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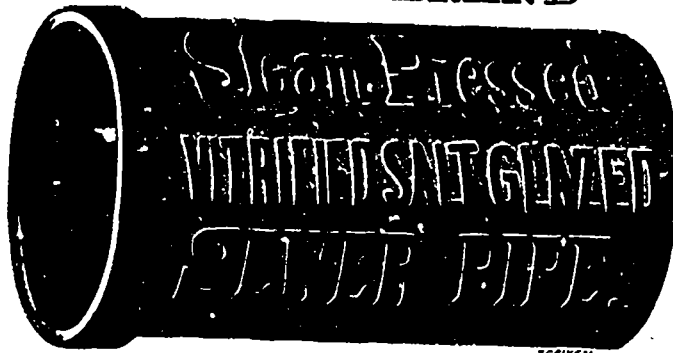
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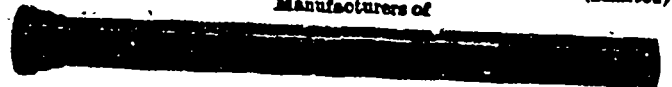
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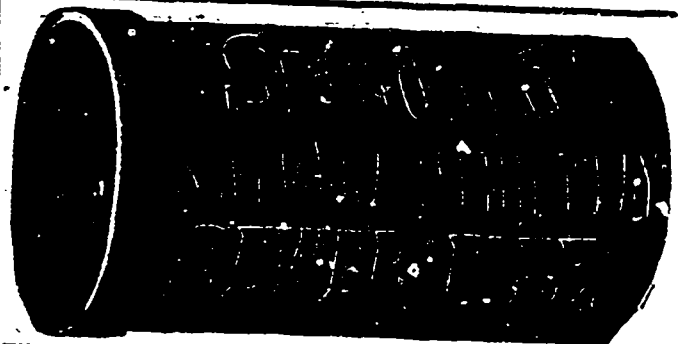
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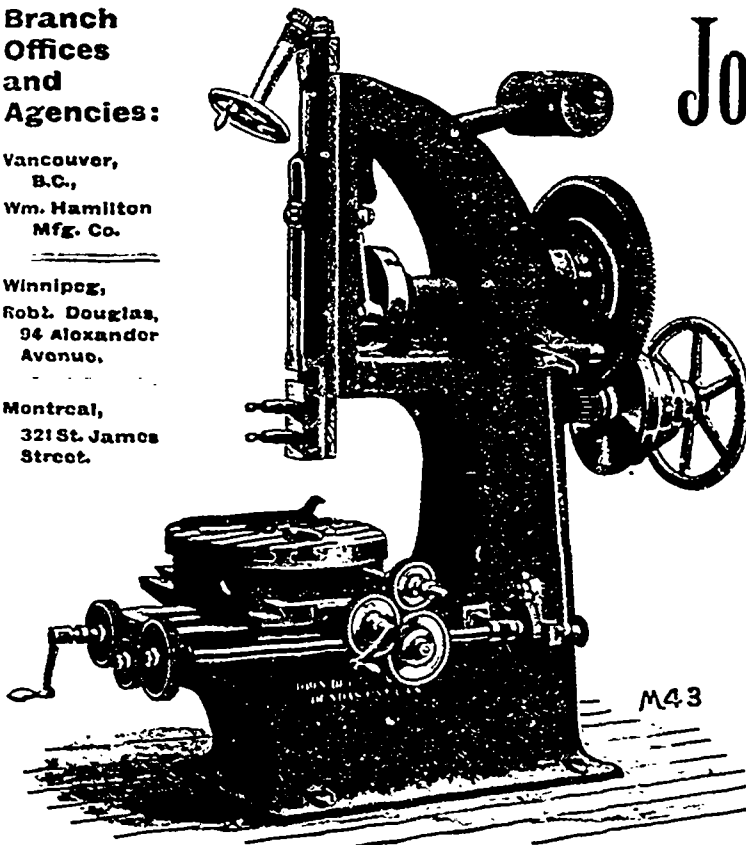
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100 Rails, 12, 18, 24 and 28 lbs. per yard

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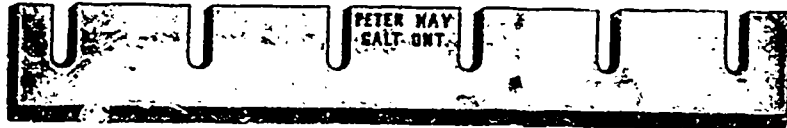
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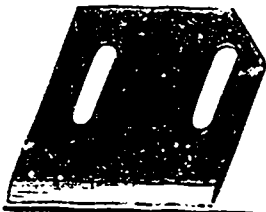
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Special Knives Made to Order.

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Steel Roofs, Girders, Beams, Columns for Buildings.

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

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THE BEST EQUIPPED BOILER AND ENGINE WORKS IN CANADA.

We Manufacture—

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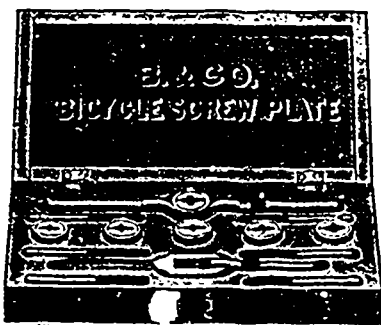
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STEEL STEAM VESSELS OF EVERY DESCRIPTION.

STEAM YACHTS AND LAUNCHES.

GET OUR PRICES BEFORE ORDERING.

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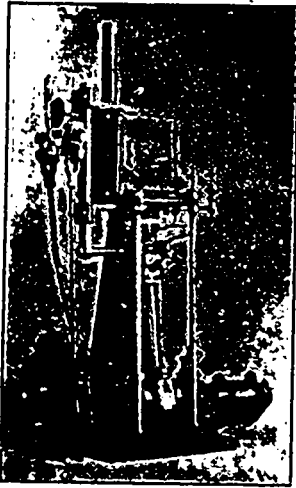


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 Safety Water Tube BOILERS
 PROPELLER WHEELS
 Stationary Engines and Boilers



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Galvanizing
 DONE FOR THE TRADE.

GET OUR PRICES.

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 Manufacturers of
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**Mills,
 Factories,
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Are best protected
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**Eddy's Indurated Fibreware
 FIRE PAIS**

We are the only manufacturers in Canada
 of this celebrated ware.

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THE **PETERBOROUGH
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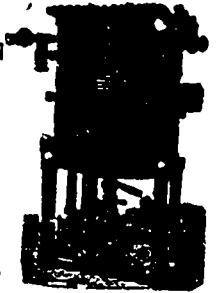
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 VACUUM Feed Water Heater**

IN PROPORTION

MAXIMUM
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 DURABILITY
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To the extent that Feed Water
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 the **WEBSTER VACUUM FEED
 WATER HEATER** and PURIFIER
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MINIMUM
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 WASTE
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← FOR THE REASON THAT IT REPRESENTS →

BEFORE PURCHASING ELSEWHERE GET A BID FROM US.

