawson, Siemens, water gas, etc., etc., and which although a great advance, were very far from being the realization of the dream of the engineer.

The manufacture of gas from wood has been unsuccessfully tried since 1780, . . .



BUTTING YOUR HEAD AGAINST A ROCK.

Is a poor way to make gravel, but it's on a par with the principle of wasting the energy of good steam by allowing it to pound against water in the engine cylinder.

Wet steam is more than a nuisance—it's dangerous.

AUSTIN SEPARATORS

Deliver dry steam, increase the efficiency of your engine and save money. We have demonstrated this in a thousand prominent power plants all over America.

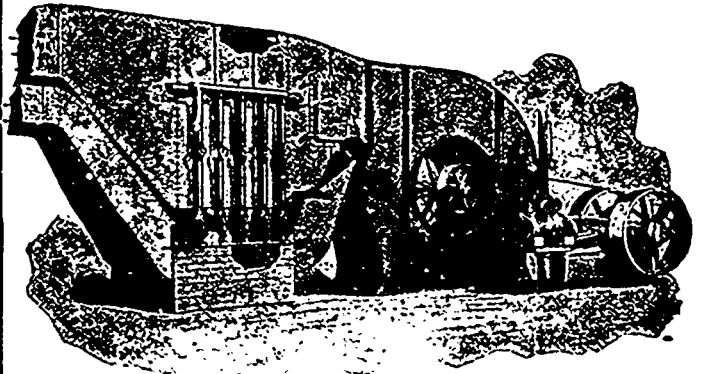
Send for our Catalogue, containing testimonials.

Austin Separator Co.,

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

THE BUFFALO FAN SYSTEM
OF
HEATING and VENTILATION

For PUBLIC and INDUSTRIAL BUILDINGS



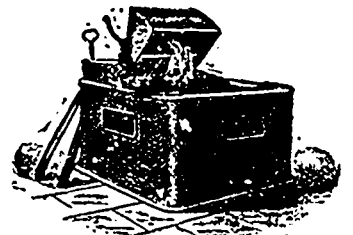
Type of Apparatus for Double Duet Installation.

Buffalo Forge Co.,
BUFFALO, N.Y.

Canadian Representative,

E. A. WALLBERG,

410 Temple Bldg.,
TORONTO



Buffalo Down-Draft Forge.

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

Wire Screens for Every Class of Material.

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

Special Attention given to Minors' Requirements.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

when the product has been a bad-smelling, impure, weak gas, not of any great practical use and very costly to make, and it was not until in 1894 that H. Riche, Ecole Centrale, invented his system of retort, and which is now technically known as the re-inversed system of distillation, and which marked a new era in the manufacture of gas, and it is needless for me to rename the many unsuccessful attempts of the inventor before the production of that simple and perfect apparatus which to-day produces the gas that bears

his name and renders to all one of the most powerful and economical power producers from wood, and which is the combustible matter most abundant in Canada. In the distillation of wood, no matter what kind of apparatus was employed up to the present time, there has been obtained the following three kinds of products: 1st, The permanent gases, composed of carbon monoxide, carbon di-oxide and hydro carbons, etc., with a small quantity of nitrogen. 2nd, The condensable vapors, which when

condensed, gave three distinct layers of liquid by-products: the top layer being composed of the light, tarry oils, with the benzole, toluene, naphthaline, paraffin, a small quantity of phenol, and creosotic resins, with varying quantities of acetic acid. The intermediate layer, composed of a water in which is found several fatty liquids, and the acids, acetic, butyric, formic, etc., etc., also acetone, acetate of methyl, wood spirit, and tarry compounds in solution. The bottom layer, composed of heavy oils and tars,

THE BEST PIPE THREADING and CUTTING-OFF MACHINES

Are Made by the **ARMSTRONG MFG. CO., BRIDGEPORT, CONN.**
 Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools.
 Send for Catalogue 27. Factory: BRIDGEPORT, CONN. New York Office: 139 CENTRE STREET.

THE BEST IS NONE TOO GOOD

**SYRACUSE
BABBITT**

**BEATS
THEM
ALL**

The largest machinery builders in Canada and United States use our Babbitt Metal. Is this not sufficient proof of its superiority over other anti-friction metals? If the largest users are satisfied with our Babbitt Metals, why should it not suit you? We can furnish you with numbers of testimonials.

Importers and Dealers in

**PIG TIN
ANTIMONY
INGOT COPPER
ALUMINUM**

**NICKEL
BISMUTH
IRON AND STEEL
SCRAP**



Manufacturers of

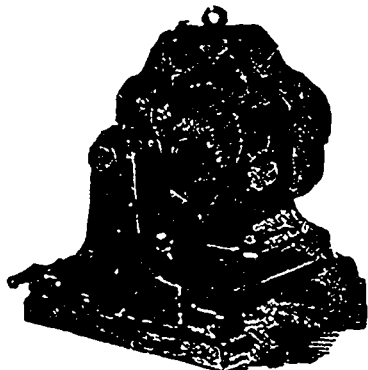
**BABBITT METALS
SOLDER
TYPE METALS**

**COLUMBIA
PHOSPHOR TIN
AND ALL OTHER
WHITE METALS**

SYRACUSE SMELTING WORKS,

WILLIAM and ST. THOMAS STREETS, MONTREAL

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



MULTIPOLAR MOTORS & DYNAMOS
 And Direct Connected Plants
 for Isolated Lighting.
 Repair Work a Specialty.

HEAD OFFICE AND FACTORY:
 90 YORK STREET, London, Canada.
 760 Main St., Winnipeg.
 42 York St., Toronto. 131 Granville St., Halifax.

**RICE LEWIS
& SON, LIMITED**

HARDWARE and METAL

Bar Iron, Steel,
 Boiler Plate Tubes.

**MACHINIST TOOLS,
PIPE FITTINGS.**

A COMPLETE STOCK OF
STOCKS and DIES. PIPE VICES.

STILLSON & TRIMO
WRENCHES.

STEAM PIPE.

Cor. King and Victoria, **TORONTO**

Toronto and Hamilton

ELECTRIC CO.

SECOND-HAND DYNAMOS

IN GOOD CONDITION,
 WILL SELL CHEAP.

We have in stock the following Incandescent Dynamos, 110 volts:

- 200 Light Multipolar.
- 120 " Bipolar.
- 60 " Multipolar.
- 80 " Bipolar.
- 15 " Bipolar.

Write us for Prices.

**99-103 McNAB ST. NORTH,
HAMILTON**
 Phone 956

charged with acetic acid, and a small quantity of phenol and cresotic compounds. 3rd. A residue of charcoal, the amount of which depending on the manner in which the distillation had been carried on.

It is also well known that if the distillation of wood was carried on at a high temperature, the resultant amount of permanent gas was increased in ratio to the heat at which the distillation took place, and this was due to the chemical reactions that took place in the retort between the volatile compounds of wood and the heated carbon or charcoal that was present in the retort. Red hot carbon having the power of splitting up those unstable complex substances into simple stable bodies.

From and upon the above chemical reducing power of carbon is based the principle of the Riche gas generator, and by its

means all the volatile products of wood, or any other combustible organic matter such as peat, lignite, etc., are reduced into stable simple compounds, producing at the same time three times the amount of a rich, powerful, permanent gas than was formerly possible, without the necessity of any purifiers or apparatus for same, and without the introduction of air or steam with the resultant adulterant nitrogen, which is found in all the poor gases, and the only other product being as in the case of wood, a good, saleable charcoal which often pays for the first cost of the wood, or in the case of peat or lignite, a rich coke for smelting purposes.

An idea of the excellent properties of the gas Riche may be formed by glancing at the following table of analyses of the principal gases used in the industries :

W. F. SCOTT,
Architect - Engineer.
Domestic, Devotional, Civil and Memorial Architecture.
Specialty: STEEL & FIRE-PROOF CONSTRUCTION
410 MCKINNON BUILDING,
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Chemistry of the Arts and Manufacturers.

DR. GEO. ARCHBOLD,
A.M., Ph.D.,
CONSULTING CHEMIST,
(Formerly Chief Chemist, Ordnance Dept., U.S. Navy Yard, Washington, D.C.)

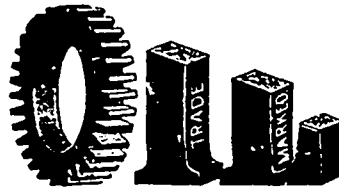
Gives expert technical advice in all matters relating to chemical arts and manufactures. Thirty years practical experience in Great Britain, Europe and the United States.

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"Capitol" Cylinder

"RENOWN"
ENGINE

"ATLANTIC" RED



RELIABLE WELL-KNOWN BRANDS.

ALL ORDERS PROMPTLY FILLED

THE...

QUEEN CITY OIL CO.

LIMITED

SAMUEL ROGERS, President.

TORONTO, CANADA

OUR EXHIBIT
At the Paris Exposition and the fact that the

Cross Oil Filters are used in the power plant of the U.S. Machinery Exhibit there, have already brought several French orders. We guarantee them to save 50 per cent. of oil bill, and we send them on approval at our expense. Catalogue 26. The Burt Mfg. Co. Akron Ohio, U.S.

Dominion Oil Cloth Co.

(LIMITED)

Manufacturers of....

OIL-CLOTHS of Every Description

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

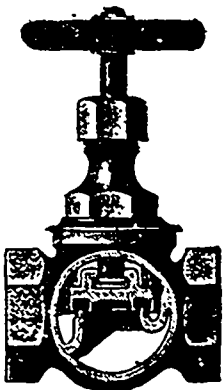
Enamelled Oil-Cloth, Stair Oil-Cloth, etc.

Office and Works
Cor. St. Catherine and Parthenais Sts
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The Diamond Machine & Screw Co.
Manufacturers of TORONTO. Limited.
MACHINE SCREWS and BICYCLE PARTS OF EVERY DESCRIPTION.

FAIRBANKS VALVES



A. D. GLOBE.

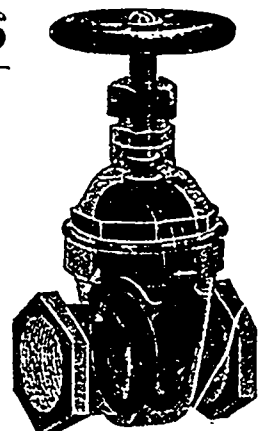
The Globe Valve

Has enough metal to stand the strain of expansion and contraction; has the best and simplest renewable disc made; stuffing boxes all packed with "VULCABESTON."

A S H E R I C O N P I S T O N

The Gate Valve

Has two renewable seat rings VULCABESTON or BRONZE, as desired; Renewable Wedge; Double seated. Made in all sizes in Brass or Iron.



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THE FAIRBANKS COMPANY, 749 Craig St., Montreal.

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KIND OF GAS.	Composition in 100 per volume.					Calorific Power in cal. (15g-4) per met. cub.
	Hydrogen	Carbon monoxide	Carbon dioxide	Nitrogen	Carbures	
Stemens Gas	25.7	4.5	69.8			773
Dawson Gas (anthracite)	18.1	26.8	7.2	17.0	0.0	1316
Dawson Gas (coal)	21.9	15.8	11.4	30.1	0.7	1018
Water Gas	49.2	43.8	2.7	4.0	0.3	3881
Coal Gas (average)	19.6	9.6	1.6	3.8	35.1	3250
Riche Gas	11.2	22.2	0.21	3.3	57.2	3721

From the above table it may be seen that what was formerly the poorest of all gases, viz., wood gas, there can be made to-day a

rich, powerful gas which of all industrial gases is that which most nearly approaches that of coal gas, also the high calorific power of the gas Riche, it being higher than even that of water gas, also the complete absence of nitrogen in the gas.

The gasogene Riche, or as it is more usually called, generator, is composed of a kiln of ordinary red and fire-clay bricks, fortified by means of the usual iron armature; inside of this masonry are the beds for the retorts and which are heated from the fire-boxes at the end of kiln by any combustible matter, wood, etc., etc., and said fire-boxes are so arranged that the heating of the kiln can be shut off or started at a moment's notice by means of dampers, etc., etc., and although,

for the sake of economy, there is only one fire-box to each kiln, each retort is so constructed that it can be taken out and replaced without hindering the ordinary march of the generator, and the changing of an old retort does not require any longer than, at the most, one hour.