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

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

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DELIVERY MADE AT NEW YORK, MONTREAL OR HAMILTON.

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The Cost of Steam.

To decide which type of boiler will produce steam
 at the lowest cost it is necessary to consider the
 cost of the boiler, the evaporation of water per
 pound of fuel, and the expense of keeping the
 boiler in working order.

Compare our boiler, the "Mumford Improved" with
 a water tube boiler, and it will be found that ours
 has the advantage in all these points.

COST.—Our boiler costs less on account of its
 simpler construction.

EVAPORATION.—Our boiler is internally fired and,
 therefore, more heat is absorbed by the water.
 The water circulation, an important factor in
 evaporation, is similar to and probably more rapid
 than that of a water tube boiler. Tests made by
 disinterested parties, with the same coal, resulted
 in favor of our boiler.

EXPENSE.—The furnace of a water tube boiler requires
 re-lining with fire-brick frequently, a large item of
 expense which is not required with our boiler.

ROBB ENGINEERING CO., Limited, Amherst, N.S.

The Wellington Mills, LONDON, ENG.
GENUINE EMERY

Oakoy's Flexible Twilled Emery Cloth.
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 Oakoy's Emery Paper, Black Lead, Etc.
 Prizo Medal and Highest Award Philadelphia, 1876, for Superiority
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Manufacturers **JOHN OAKY & SONS, LIMITED,** Wellington Mills,
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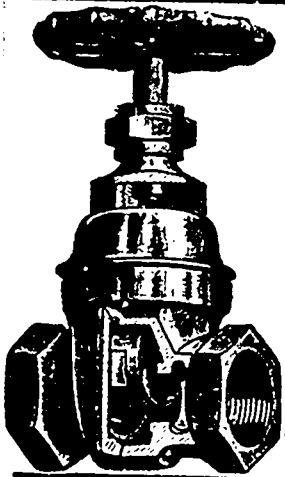
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STRAITWAY VALVE

For
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EVERY VALVE TESTED.

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 FOR ALL PURPOSES,
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OF ANY DESCRIPTION,
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Incandescent Light, Arc Light and Power from same Dynamo and Circuit.

Highest Efficiency

Best Regulation

Slow Speed

Least Attention



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

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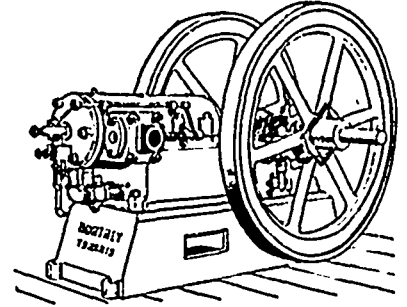
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NORTHEY GASOLINE ENGINE

Most Satisfactory Power in the Market.

We have equipped some of the largest manufactories in Canada with our Feed, General Service and Stuff Pumps. In no case have they failed to give entire satisfaction, nor in proving that the Northey Pumps for all duties are unsurpassed for design, up-to-date features and reliability.

Our Catalogue is yours for the asking.



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OF ANYTHING THAT YOU MAY DESIRE.

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AT PRICES THAT DEFY COMPETITION. ASK FOR ESTIMATES.

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Electrical Contractors

Should send at once for our NEW PRICE SHEET, which is the most up-to-date Sheet of its kind.

EVERYTHING IN THE ELECTRICAL SUPPLY LINE...

Full Wholesale Prices

Write for one.

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PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

Official Organ of the Canadian Manufacturers' Association.

SUBSCRIPTIONS :

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ALL OTHER COUNTRIES IN POSTAL UNION, EIGHT SHILLINGS
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C. A. C. BROWNE, 145 Fleet St., London, E.C., Eng., Sole Agent
in Great Britain.

THE CANADIAN MARKET AS A FIELD FOR
BRITISH ENTERPRISE.

The trade of the United States with Canada during the last ten calendar years, according to returns of the United States Bureau of Statistics, was as follows:—

	Imports to United States from Canada.	Exports from United States to Canada.
1889.....	\$39,322,578	\$40,973,317
1890.....	39,739,009	38,629,367
1891.....	36,551,672	41,686,882
1892.....	35,930,456	39,564,407
1893.....	34,492,332	57,121,178
1894.....	32,146,069	51,254,199
1895.....	40,748,940	58,398,009
1896.....	37,355,805	62,335,303
1897.....	38,809,873	72,627,690
1898.....	30,450,208	90,454,866

The following figures show the imports and exports of Canada in the fiscal years ending June, 1897 and 1898, as follows:—

	1897.	1898.
IMPORTS.		
Total value of goods imported.....	\$119,218,609	\$140,305,950
Dutiable.....	74,108,590	84,126,984
Free.....	45,110,019	56,178,966
Total value of goods entered for consumption.....	111,294,880	130,678,807
Dutiable goods imported from Great Britain.....	29,190,468	22,935,668
Free goods imported from Great Britain.....	9,149,108	9,941,375
Total imports from Great Britain, dutiable and free.....	29,339,576	32,877,043
Dutiable goods imported from the United States.....	39,534,792	45,827,147
Dutiable goods for consumption from United States.....	30,482,509	37,674,080
Free goods imported from the United States.....	31,231,524	40,760,337
Total imports from the United States dutiable and free.....	70,766,316	86,587,484
Dutiable goods imported from other countries.....	13,297,284	15,364,169
Free goods imported from other countries.....	3,592,154	5,477,254
Total imports from other countries, dutiable and free.....	16,889,438	20,841,423
EXPORTS.		
Total exports, including coin and bullion.....	\$137,950,253	\$159,485,770
Exports of Canadian produce.....	123,959,838	141,079,469
Exports of foreign produce.....	13,990,415	18,406,301

Exported to Great Britain :		
Canadian.....	\$80,533,853	\$95,002,904
Foreign.....	7,693,650	11,784,653
Total.....	\$77,227,502	\$104,787,554

Exported to the United States :		
Canadian.....	\$30,717,057	\$35,460,984
Foreign.....	2,210,735	5,801,572
Total.....	\$41,933,792	\$41,122,566

Exported to all other countries :		
Canadian.....	\$5,783,432	\$13,615,584
Foreign.....	554,326	960,076
Total.....	\$6,337,758	\$13,575,660

United States Consul-General Bittinger at Montreal, writing to his Government says:—

The course of the trade of the United States with Canada has for some years been one of expansion. Variations in its amount have occurred, owing to tariff changes and the lower or higher capacity of the Canadian people to purchase foreign goods, but these variations have been only temporary in their effect when they restricted the imports into Canada of goods from the United States.

A comparison of the statistics of imports of manufactured goods from the United States into Canada from 1893 to the close of the fiscal year ending June 30, 1898, with the statistics of imports from Great Britain into Canada for the same period, shows with striking clearness the fact that the United States has been gradually but steadily capturing more and more of this trade, while Great Britain during the same period has been losing its hold.