A general idea of the gasogene Riche and its mode of working may be formed from the rough vertical cut of the retort and masonry.

The firing of the retorts is regulated by a damper which is placed at R, and is under the control of the gasman. The hot gases coming from the fire-box F pass through H and then play around the retort in its bed J1 and J2, and then through R away to the chimney.

What the Trade Wants

YOUR OWN PAPER
MADE INTO

ENVELOPES

ANY SIZE OR
SHAPE.

WE SELL
TO THE
TRADE ONLY.

YOUR OWN PAPER—YOUR OWN LABEL—YOUR OWN BANDS.
NO NEED TO BUY FOREIGN GOODS.
OUR GOODS ARE MADE EQUAL TO THE BEST IN THE WORLD.

The Trade will find it to their advantage to get our prices.

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THE BEST ROOF and IRON PAINT



ZANZIBAR
ROOF PAINT

USE SPARK PROOF
FOR ROOFING, ALL KINDS OF IRON WORK
FOR SIDINGS & IRON WORK
WEATHER PROOF

ELASTIC & INDESTRUCTIBLE
RUST PROOF
WATER PROOF

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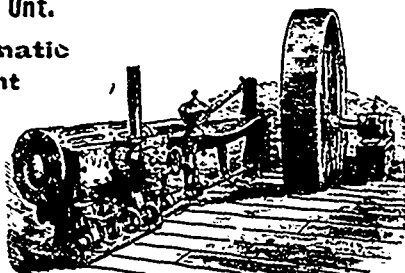
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High Speed Engines, Brown Automatic Engines, Boilers, Rogers' Patent Shaking and Dumping Grate Bars, Pumping Machinery, Electric and Hand Power Travelling Cranes, Shafting, Pulleys, General Machinery, Etc.



Western Office—435 Ross Av., Winnipeg.

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TORONTO WOOLEN MACHINERY CO.

MACHINERY WANTED and FOR SALE

- We offer for sale, together or in part, the following machinery:
- One 18 in. Iron Frame (G. & McC.) Picker.
 - One set (D. & F.) Iron Frame.
 - 1st and 2nd Brinker 18 in. Five Workers.
 - One Condenser, 10 in., 20 Rings, 7 Rubs.
 - One 20 Spindle Jack, 2 in. gauge.
 - One Yarn Reel, 20 Spindles.
 - One Yarn Twister, 20 Spindles.
 - One 18 in. Card Grinder, Wood Frame.
 - One Spooler and Stand (D. & F.) Iron Frame, 18 Spindles.
 - One Warper, Frame Spools.
 - One Single Gear Beamer.
 - Two Crompton Looms, Pump Motion, 3 x Box, 21 Hamers.
 - One Crompton Loom Bow Jack, 4 x 4 Box, 24 Hamers.
 - One Cam Loom (D. & F.), 2 x 1 Box, 4 Hamers.
 - One 108 in. Cam Loom (D. & F.), 2 x 1 Box, 4 Hamers.
 - One Cloth Washer.
 - One Fulling Mill, Crank.
 - One Hand Press and Plates.
 - One Up and Down 90 in. Glg (D. & F.)
 - One Drum Shear 36 in., 22 (Curtis & Marble).
 - One 24 in. Double Roll Card, Iron Frame (G. & McC.)
 - One Roller, 20 H.P.
 - One Engine, 16 H.P.
 - Shafting, Pulleys, Hangers, Steam Piping, Belting, etc.
 - One Set Yarn Mill, complete.

We also are Builders of the EMPIRE BALING PRESS for baling paper, rag, shoddy or wool.

TORONTO WOOLEN MACHINERY CO.
118 DUKE ST., TORONTO.

Protection Against Fire

Apart from the protection it affords, it pays as an investment to use the

GRINNELL AUTOMATIC SPRINKLER

From 40 to 70 per cent. of cost of insurance saved by putting in a



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AUTOMATIC
SPRINKLER
EQUIPMENT

Over 3,990 Fires—
—NO FAILURES

No charge for estimating

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The General Fire Equipment Co.
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TORONTO.

BELTING

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D.K. McLAREN

MONTREAL & TORONTO.

AWARDED

SILVER MEDAL

PARIS EXPOSITION 1900

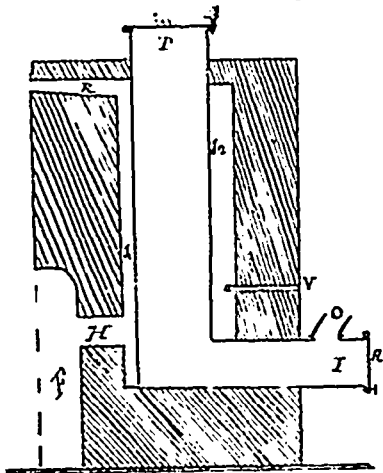
GENUINE OAK REVERSE
TRADE-MARK

D.K. McLAREN
MONTREAL QUE.
LEATHER BELTING CANADA

ALL OUR LEATHER IS STRETCHED 15% BEFORE BEING MADE INTO BELTING.

WE GUARANTEE OUR CEMENTED ONLY JOINTS AS MUCH STRAIN WITHOUT BREAKING AS LEATHER APART AS SOLID LEATHER.

The shape of the retort is P I, and in order to commence operations it is charged with charcoal up to the mark J1 by means of the hand door M, and the hot gases from



is allowed to play about the retort until it assumes a cherry red color, which is ascertained by means of the spy-hole V.

When the retort assumes this color it is then ready to be put to work, which is done by simply filling it with wood by means of the hand door M up to where J2 is marked on the cut, when due to the high temperature of the retort, the wood is decomposed into its volatile products which gases rise to the top of the retort P, from which there is no outlet there, and due to their own pressure have then to return and pass over the highly heated surface of charcoal which exists in the retort below J1, where they are decomposed into the rich stable gas Riche, the reaction being accomplished without the introduction of any air, consequently absence of nitrogen, and which Riche gas escapes through the opening O pure and rich

to the gasometre, ready to be used in the form or manner required.

To discharge the retort it is done by simply withdrawing the charcoal through the man-door A, and to keep the retort in continuous working it only requires to be recharged at M.

One man is able to and looks after a generator of six retorts quite easily, and even

PATENTS, TRADE MARKS, CAVEATS, ETC.
EGERTON R. CASE,
 Registered Solicitor of Patents. Notary Public.
 TEMPLE BUILDING, - TORONTO, ONT.

The WILLIAM C. WILSON CO. Limited,
 24 Front Street East, Toronto,

WHO ARE AGENTS FOR THE LARGEST INDEPENDENT OIL REFINERS IN AMERICA, ARE IN RECEIPT OF NUMEROUS LETTERS WITH REFERENCE TO THEIR "SEMPER IDEM" VALVE CYLINDER OIL, OF ONE OF WHICH THE FOLLOWING IS A FACSIMILE:

*to all my friends
 W.C.W.*

June 19th 1900

*The William Wilson Co. Ltd.
 Toronto*

*Gentlemen
 We have used the
 Sempersidem Valve Cylinder
 oil for the last two seasons
 & have given the best results
 in dredge & drills*

*Yours truly
 C. B. Duane
 Contractor*

Lighting, Heating
 and **Motive Power**
.. BY GAS ..

GAS FROM WOOD—A rich permanent Gas almost equal to that of Coal Gas, can be made by using the

RICHÉ GAS GENERATOR,
 at a mere nominal cost per thousand cubic feet.

The Generator is simple in construction, and does not require skilled labor to work it. No purifiers required. Products being a rich permanent Gas and Charcoal.

These Generators are extensively used in Europe, and are on exhibit at the Paris Exposition.

Particulars by applying to

JAMES MILLAR NEIL
 GAS EXPERT,
 7 Beaver Hall Square,
 MONTREAL.

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

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

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

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

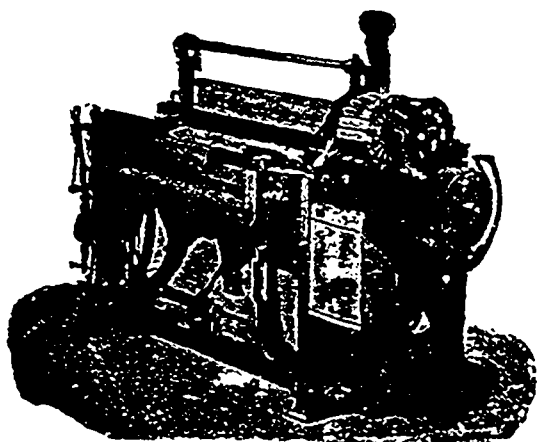
We also Manufacture the Best Warper at present Known—also Spoolers.

Write for particulars and quotations. Address

The NORTHROP LOOM CO. OF CANADA, Ltd.

VALLEYFIELD, P.Q.

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THE NORTHROP LOOM.

then has plenty of spare time: on smaller plants he usually has charge of the engine.

Each single retort is capable of producing 180 cubic feet of gas per hour without forcing.

One ton of wood gives 25,000 cubic feet of gas, and about 400 pounds of charcoal.

The 1,000 cubic feet of gas, with wood at \$3.00 per ton and without allowing any value for the charcoal, costs fourteen cents per 1,000 cubic feet.

The one-hour horse power is obtained at a half cent and at a consumption of about six pounds of wood.

A gas engine consumes, approximately, about thirty-five cubic feet of gas per hour per horse power.

To many uses is the gas Riche being applied to-day in Europe and South America, and that it is a success is in its being erected by the largest users of coal, every day new plants being put down.

The largest company of Emery, in France, do the driving of all their machinery by means of it, besides the drying and cooking of their products, also many electrical companies derive their motive power by its means at a cost unheard of.

Owing to its high calorific power it is used for all kinds of drying and heating purposes, and is largely used for smelting iron and other metals, and in the manufacture of china it is used for the cooking of same.

Due to its composition, alone it does not serve for illuminating purposes, but by

means of the incandescent wicks an extremely brilliant flame is produced at a mere nominal cost.

When you take into consideration the high price of coal gas, viz., \$1.00 per 1,000 cubic feet, and the low price of gas Riche, the gain is apparent, and also the low price that the horse power can be obtained by means of this gas.

From the above short description of wood gas I hope I have shown to my readers how to-day, from that plentiful and cheap material—wood—in its many forms, a gas may be made which produces to them their motive power, heat, and light at a price unheard of, and a process in whose working there is no need of skilled labor, it being simplicity itself.

Paper Mills and Pulp Mills

And all Users of ENDLESS FELTS get the

Best Value by ordering from

Hamelin & Ayers,

LACHUTE MILLS, QUE.

We are now prepared to make all grades, from the finest Bristol Board to the coarsest Sulphide Fibre. With our 24 looms, and all other machinery to match, we are in a position to fill all orders promptly.

When ordering state kind of Paper or Board made, and speed of machine.

You will not be asked to pay for Felts that are not satisfactory. Every Felt is tested in our factory, and is shipped with our guarantee.

CAPACITY 1,000 SQUARE YARDS DAILY.

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THOMAS C. IRVING, Gen'l Manager Western Canada,
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F. W. Kere's Sons, HAMILTON, ONT.
Manufacturers of
Wheels, Wheel Materials, Shafts, etc.

The Underwood Typewriter



Visible Writing from start to finish.

The descriptive pamphlet, or any stenographer using the Underwood Typewriter, will explain why 1,000 of these machines have been sold in Canada in one year—more than all others put together.—Visible writing and the tabulator are winners.

SOLE CANADIAN AGENTS.

Creelman Bros. Typewriter Co.,

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Rope Transmission of Power.

HANDSOME ILLUSTRATED CATALOGUE ON APPLICATION.

DODGE MANUFACTURING CO. OF TORONTO, Limited, - - TORONTO.

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A WONDERFUL IRON MINE.

What the gold reefs of Johannesburg are to the Transvaal, the Wabana iron beds are to Newfoundland, says a correspondent of the New York Tribune.