Following is a list of the goods imported from Great Britain into Canada, the import of which in 1897 was less than in 1893, while the import of the same class of goods from the United States exceeded that of 1893 :

Articles.	Increase of Imports from United States into Canada in 1897 over 1893.	Decrease of Imports from Great Britain in 1897 from 1893.
Braces and brushes.....	\$18,500	\$7,500
Carpets.....	31,000	44,000
Carrriages.....	1,300,000	131,000
Watches and cases.....	110,700	8,300
Cordage.....	54,000	35,600
Cotton goods.....	15,000	752,000
Glass and crockery.....	37,000	138,000
Hats, caps, etc.....	176,000	265,000
Jewelry, etc.....	74,000	32,000
Agricultural implements.....	350,000	3,300
All other iron goods.....	1,541,000	3,613,000
Tin goods.....	61,000	103,000
Sundry metal goods.....	310,000	323,000
Scientific instruments.....	2,900	37,000
Paints and colors.....	76,000	79,000
Silks and ribbons.....	34,400	146,400
Dress and piece goods.....	31,000	171,100
Umbrellas.....	800	173,000
Wood, and manufactures of.....	735,000	30,000
Wool and woollen goods.....	18,000	4,438,600

The above list practically includes the great bulk of the manufactured goods imported into Canada from the United States and Great Britain. In builders' and cabinetmakers' hardware; the goods made in the United States have achieved almost a monopoly, as have also brass tubing and other brass goods. It is the opinion of many Canadian importers of such goods from the United States as come more or less into competition with those from Great Britain, that the discrimination of twenty-five per cent. in favor of British goods has only a trifling effect upon the volume of imports from the United States. Canadian consumers of the leading articles made of

iron or steel, or a combination of them, and of other metallic goods, they say, show such a decided preference for those made in the United States, that they will not take British goods, even if the preferential duty causes them to be proportionately lower in price.

In regard to the effect of the preferential tariff on imports from Great Britain, Commercial Agent Hunt, of Palmerston, Ont., recently sent a statement to his Government showing that for the four months ended October 31, 1898, during which the twenty-five per cent. preference was in force, the imports of British goods increased in spirits, wool, linen manufactures, worsted goods and dyed, printed and bleached cottons. His statement continues:

In the exportation (from Great Britain) of iron and steel, and manufactures thereof, there has, however, been a falling off rather than an increase, notwithstanding the operation of the full preference of twenty-five per cent., while from the United States Canadian imports have noticeably increased. For instance, Canada received from Great Britain during the first four months of the past fiscal year but \$17,617 worth, and during the corresponding period of the present year \$18,014, as against \$79,509 during the four months of 1896. During the latter period, also, railroad iron and steel exported to Canada from the United Kingdom was valued at \$605,577; during the four months of 1897 the export was \$124,061, and during the four months ending October 31st, only \$50,306.

These and similar decreases more than offset the general tendency to increased export in the lines of goods above mentioned.

The statement is made unofficially, in explanation of this showing, that the disposition to avail of the benefits of the preferential cut is offset by a tendency on the part of many Canadian importers to await the outcome of the reciprocity negotiations before transferring orders from the United States to British houses. As for the failure of the preferential tariff to encourage the importation of British as against United States iron and steel, it is admitted that even with the twenty-five per cent. advantage, it is virtually impossible for British manufacturers to compete with the Americans in Canadian markets.

THE GREAT TORONTO FAIR.

This year Canada's Great Industrial Fair will attain its majority; in other words from August 28th to Sept. 9th will be held the twenty-first annual exhibition under the present association's management. Of course exhibitions had been held previously, but it was in 1879 that the series that have now come to be a noteworthy feature in Toronto, and it might truly be said in Canada, each year, was entered upon. The growth of the Exhibition has well kept pace both with the development of the city and the country, for whereas in 1879 the admission fees only amounted to \$26,960, last year they reached the splendid total of \$90,004. On the other hand while the prize money paid out in 1879 was but \$17,407, in 1898 it was \$32,346, and this year it will be even larger. Every year has resulted in profit, but 1898 was the banner year, the handsome surplus of \$26,135 remaining when all the current liabilities had been met. Thus apart from the magnificent aid to the business of Toronto that the Fair is, it is also a fine paying enterprise. We believe that it is almost unique among annual fairs in this respect, as it certainly is in the excellence of its management, its splendid growth, and its magnificent comprehensiveness.

Not only is every section of the country represented in the exhibits, but nearly every country in the world. There are many other annual exhibitions, but we doubt if there is one so thoroughly national in its aspects as that held at Toronto. While the management has been conducted on lines that alone could have brought about the present gratifying state of affairs, much of the success is undoubtedly due to the unanimous endorsement of the city, and to the generous patronage extended not only by Canadians, but also by Americans, who have been coming across annually in ever increasing numbers, and have always gone away not only greatly impressed by what they saw of Toronto, but also of the products of our factories, our mines, our fields, and our forests. Under such circumstances it becomes the duty of every well wisher of the country to contribute by every effort in his power to the success and continued growth of Canada's Great Fair. This year, although there will be no collective exhibit either from England or France, as there was last year, a number of firms from both countries will be represented through their agencies. For the first time a big firm in Sydney, N.S.W., will have an exhibit, and several West Indian establishments will also occupy space. Turning to the Canadian exhibits, many firms have expressed their intention to display goods previous to sending them to Paris. This is an excellent idea, for while it will afford Canadians an opportunity to see the best products of their own workshops, it will greatly improve the general character of the manufacturing section of the Exposition. The destruction of Machinery Hall by fire a few weeks ago has naturally compelled a spirit of rush to possess the directorate and their officials, but seeing that it has given opportunity for the erection of a structure on modern principles, it will surprise nobody if the fire should prove to have been a blessing in disguise. The new building, it might be mentioned, will be ready for occupation on August 20th, or eight days before the opening. It will be larger than the old building, thoroughly fire proof, and a great deal more accommodating and convenient in its arrangement. While entries do not close until August 5th, so much space in all the buildings has already been pre-empted that we strongly recommend our friends who have not yet filed their applications to do so at once. The attendance last year was upwards of 300,000. This year, judging by the number of excursions being arranged, that total, great as it was, will be considerably increased, and when it is stated that fully fifty per cent. are from outside Toronto, some kind of an idea can be gained of the value that the Exhibition is to exhibitors. Americans have awakened to the great advantages derived by displays at the Toronto Fair, and this year they will be more in evidence than ever, so that it behooves our own people to be stirring and to put forward their best efforts.

GROWTH OF THE AMERICAN EXPORT TRADE.

The United States Bureau of Statistics has sent THE CANADIAN MANUFACTURER a series of tables, showing the value of each class of manufacture exported from that country in each year during the last decade, and the amount of each class sent to each country. By this publication it is practicable to determine the trend of American foreign trade in manufactures, both as to the class of manufactures most demanded abroad and the countries which are proving their best

customers. That this subject is one which justifies a careful study is apparent, in view of the fact that the exportation of American manufactures has more than doubled in the last six years, more than trebled since 1880, more than quadrupled since 1870, is more than eight times as large as it was in 1860, and in 1898-1899, for the first time in their history, exceeded the importation of manufactures. The exportation of manufactures in the fiscal year 1898-99 averaged more than \$1,000,000 a day for each business day of the year.

A study of the figures which cover the details of the ten years' exportation of manufactures shows that the total value of manufactures exported has increased 110 per cent. in the decade, while an examination of the exportation of manufactures by other countries fails to show any considerable percentage of increase in any of them during the same period. Great Britain's exports of manufactures show no increase since 1890, the earliest year at which a separate statement of manufactures exported is attainable, while her total exports of domestic products (of which manufactures form about eighty-six per cent) shows no increase in value in the decade 1888-97. From France the exports of manufactures show an increase of but ten per cent. in the decade 1887-96, Germany thirteen per cent., Switzerland six per cent., Netherlands three per cent., and Austria Hungary and Russia a loss, while, as above indicated, the exports of American manufactures in the decade 1889-98 show an increase of 110 per cent., and in the fiscal year 1899 will be about three times that of 1879.

An examination of the details of these exports of manufactures shows that it is in the production, manufacture and exportation of metals that the United States excel. The history of nations and people shows that certain classes frequently excel in peculiar industries, and the growth of this exportation, as well as the domestic production of manufactures, seems to point to metals as the most successful line of work, at least at the present time. In 1889 manufactures of metal formed less than twenty per cent. of the total exports of manufactures, while in 1898 they formed over forty-four per cent. The increase in exportation of metals and manufactures thereof in the decade 1889-98 was 339 per cent. while the increase in the exportation of all manufactures in that time was but 110 per cent., and the increase in the exportation of manufactures other than those of metals during that time was but fifty-five per cent. In this estimate of the exportation of manufactures of metals only those articles composed exclusively of metals are included, those made up in part of metals, such as railway cars, agricultural machinery, etc., being included among the other manufactures. The rapid increase in the exportation of manufactures of metals is shown by the fact that the exports of brass and manufactures thereof in 1889 were but \$321,137, and in 1896, \$1,320,093. Instruments for scientific purposes increased from \$1,033,338 to \$2,770,803, and in the year just ended will reach nearly \$4,000,000; bicycles, of which there were no exportations in 1889, amounted to \$6,846,529 in the year of 1898; clocks and watches increased from \$1,355,319 in 1889 to \$1,727,489 in 1898; zinc and manufactures thereof from \$28,684 to \$1,339,668; copper and its manufactures from \$2,313,954 to \$32,180,872, and iron and steel from \$21,156,077 in 1889 to \$70,406,885 in 1898, while in the fiscal year 1899 the total will exceed \$90,000,000.

Another interesting fact developed by an examination of

the figures is that the European countries in which manufactures have been long established furnish as satisfactory a market for American manufactured goods as do the countries where manufacturing has not yet been largely developed. In reapers and mowers, clocks and watches, sewing machines, bicycles and the various manufactures of iron and steel, and many other articles of the higher grades of manufacture, the European countries in which manufacturing plants and machinery and skilled workmen abound furnish a market for a large share of American exports, thus failing to justify the expressed fear that a development of manufactures in countries where the Americans are now seeking a foothold for their commerce would destroy their value as a permanent market.

IRON PROSPECTS IN BRITISH COLUMBIA.

While all Canada is rejoicing at the formation of a company of Canadian and American capitalists with many millions of capital, to go very systematically and extensively into the manufacture of pig iron, steel and perhaps nickel steel in Nova Scotia, it should not be overlooked that as far as national advantages are concerned, a similar industry might be established in British Columbia. The Pacific States of the American Union are fast acquiring a reputation for their manufacturing industries, particularly those that are large consumers of iron and its products, which assertion is abundantly borne out in the construction in the ship yards in California of some of the finest ships in the United States navy.

In examining into the prospects of an iron industry in the extreme northwest of that country, Mr. W. C. Cronmeyer, of Pittsburg, Penn., the well-known expert in such matters, recently visited the iron ore region of the State of Washington, extending his visit into British Columbia, and has written a very interesting review of the conditions existing in these regions with reference to the possible establishment in Washington of a self contained iron industry, and what he says regarding the possibilities of Washington applies with equal force to British Columbia.

Speaking of the current consumption of pig iron in the Pacific Coast States, Mr. Cronmeyer says:

At the present time it is estimated that there are about 100,000 tons of pig iron consumed annually on the Pacific coast. The supplies are drawn mainly from Alabama, some coming by an all rail route and some by a part water and part rail route. When No. 2 foundry iron was selling in Pittsburg at \$10.00 a ton, the price paid for Southern No. 2 iron was \$22.50. From the writer's own crude calculations it may be estimated that pig iron could be produced in Washington, with the facilities at command, for \$15.00 a ton, even taking into account the fact that coal is bringing there a very high price, from \$2.00 to \$2.50 a ton, while if Pennsylvania methods were introduced, it is stated that the cost of both coal and coke would be reduced very much, and might not be greatly in excess of that in Pennsylvania at the present time.

There is a very large demand along the Pacific coast for castings used in shipbuilding. At the present time most of these castings are brought in a finished or partly finished state from the Eastern foundries, and in some cases they are imported. If, however, the cost of pig iron were reduced by the establishment of an iron industry in Washington, the local iron would be used in the production of these castings. Through this influence a large industry could be built up, and the pig iron could also be worked into wrought iron, which would find a ready sale.

Mr. Cronmeyer speaks of the resources of British Columbia as follows:

There is no question that the necessary raw materials for the production of pig iron can be found in British Columbia. On the eastern coast of Vancouver Island, and just north of the 49th parallel, at Nanaimo, there are large coal fields which have been opened up and are producing bituminous coal which is well suited for coking. From Nanaimo there is a railroad extending southeast to Victoria, on the coast. In several other places on the island good deposits of coal have been found.

Iron ore of very rich quality has been found in a number of places. Probably the best and most accessible deposits are to be found on certain islands in Barclay Sound, which is on the southwest coast of Vancouver Island, and only about fifty miles, over the water, from the nearest point of the State of Washington. In the Straits of Georgia, which separate Vancouver Island from the mainland of British Columbia, are Texada and Redonda Islands, which contain good deposits of iron ore. On the coast of the mainland, north of Vancouver Island, at Rivers Inlet, are also deposits of ore. On Tzartoos Island, in Barclay Sound, where, as has been said, are the most accessible deposits, there is a mine already opened up, which the writer visited. On the island is a peak about 1,000 feet above sea level, and from its top down a distance of about 150 feet, it seems to be a mound of solid iron ore. At a lower point where the peak is about a mile in circumference, the entry is driven into the hill for about fifty feet, and is about ten feet wide. The writer has a number of specimens which he secured from this entry. This ore is granular and magnetic, with thin veins of limestone running through. The foot of the hill is about 600 feet from deep water, and the lay of the land is such that a wharf could be built so that large ocean steamers or scows could be brought up to a position where the ore could be dumped down a chute and fall directly in. It has been estimated by experienced mining engineers that this deposit contains about 5,000,000 tons of ore. Of this ore there are given below six analyses, made as follows: No. 1, by Mr. Dewsnap, mining engineer and chemist at Seattle, Washington; No. 2, by the government office at Vancouver; No. 3, by the Cleveland Steel Works, at Middlesborough, England; No. 4, by Dr. Otto Wuth, Pittsburg, and Nos. 5 and 6 by Mr. G. M. Godspeed, chemist of the National Tube Works, McKeesport.