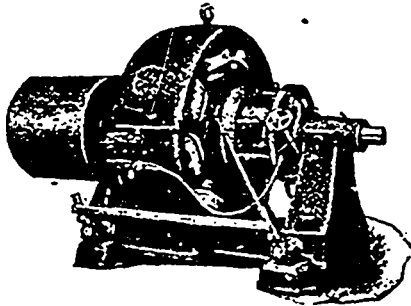
They form immense deposits of rich red hematite ore, three miles long and several

hundred feet wide, and showing 34,000,000 tons in sight above the water. The beds dip down at a about an angle of eight degrees, and it is believed that they extend below the sea in practically unlimited quantity, though what is now in sight will suffice for a generation's work. To all intents and purposes the mine is open quarry. The ore is got at by chopping off a surface covering of earth and rock and then loosening the hematite with charges of dynamite.

The deposit is one of nature's freaks. It is a perfect reproduction of a tiled floor. Countless millions of cubes of mineral are laid out with rectangular precision, following the trend of the stratification, and these seem to have been cemented and forced to-

gether by some giant machinery in prehistoric days. Layer upon layer of these cubes is seen in a vertical section of the mine, and the lines of cleavage are as clearly defined and the general arrangement is as perfect as a child's box of blocks. The only difference is that one cannot lift out one of these mineral cubes with the fingers, but a charge of dynamite fixed in a portion of the deposit by a steam drill shatters it for an area of many feet in every direction and separates the solid mass into its thousands of little bricks, each about three inches square, and as perfect in alignment as if produced by an artist. No mining, in the customary sense, is needed. The deposit lies open to the sun, and all the work involved is the loosen-

The Jones & Moore
ELECTRIC CO.
ELECTRICAL CONTRACTORS



DYNAMOS, TELEPHONES, SLOW SPEED MOTORS, MOTORS, SUPPLIES, DIRECT CONNECTED DYNAMOS.

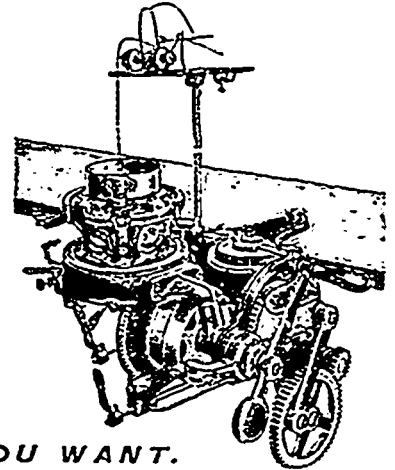
We manufacture Direct Current Machinery in all sizes and for any purpose.

20 and 22 ADELAIDE W., TORONTO.

RICHARD SCHOFIELD,
TORONTO
Sells "BRANSON THREE-QUARTER
AUTOMATIC"
KNITTING MACHINES

AND ALL OTHER KINDS OF
Hosiery and **MACHINERY**
Underwear

ASK US FOR WHAT YOU WANT.



SADLER & HAWORTH

Manufacturers of

OAK-TANNED LEATHER BELTING

MONTREAL and TORONTO.

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

BELTS MADE SPECIALLY FOR ELECTRIC POWER USE.

ing of successive sections and the gathering up of the fragments, which is done by men shovelling them into ore cars, which run on a light cable railway to a pier on the seashore.

The mine occupies the northern end of the island, and hard by is a sheltered cove, where a pier has been built, whence ten thousand tons of ore may be loaded in a day. The laden cars run down an incline by gravity, and are upset automatically, their contents falling into one of ten pockets constructed in the interior of the pier. Each pocket takes one thousand tons, and can be emptied into a steamer's hold in ten minutes. Two ships a day can be loaded there

when business is brisk. The output for seven months last year was 310,000 tons. From 1,000 to 1,500 men are employed this year, as the output is to be trebled, and to do that the force of employes will have to be still further augmented. For years the surface workings will continue, and even when regular underground mining is required there will be none of the deep discounts associated with coal and copper mines.

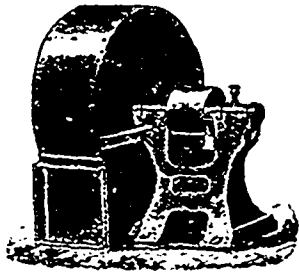
The ease of working and the proximity to tidewater make this deposit one of the most advantageous from an economic industrial point of view that capitalists could possess. The cost of mining the ore and putting it on

shipboard is but twenty-five cents a ton, and the freight to Canada only twenty-five cents more, fifty cents being charged for its conveyance to Europe or the United States. It is in great demand in Germany, where ironmasters work it very conveniently with poorer ores, and large quantities of it are also absorbed at Philadelphia and Baltimore. The price at which it sells there yields the owners of the Wabana mine a profit of \$1 a ton, and as contracts for the delivery of 500,000 tons have been signed for this season it is easy to see that there is a handsome dividend in it for the shrewd capitalists who control it. The strike was set on foot to secure an increase of wages from ten cents to twelve and a half cents an hour for the men employed.

The mine has only recently passed into the possession of the Dominion Iron & Steel Co., the legal cognomen of the better known Whitney Syndicate. This corporation purchased the property for one million dollars, in order to have in it a sup-

McLachlan Electric & Gasoline Motor Co., LIMITED.

MAKE Gas or Gasoline Engines from 1 h.p. to 6 h.p.
Stationary or Marine and Electric Motors from ½ h.p. up.
Motor Carriages for Pleasure or Business. One cent spent for a postal will bring you any information you wish.



PLANING MILL STEEL PLATE EXHAUST FANS

For removal of refuse from Wood-Working Machinery.

CYCLONE DUST SEPARATORS

Made of Galvanized Steel. All Sizes for Fans from 30 inches and up.

Estimates cheerfully given for Complete Installations of Fans, Piping, Gates, Hoods and Separators, with or without Shavings Feed Attachment to Boiler Fires.

McEACHREN HEATING AND VENTILATING CO., GALT, - ONT.

WE MAKE

Forge, Cupola and Disc Fans, Electric Fans, Heaters and Fans for Lumber and Wool Drying, etc., and for Heating of Factories.

STEAM TRAPS, OIL SEPARATORS, ETC.

Just Figure it Out.