	1	2	3	4	5	6
Iron	64.00	64.01	66.60	66.62	67.98	69.100
Silica	7.35		2.00		2.67	1.500
Alumina.....	0.52			0.14		
Sulphur	0.0054	0.008	0.02	0.006	Trace	Trace
Phosphorus..	0.0071	0.01	0.01	0.003	0.008	0.007
Lime.....	3.76		4.00		3.000	0.250
Manganese ..	Trace				0.250	0.160
Magnesia....					1.250	0.120

The ore at Rivers Inlet, which is on the mainland north of Vancouver Island, was analyzed by Gilchrist & Riley, London, England, as follows:

Iron.....	69.85
Manganese...	trace
Siliceous matter	2.75
Sulphur	0.06
Phosphoric acid..	trace
Moisture.....	trace

The duty on iron ore imported into the United States is forty cents a ton, but the freight charges would be light, as it is only a short distance by water from Barclay Sound to points on Juan de Fuca Strait on the American side. The cost of mining would be light, as all the deposits mentioned as being near tidewater are above sea level, and they could be mined by the steam shovel, some of them requiring stripping. The ore could be conveyed to a chute which would carry it to the steamer or scow in the quiet water of the Sound, and there is only a short distance of open sea which the scows would have to traverse to reach Juan de Fuca Strait, and this trip could doubtless be made by suitable scows in quiet

weather. The owners of the Barclay Sound mine state that the ore could be delivered, duty paid, on the American side for \$1.55 a ton.

To give an idea of what has already been done in this region, the following table is appended, showing the quantity and value of the mineral production of British Columbia in 1896 and 1897:

	1896.		1897.	
	Quantity.	Value.	Quantity.	Value.
Gold (placer) ounces.	27,201	\$544,026	25,676	\$513,520
Gold (lode), ounces..	62,259	1,244,180	106,141	2,122,820
Silver, ounces.....	3,135,343	2,100,689	5,472,971	3,272,836
Copper, pounds.....	3,818,556	190,926	5,325,180	266,258
Lead, pounds.	24,199,977	721,384	38,841,135	1,390,517
Coal, tons 2,240 lbs.	894,882	2,688,666	882,854	2,648,562
*Coke, tons 2,240 lbs	615	3,075	17,832	39,155
Other materials.....		15,000		151,600

*All of this coke came from the coke ovens at Comox, Vancouver Island, the bulk being shipped to the Kootenay smelters, and about 2,600 tons being shipped to California. A new market for this coke is now opening up in Mexico where several shiploads have already been shipped to one of the large smelting works situated not far from the coast.

In this section of British Columbia we find the ore, the limestone and the fuel not only in close contiguity to each other, but to some of the best harbors and waterways in the world, and all that is needed to build up as great and valuable an industry on our Pacific coast as that now being inaugurated in Nova Scotia is similar capital and energy. The blast furnaces would have a trade from the start in foundry iron. The building of puddling furnaces, and perhaps open-hearth steel furnaces would be the next step, with mills for rolling bars, shapes, plates, etc. It would no doubt be some considerable time before other lines of finished material would be added, as there would be ample opportunity for the investment of capital and the gaining of large profits through the production of the lower forms of finished material.

THE PAN-AMERICAN EXPOSITION.

Canadians, Canadian manufacturers, especially, are becoming very much interested in the Pan-American Exposition that is to bloom out in full glory in Buffalo in the year 1901. Unlike the Chicago World's Fair of a few years ago, the Buffalo show is to be restricted to exhibits exclusively from countries of the American continent, and as Canada comprises more territory in the northern half of the continent than any other country, and as a most cordial invitation has been extended to us to participate, it is to be hoped that it will be accepted, and that our manufacturers will make exhibits there that will open the eyes of all the other co-exhibitors, not excepting our American cousins. Canada did remarkably well at Chicago, and the good influence imparted to the world by our exhibits there is yet apparent and tangible.

The purpose of the Exhibition is to illustrate the development and progress of this Western Hemisphere, and to strengthen the bonds of social and commercial brotherhood; and while the original intention of its promoters was, no doubt, to show to the people south of the Rio Grande the glories of the Great Republic, with a view to impress them somewhat after the style of King Solomon and the Queen of Sheba, and to show them the great progress the United States has made in all lines of art, science and manufacture, the invitation to Canada to participate affords us an opportunity to also demonstrate what we are doing in the same direction.

That Canada has been officially invited to participate in the Pan-American Exposition is shown in the action of the United States Congress when it authorized the President to invite all the republics and colonies of the American hemisphere to join in commemorating the close of the nineteenth and the beginning of the twentieth century by holding the Exposition, the Congress also expressing the hope that "Canada, Mexico, the Central and South American Republics and Colonies would make unique, interesting and instructive exhibits, peculiarly illustrative of their national progress during the century about to close."

to indicate what can be accomplished in other lines where similar methods are employed.

He says there is little or no demand for ground pulp, and very little for chemical pulp. There is, however, a steady demand for news and wrapping paper and bags. An experiment in the shipment by a Canadian house of canned fruits and vegetables proved a lamentable failure, and considerable loss was sustained. He also remarks that a good deal of trouble and confusion is caused by Canadian correspondents with Australian colonies sending their letters with a two-cent stamp, instead of employing the old rate of five cents per half-ounce.

TRADE IN NEW ZEALAND.

In 1897 the total imports of New Zealand amounted in value to \$40,200,000, to which was contributed by—

Great Britain	\$26,950,000	
Other Australian Colonies	4,845,000	
United States—		
(a) East Coast	\$2,605,000	
(b) West Coast.....	530,000	3,135,000
Germany	780,000	
Belgium	165,000	
Franco	81,000	
Holland	75,000	

The rest being divided among other European countries, Canada (\$234,000), Asia, Africa, and British Colonies.

It will be seen from these figures that Great Britain practically controls the trade.

MACHINERY.

Agricultural machines were imported to the value of \$340,000, to which the United States contributed \$135,000 worth. Plows and harrows to the value of \$55,000, of which only \$8,400 were of American origin. Dairy machinery to the value of \$61,200, of which \$22,700 from Denmark and \$14,900 worth from the United States.

Electric machinery imports were valued at \$57,200, almost entirely from Great Britain.

Steam engines. Total imports \$11,500, chiefly from Great Britain; \$3,500 worth from United States.

Gas engines. Total importation, \$56,400, of which \$35,500 from Great Britain and \$13,400 from United States. There are many small industries carried on in New Zealand, and the demand for gas engines is increasing. At the end of 1897, there were no less than twenty-seven gas works in the colony, producing gas valued at about \$1,000,000.