Good light means a saving because you can do better work and more of it.

In our Electric Light Plants we use such large wires that the current passes easily to the lamps and lights them brightly, instead of being wasted in heat as with small wires.

Another point—our work lasts.

Write us for Figures.

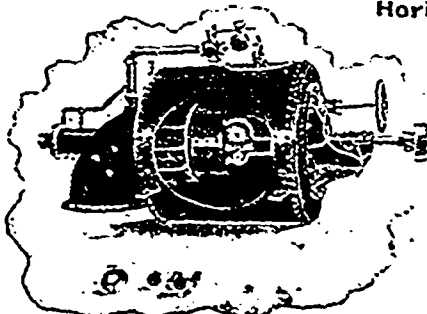
R. A. L. GRAY & CO.,

Electrical Contractors,

83 YORK ST., - TORONTO.

THE CROCKER Patent Turbine

Horizontal Setting, with Quarter Turn Elbow.



Where the nature of the location will permit its use this type has many advantages. It is very suitable for direct connection to dynamos, and many are in operation in this class of service.

Notice how complete and compact this arrangement is, and how easily it may be installed. Can you use anything of this kind? Your inquiries will receive prompt attention.

WATER POWERS examined and Reports made. Estimates submitted for Complete Equipments.

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

COAL

JAS. H. MILNES & CO.

COKE

WHOLESALE DEALERS IN
Best Grades of STEAM COALS.

Best Grades of BLACKSMITHS COALS.

Best Grades of FOUNDRY COKES.

Shipments made direct from Mines to any point in
Canada. Write for quotations.

Head Office: 78 QUEEN ST. EAST,

TORONTO.

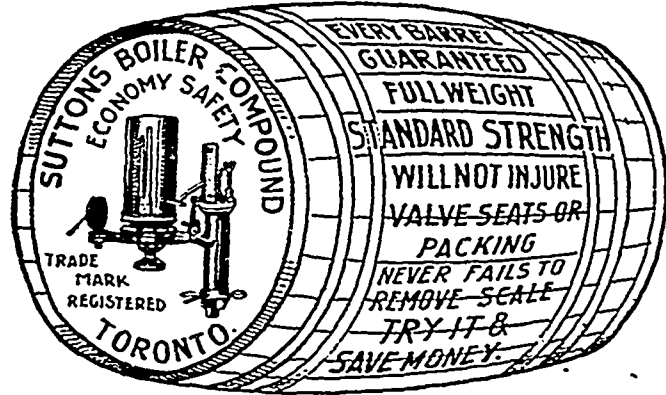
Docks: Esplanade, Foot of Yonge.

ply of ore for the great smelting works it is erecting in Sydney, Cape Breton. With iron and steel commanding such prices in the world's markets as they do to-day, and with these conditions likely to be maintained indefinitely, the idea of a smelter on Canada's Atlantic seaboard had much to commend it. Mr. Whitney had already acquired control of most of the coal mines in Cape Breton, and limestone abounded, so that he had two important constituents right at hand. The third, hematite iron ore, was provided by the acquirement of the Wabana mine, and Belle Isle is only four hundred miles from Sydney, with a continuous, unobstructed deep water passage from one point to the other, the ore running into the steamer's hold from the pier at Wabana and being hoisted out at the pier at Sydney, only a few yards from the ruddy mouths of the blast furnaces into which it is to be fed. No other similar industry in any other part of the world can show such a combination of favorable conditions for the actual production of the commodity, in addition to which there is the equally important fact that Sydney is a deep water port, thereby obviating railway transport, and that it is only 2,100 miles from England, whereas New York is 3,100. By comparison with the American smelters in Pennsylvania and further west, and taking into account the railroad freights to the American seaboard, as well as the increased cost of ocean transfer, it is pointed out that the product of the Sydney smelter will be able to undersell that of any American competitor in the iron centres of Europe.

securing of others within reasonable distance of the manufacturing centres has become a necessity. Our hematite region should "fill the bill," as it is only 1,760 miles from the English coast.

But while these projects are more or less embryonic, that at Sydney is an actuality—so much so, indeed, that a duplicate plant is to be erected at North Sydney, a sister town. The first is now almost ready for the never ceasing furnace fires to be lighted. The plant will be the most complete of its kind in the world, for the promoters will have the ex-

perience of two continents to profit by. It will perform every process in the allied arts of iron and steel making, the ultimate forms of the latter—steel rails, structural pieces, and ship plates—being produced. The by-products of the coke will also be saved and converted into marketable commodities. Four blast furnaces, each with a capacity of four hundred tons daily, are installed, as well as five hundred ovens for the manufacture of coke. Steel mill, blooming outfit, rolling mill—everything essential to the supply of the perfected products in this line



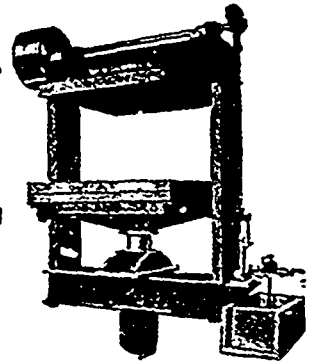
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—will be installed, and the entire plant will cost \$7,000,000. The company is capitalized at \$20,000,000, provision being made for enlarging the plant if required, and also for the addition of a complete shipbuilding plant if it is found desirable when the smelting enterprise is in full working order, to undertake the construction of iron and steel ocean ships in proximity to the smelt-

ers. The situation is admirable for this purpose, and, indeed, formed one of the reasons why Sydney was selected as the home of the enterprise. The harbor is large, deep, capacious, and easily accessible, and, as it is at the entrance to the Gulf of St. Lawrence, and is a coaling port for ocean shipping passing in and out, its advantages are many and of a character to impress in-

vestors strongly. The launching of such an enterprise as this, in an entirely new centre and with such an array of favorable circumstances in its behalf, cannot fail to be the occasion of much serious thought by those concerned in similar industries in the United States. That the Sydney project has come to stay is certain; the name of Henry M. Whitney as its president is the best proof of that, and it is equally assured that it will be a formidable competitor for existing manufactories. Its output—about six hundred thousand tons of pig iron and probably three hundred thousand tons of steel a year—will be sufficiently large to affect the markets and influence the prices for standard qualities. The establishment of a second smelting plant at North Sydney, by a group of English and Nova Scotian capitalists, will further intensify this condition, for the plant is to be of the same capacity and the requisite ore will be obtained from other points in Conception Bay. The preliminary work on this second plant has been started, and the required capital to finance the scheme is available. The ore deposit is exactly similar to that at Wabana, and equal ease and economy are anticipated in mining and shipping it. Therefore a shrinkage in the profits of the American smelters is inevitable during the next few years, for these Canadian concerns are further stimulated by a bounty from the Dominion Government of \$2 a ton on all pig iron produced.