Boilers were imported to the value of \$9,500, of which only \$620 worth were of American origin.

Flour milling machinery was imported to the value of \$18,700, chiefly from the United Kingdom and the colony of Victoria. The United States share was \$830. There are at present ninety flour mills in operation, which, in 1897, produced flour to the value of \$4,350,000. The amount of power employed in these flour mills is 2,333 horse-power.

Gas-making machinery. The development of the gas works creates naturally a market for gas-making machinery, of which the imports amounted in value to \$44,700 almost entirely from Great Britain. Only \$1,400 worth from the United States.

Mining machinery forms the biggest item. The total imports amounted in value to no less than \$535,000, of which \$405,000 worth came from Great Britain and only \$75,000 from the United States.

Quite a lively demand exists for portable engines, of which \$63,500 worth were imported, entirely from Great Britain. Nothing in this line was contributed by the United States.

Printing machinery. Total imports, \$68,700, of which \$47,500 from Great Britain and \$18,000 from the United States. The demand for printing machines is growing. At present there are 154 printing offices in the colony, the output of which was valued at about \$2,000,000 in 1897. On January 1, 1898, there were no less than 200 newspapers on the register. Of these, fifty are daily papers, twenty-eight are

published three times a week, thirty twice a week, sixty-three once a week, three fortnightly, and twenty-six monthly.

The growing trade in foreign ment (thirty factories producing goods to the value of \$8,500,000), creates, of course, a market for refrigerating machinery, of which the imports in 1897 were valued at \$56,200; of this, \$41,000 worth came from Great Britain and \$9,450 from the United States. New South Wales and Victoria supplied the rest. The number of breweries in the colony is eighty-five, and the value of their production, \$1,650,000. There are, besides, 132 aerated-water factories, with an output valued at \$450,000 annually.

Sewing and knitting machines were imported to the value of \$107,500. This trade is almost equally divided between the United States (\$31,200), Germany (\$30,100), and Great Britain (\$26,400). The remainder is supplied by New South Wales, Belgium and the colony of Victoria.

New Zealand abounds in forests; with an increase of fifty-six saw mills since 1890, there is found by the returns, an increase of annual output amounting to 28,937,245 feet of sawn timber, besides 10,574,274 feet of re-sawn, flooring, etc., and 4,216,784 running feet of mouldings, with a large number of doors and sashes. That such an industry creates a market for saw mill machinery is a matter of course. The imports in 1897 amounted to \$26,700, of which \$10,100 was of British, \$5,700 of American, and \$2,760 of German origin. The rest came from New South Wales, Sweden and Victoria.

Textile mill machinery (wool) was imported to the total value of \$75,700, entirely from Great Britain. With the abundance of raw material, this industry will doubtless continue to increase. At present there are nine woolen mills in operation, the output of which was valued at \$1,510,000.

The imports of pumps and pumping machinery amounted in value to \$11,740, chiefly from Great Britain (\$5,500) and United States (\$4,400).

This closes the official list of machinery. All other machinery imported into New Zealand falls under the item of "machinery not elsewhere specified;" of this category the imports amounted in 1897 in value to \$219,100, of which \$16,830 worth was of American origin.

HARDWARE.

The total imports of hardware, hollowware and ironmongery—as classified in the official returns—amounted in value to \$975,000, to which only \$88,500 worth was contributed by the United States. This item consists of all kinds of hardware which are not enumerated in the following classes, which includes locks and builders' hardware, for which there is a lively demand. Kitchen utensils are imported in increasing quantities, and in enameled goods particularly the demand is a large and growing one. All kinds of small domestic iron goods are also included in this general item.

Cutlery—which does not fall under the above heading—was imported to the value of \$96,200, almost entirely from England (Sheffield).

A lively demand exists also for sheep shears, of which \$20,400 worth was imported in 1897, almost entirely from Great Britain.

All the following articles are not included in the above general item of hardware, hollowware, and ironmongery, viz. :—

Axes and hatchets. Total imports, \$44,800, almost entirely from the United States. This is one of the very few items in which the United States practically controls the market. In spades, shovels and forks, however, Great Britain is leading. The imports were valued at \$59,600, of which \$35,700 worth was of British, and \$23,600 worth of American origin.

The importation of other small tools amounted in value to \$291,000, of which Great Britain supplied \$210,000 worth, and the United States \$24,800.

Firearms were imported to the total value of \$24,700, chiefly from Great Britain, which country is credited with \$16,400, though quite a considerable quantity of the firearms is practically of Belgian origin. They are transhipped at

British ports and therefore appear in the official returns as British goods. The share of the United States amounted to \$4,375. The total imports of cartridges amounted in value to \$45,000, of which \$13,570 worth was of American origin. The great majority is composed of shot cartridges, 10 to 24 bore.

Bicycles are also classified under hardware. The total imports amounted to 11,484 wheels, valued at \$630,000. To this importation was contributed by Great Britain \$340,000, worth, followed next by the United States with \$153,000, whilst the rest came from Victoria, New South Wales, Canada, and, to a small extent, from the European continent. The imports of "bicycle parts" are also quite considerable, having amounted in value to no less than \$315,000, chiefly from the United Kingdom. The United States are credited with only \$35,500.

The use of typewriters is also increasing in the colony, which is shown by the growing imports. In 1897, 528 machines, valued at \$28,400 were imported, the imports being almost equally divided between Great Britain and the United States.

IRON AND STEEL.

Under this heading there are classified the following items:—

Angle iron. \$11,200, entirely from Great Britain, Victoria and New South Wales.

Bar, bolt and rod iron. \$485,400, of which \$462,000 worth was of British origin. Only \$150 worth was imported from the United States.

Pipes and fittings form another important item. The total imports amounted in value to \$221,000, almost entirely from Great Britain.

A very large and increasing demand exists for galvanized, corrugated sheets, of which the total imports were valued at no less than \$630,000, entirely from Great Britain. Plain galvanized sheets were imported to the value of \$140,800, also entirely supplied by the United Kingdom.

Barbed fencing wire is one of the few articles in which the United States has gained a relatively better footing. The total imports amounted to \$149,800, in which the United Kingdom contributed \$55,000 worth, and the United States \$61,200 worth. In plain wire fencing, however, Great Britain supplies by far the great majority. The imports were \$246,000, of which over \$200,000 worth came from the United Kingdom, \$27,200 worth from Belgium, \$12,000 worth from Germany, and only \$4,000 worth from the United States. Wire netting was imported to the total value of \$130,700, almost entirely from Great Britain. All other wire: Total imports, \$66,200, mostly from England.

METALS AND MANUFACTURES THEREOF.

There are no specific items given under this heading, with the exception of a few articles, which, with the same right, could have been classified under machinery, hardware, and ironmongery. They are:

Tacks. Total, \$11,500, almost entirely from Great Britain; \$1,050 worth from the United States.

Japanned and laquered metalware. Total, \$5,600, entirely from the United Kingdom.

Weighbridges and weighing machines. Total, \$9,400, chiefly from Great Britain; \$2,100 worth from the United States.

Rivets and washers. Total imports, \$25,500, almost entirely from Great Britain; \$565 worth from the United States.

Unenumerated manufactures of metal. Total, \$260,000, of which \$3,720 from the United States.

Brass and manufactures of brass were imported to the total value of \$47,600, to which the United States contributed almost nothing, viz., \$330 worth.

Copper and copper goods imports were valued at \$88,500, to which the States contributed \$60.

The imports of lead and its manufactures amounted in

value to \$89,100, of which nothing came from the United States.

Tin and tin goods. Total imports, \$220,000, of which \$3,500 worth was of American origin (tinware).

TRADE OF THE WEST INDIES.

The summary of commerce and finance issued by the United States Treasury Bureau of Statistics gives an interesting series of tables concerning the trade of the British West Indies. It is shown that the great crescent of British islands, curving from the southern coast of Florida to the eastern littoral of Venezuela, possesses an area of nearly 100,000 square miles, with a population of about five millions, and an annual commerce of \$150,000,000. The total imports and exports of the British West Indies in 1897—when the depression was greatest—were as follows:—

	Imports.	Exports.
Trinidad.....	£2,161,231	£1,994,926
Jamaica.....	1,660,667	1,418,443
Barbadoes.....	1,008,699	725,163
St. Lucia.....	245,253	154,267
Bahamas.....	186,010	149,085
Grenada.....	164,356	154,439
St. Kitts and Nevis.....	135,921	149,204
Antigua.....	110,188	117,204
St. Vincent.....	70,824	68,935
Dominica.....	54,074	47,416
Turks Island.....	33,239	43,303
Montserrat.....	22,269	22,063
Tobago.....	11,655	4,681
Virgin Island.....	3,301	4,033

The chief imports of the people of the islands are lumber, rice, meats, flour, dried and salt fish, cotton goods, furniture, hardware and other manufactures. In 1897 Jamaica imported cotton goods worth \$1,013,779; fish, \$565,682; flour, \$790,212, and rice \$196,762. Trinidad imported—Flour, \$619,909; textiles, \$1,506,721; rice, \$724,023. Bahamas—Cottons, \$194,915; flour, \$123,691. Barbadoes—Cottons, \$610,246; flour, \$281,492; rice, \$246,556; fish, \$401,277. St. Vincent—Flour, \$41,901. Leeward Islands—Cottons, \$208,422; flour, \$228,725. Grenada—Flour, \$112,008. From Britain the British West Indies as a whole imported merchandise valued at \$8,682,736, of which \$2,153,577 consisted of cottons, \$958,860 of apparel, \$450,088 of leather and harness, \$644,831 of iron, \$273,775 of fertilizers and \$237,412 of machinery. From these figures it is easily to be seen that Canadian manufacturers might well strive for their proper share of the islands' trade. The transportation facilities will soon be unexcelled, and with good representatives and properly packed wares the Canadian manufacturer should drive a thriving trade with our tropical kinsfolk.

CAPE COLONY CUSTOMS STATISTICS.

The following table shows the quantities and values of some of the principal articles of merchandise imported into Cape Colony, South Africa, during the month of April, 1899.

Articles.	Quantity.	Value.
Agricultural Implements.....	.....	£7,897
Alc and Beer..... gals.	77,910	9,678
Apparel and slops.....	.....	53,968
Butter, including Margarine, etc..... lbs.	286,349	10,857
Candles.....	250,055	3,546
Carriages, carts and other wheeled vehicles	.....	11,196
Cheese..... lbs.	188,551	4,902
Chicory..... "	83,909	707
Confectionery and cocoa, etc..... "	215,413	6,070
Corn, grain and meal: Flour..... "	1,019,138	3,163
Maize..... "	545,901	880
Oats..... "	22,480	74
Wheat..... "	13,458,898	38,924
Cotton manufactures.....	.....	76,899
Drugs and Chemicals.....	.....	25,226
Dynamite and blasting compound, etc. lbs.	77,500	2,908
Furniture and cabinetware.....	.....	22,224

Articles.	Quantity.	Value.
Gunpowder, including powder, etc.....lbs.	5,562	586
Haberdashery and millinery.....		90,568
Hats (all sorts).....		6,204
Jewellery and plated ware, etc.....		6,634
Lead, bar, pipe, sheet and shot.....		1,448
Leather and leather manufactures, etc.....		41,486
Machinery, (all kinds).....		97,794
Meats, viz. salted and preserved lbs.	551,935	15,745
Paints and Colors, including turpentine and varnish.....		6,854
Provisions, oilman stores, etc., N.O.D.....		41,333
Saddlery and harness.....		4,551
Soap, Common, brown, etc..... lbs.	1,412,262	10,075
Spirits (all sorts)..... gals.	28,247	13,490
Stationery, including printing paper.....		19,151
Sugar: refined or Candy..... lbs.	306,258	2,095
Tobacco: Unmanufactured..... "		7,768
Manufactured: Cigars..... "		19,203
All other kinds..... "		46,363
Wine..... gals.		4,874
Wood: Unmanufactured..... cubic	250,252	9,644
Planed or grooved..... "	245,604	16,761
Manufactured, other than furni- ture.....		11,195
Woollen manufactures.....		32,588

WOOD PULP IN GREAT BRITAIN.

A correspondent writing from London, says:

"There has been a notable increase in this country in the importation of raw materials, thus indicating that the production is advancing. The following figures show the quantities of the raw materials imported during May of this and the previous year:

	May, 1898 Tons.	May, 1899 Tons.
Chemical wood pulp.....	15,536	19,587
Mechanical wood pulp.....	14,294	15,767
Exports.....	9,620	15,899
Rags.....	1,667	1,885

"There is a comparative increase as follows: Chemical wood pulp, 4,051 tons; mechanical, 1,473 tons; exports, 6,279 tons, and rags, 218 tons.

"The value of the imports of chemical wood pulp in May was £136,491, an increase of £38,316, compared with the corresponding month last year. During that month the receipts from Sweden were of the value of £57,395, compared with £30,001 for May, 1898; from Norway, £54,502, against £53,308; from the United States, £11,499, against £1,488; from Canada, £2,410, against £3,572, and from other countries, £10,685, against £9,806. It will be seen that the shipments of chemical pulp to Great Britain mark a substantial increase compared with the corresponding month of May last year; the imports from Canada evidence a decline, the only exception.

"Mechanical wood pulp was received during May to the value of £38,283, a decline of £2,119, compared with May last year. Notwithstanding this decline in value, an increased quantity was received, as shown above. The May imports from Sweden were of the value of £2,736, against £3,797 last year; from Norway, £31,534, against £28,556; from the United States, £240, against £26, from Canada, £3,222, against £4,302, and from other countries, £551, against £3,721.