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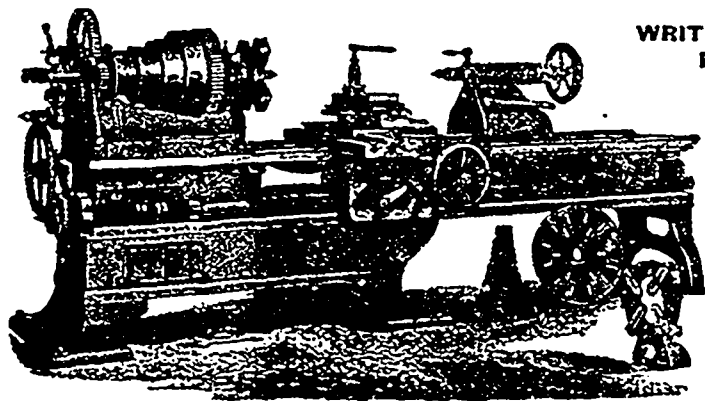
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The accompanying illustration is reproduced from a photograph of a sheet in a boiler in one of the steam plants belonging to the city of Toronto, and shows how the boiler was ruined by a deposit of sediment and incrustation that might have been prevented. There are impurities in all waters, and when these are allowed to settle in the fire sheets of the boiler, when the draft is closed and the circulation retarded, the accumulation prevents contact of the water upon the sheets or plates. As a consequence the plates over the fire become over-heated, and the steam pressure causes

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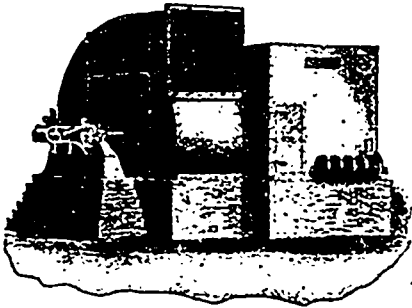
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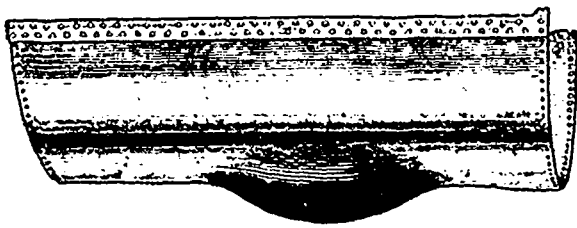
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THE EFFECT OF OIL AND GREASE IN BOILERS.

them to sag, producing the condition shown in the picture.

Another difficult incident to all boilers is the practically unavoidable presence of oil or grease, which does not dissolve in water, nor does it decompose, neither does it remain on top of water, but it seems to form itself into what may be called slugs, which at first seem to be lighter than water, of just such a gravity in fact that the circulation of the water carries it at its will. After a short season of boiling these slugs or suspended drops seem to acquire a certain degree of stickiness, so that when they come in contact with the flues and shell of the boiler they begin to adhere thereto. Then under the action of heat they begin the process of varnishing the boiler. The thinnest possible coating of this varnish is sufficient to bring about the overheating of the boiler plates, and the point is emphasized that it is not necessary to have a coating of grease of any appreciable thickness to cause overheating and bagging of plates and leakage of seams.

The illustration gives a good idea of the effect produced by the presence of oil in the boiler alluded to. The boiler from which the plate shown in the cut was taken, was nearly a new one. It was made from a well

known brand of mild steel, and that it was admirably adapted for the purpose for which it was used is proved by it stretching as it did without rupturo. The dimensions of the bulge shown are four feet lengthwise of the boiler, three feet girthwise and nine inches deep. The metal, originally 5-16 thick, drew down to 1-8 in thickness at the lowest point of bug, without the slightest indication of fracture.

The circumstances under which the bulge

occurred are best described in the words of the inspector who examined the boiler, and are as follows:

"Last Thursday morning I was called with great haste to the ———, upon arrival I found one of the boilers badly bulged, and with twenty pounds of steam up. I could give no explanation until I had thoroughly examined the interior of the boiler. I gave directions for cooling the boiler and ordered the top manhole plate to be loosened, but not to be taken off until my arrival in the afternoon, that I might see everything undisturbed. This was done. On my arrival

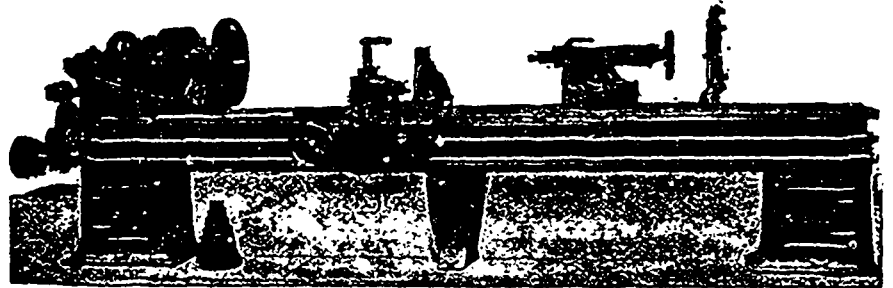
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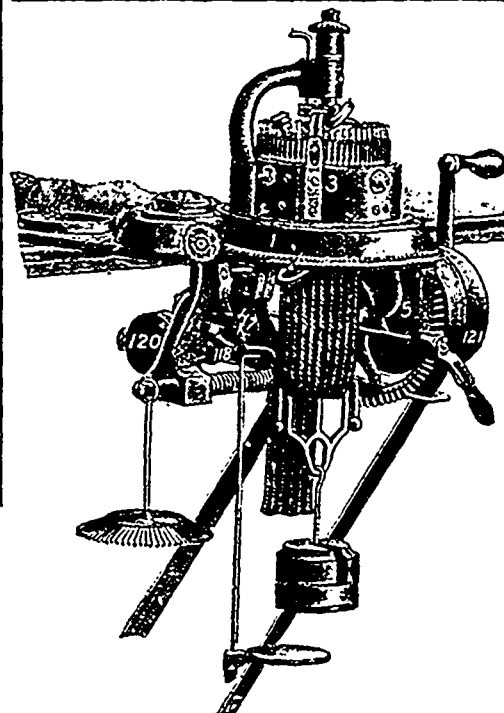
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I took the manhole plates on top of shell and front head out and made an examination, when I discovered that the entire inside of the boiler was saturated with oil.

"I found that the boiler had been cleaned the preceding Saturday and at that time a gallon or more of oil had been thrown into it. Monday morning the boiler was fired up and was run through the day at a pressure of ninety pounds to the square inch. At six o'clock Monday night the engine was stopped, the draught closed, and no more firing was done until nine o'clock. Upon going to fire up at this time the bulge was observed. From six to nine o'clock a pressure of only forty pounds was carried."

The William Sutton Compound Co., of Toronto, who supplied us with the foregoing facts, which they say they can substantiate, inform us that the destruction of the boiler plate as described could have been avoided by the use of the compound manufactured by them.

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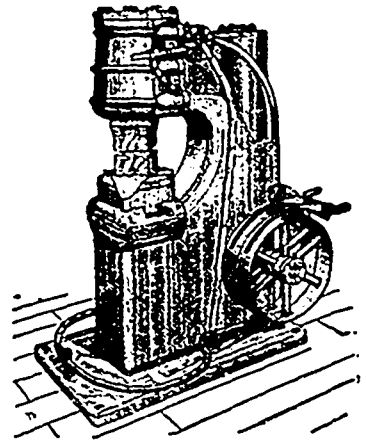
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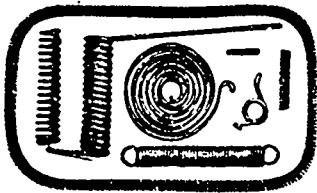
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building, the Union Station, the City Hall, Toronto University, the Board of Trade building, the Dominion Bank, Confederation Life Association building, and McKinnon building are among the architectural gems in Toronto which have been fitted with their wares, and which have attracted the laudatory opinions of thousands of sight-seers and others whose privilege it has been to inspect them.

The Metallic Roofing Company sent a representative exhibit to the Paris Exposition, where the competition was of the keenest description, and where the best manufacturers of the world contended for honors. It is a matter for congratulation on the part of Canadians that the exhibit received the silver medal, the highest award within the gift of the judges. It is only natural that the firm should receive some tangible recognition of its skill in the great fairs and exhibitions of the world. It speaks well for the progress and development of the manufacturing industries of the country.

The publication of the catalogue "S" is no small matter. The total issue of this beautiful book weighs no less than ten tons, or 20,000 pounds. The cost of the volume is about \$7,000. It will be sent to all parts of the world, wherever customers for these excellent goods may be found, and the company will doubtless reap a rich reward from their investment.

THAT MOST PERSISTENT BEGGAR.

By the compliment of E. E. Cary, Esq., manager of The Packard Electric Co., St. Catharines, Ont., we are in receipt of a most artistically gotten up booklet entitled That Most Persistent Beggar, of which Mr. Cary is evidently the author. The title page shows that The Packard Electric Co., are the publishers, and elsewhere it is shown that the book was done up at the company's print shop, and that it is copyrighted. The idea of the talented author in writing his effusion was evidently to show the persistency with which the Angels of Commerce, otherwise known as drummers, who circulate throughout the land in the interest of the Packard Company, persist in obtaining the orders they go for. In fact, Rudyard Kipling in passing the hat in the interest of The Absent-Minded Beggars who marched off to South Africa, just simply wasn't in it with E. E. Cary in expressing his views in verse or prose.

It is interesting to note that under the management of editor and author Cary, the publishing department of The Packard Electric Co., has achieved great popularity and success. In our last issue we had occasion to refer to The Sheel Siftings, just then issued from the publication department of that concern. Variety is the spice of life, and nothing can be more appropriate in these burning days of a Canadian summer than these cool and pleasant draughts that are being offered by Manager Cary. They are as refreshing as the non alcoholic fluids the boys poured down their parched throats while at the convention of the Canadian Electrical Association in Kingston last week.

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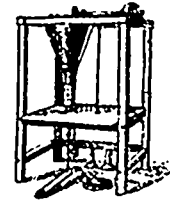
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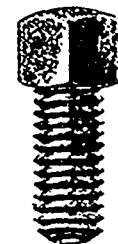
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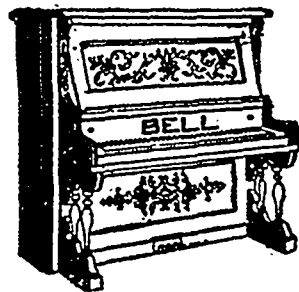
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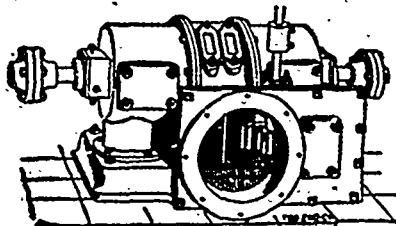
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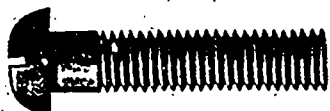
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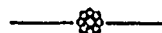
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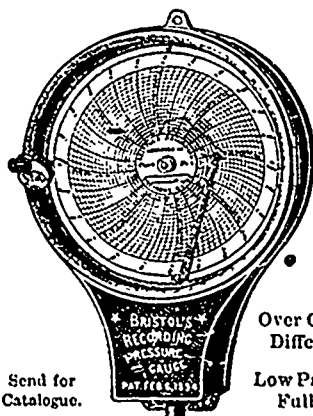
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