"During January May chemical wood pulp was imported to the value of £536,753, an increase of £84,935, compared with a year ago. Norway participated to the extent of £243,619, Sweden £195,134, United States £41,618, Canada £15,344 and other countries £41,038. In mechanical, Norway's exports amounted in value to £136,870, arrivals from Sweden to £12,123, from Canada, £34,679, from the United States, £3,002 and from other countries, £4,729, making a total of £191,403, or a decrease of £79,945, compared with the corresponding five months of last year."

WOOD PULP IN FRANCE.

The importation of wood pulp into France continues to increase, though not at a very great rate. The latest figures available are those for the four months ending April 30th last, and for that period the importations of mechanical pulp into France reached a total of 27,980 1-5 tons, as compared with 27,124 9-10 tons in the same period of last year, and 20,293½ tons in the first four months of 1897. The import of chemical pulp is just about half that of the mechanical sorts, reaching, in the period under notice, 14,125 4-5 tons, against 13,265 tons last year, and 12,589 1-5 tons in 1897. The exportation of pulp is comparatively trifling, only amounting in the four months of this year to 157 1-10 tons of mechanical and 100 4-5 tons of chemical; in 1898 the figures were, mechanical, 10 3-5 tons; chemical, 168 9-10 tons; and in 1897, mechanical, 67 3-10 tons; chemical, 126 1-10 tons.

The returns as regards paper and pasteboards are not very well classified, but in certain special fancy sorts (de fantaisie) Germany sends most, 136 2-5 tons out of a total of 201 9-10 tons for the period of January-April this year (in which England only figures for 22 tons). In 1897 Belgium took the leading place in this department, but Germany passed her a year later, and is probably there to stay. In "other sorts" of paper, however, England is far ahead of any competitor, though her hold on the French market seems rapidly lessening, as the German figures creep steadily up. In the first four months of 1897, for instance, England sent nearly 5½ times as much paper and pasteboard into France as Germany did, but this year only a little over 3½ times as much, a drop of nearly forty per cent. in only a couple of years.

So far as the exports of French paper are concerned, Algeria, of course, takes a good deal, 1,650 7-10 tons out of a total of 6,616 3-5 tons of "other sorts" exported during the period under notice, though this even is not so good as it was, possibly owing to foreign competition. The latter, (particularly that of the United States) must also be responsible for the continued drop in the quantity of paper sent to Brazil, formerly one of France's best transatlantic customers for paper. In 1897 (January-April) this was 728 2-5 tons, in 1898, 620 1-5 tons, and this year only 465 3-5 tons. The total importations into France of paper of all kinds, card and paste boards, during the four months dealt with were, 1897, 3,588 tons; 1898, 3,613 3 10 tons; 1899, 3,418 7-10 tons, thus showing no great change on the whole. The like is the case with the exports, which were as under. 1897, 8,628 1-5 tons; 1898, 8,960 7-10 tons; 1899, 8,372 2-5 tons. This year, so far, both imports and exports have diminished in nearly the same ratio, as compared with 1898, and in a lesser degree as compared with the year previous.

WATER WHEELS WANTED IN ASIA MINOR.

The following letter addressed to the Birmingham Chamber of Commerce conveys some information that ought to interest Canadian manufacturers of windmills and irrigation appliances:

"The Municipality of the City of Aleppo have decided, at the instance of his Excellency Raif Pasha, Governor-General of the Vilayet of Aleppo, to supersede the old system of cumbersome wooden water-elevators or "norias" (which by cause of their defective construction, great friction, and ponderous weight, require constant repairs, high dams, and give at best only feeble outputs) by using new galvanized-steel ones of improved make on the water-wheel system, and have requested me to apply for estimates with sketches of the different kinds and full particulars.

"Not being acquainted with any makers in England, and yet wishing to obtain these articles therefrom as a guarantee of workmanship, efficiency and durability, I am obliged to have recourse to your kindness, and beg that you will either favor me with addresses of some reliable firms with whom I

may enter into communication, or—which is preferable, if it is not too greatly taxing your kindness—mention my want to some of the principal makers, and ask them to send catalogues and lowest prices without delay.

"I may add that it is not a question of purchasing one or two water wheels, but rather of many hundreds, perhaps thousands, his Excellency, the Governor-General of this province having decided to apply the same to the whole area of Northern Syria, along both banks of the Orontes, Tigris and Euphrates, far into the Great Syrian Desert, and thus confer opportunities for cultivating and fertilizing those vast semi arid regions which are at present neglected for want of adequate means of irrigation.

"I may remark that these wheels should deliver water at a height of six or seven meters, and have movable axes, permitting an elevation or depression of about one meter, so as to follow the rise or fall of the water. They should be as simple as possible in construction. If I remember rightly, there exists a type with tangential steel spokes, axes, or ball-bearings (so as to minimise the friction) furnished with ladle-boards for raising the water.

"The motive-power of these elevators, will, of course, be the current of the rivers themselves; they must therefore be so precisely constructed and balanced as to revolve with the slightest flow of water.

"So actively is the movement for irrigation improvements being carried on here that for those lands where there is no running water, galvanized-steel pumping-windmills are to be freely erected, and large orders will be transmitted. At the present moment twenty windmills are in transit from Chicago, and as soon as they are put up more important orders will follow this trial one.

"Begging you to excuse me for the trouble I am putting you to, and thanking you heartily in anticipation.

"I am, gentlemen, yours very faithfully,

"RAGHIB RAIF, *Ingenieur.*

"ALEPPO, Turkey in Asia, April 28."

SOUTH AFRICA FISHING INDUSTRY.

The reproach that with an immense sea board civilized South Africa is practically debarred from fish as a national food is about to be removed, and in addition a great industry is, we firmly believe, on the eve of being established. Those whose memories of the Cape Parliament carry them back but a few sessions will recollect that Mr. Orpen, the Member for Wodehouse, initiated and carried on an agitation for the development of the fisheries which he was certain existed along the coast, and at length Sir Gordon Sprigg's Government resolved to obtain a steam trawler and employ a marine biologist in order to set all doubts at rest. This trawler has been at work two years with wonderful results, the crowning victory being the discovery of shoals of sole, the sweetest of fish, upon what is known as the Agulhas bank, not far from Mossel Bay. Several shipments of these delicious fish have reached Cape Town and have been eagerly bought up, in spite of the high prices charged by the middleman employed, who, by the way, is not to have it his own way in future. Inasmuch, however, as the trawler was obtained for purposes of exploration and the Government does not desire to compete with private enterprise—if such it can be called—it is to make way for steam trawlers which are being introduced by a private company, which will be at work in a few weeks and which are going to open up a remunerative and inexhaustible industry. It seems hopeless to expect South Africa to grow its own bread; but the fishing industry is in better and more progressive hands, and we consequently feel convinced that the time is at hand when fish will be a most important and beneficent factor in our food supply—South African Trade Journal.

There are great possibilities in South Africa for the fishing industry of the Canadian Maritime Provinces.

JEWELRY IN PHILIPPINE ISLANDS.

The trade in jewelry, nick-nacks, and gold and silver-smiths' wares—hitherto chiefly in the hands of four French firms at Manila—is now going to enter upon a new phase consequent upon the change of government caused by the treaty of peace between Spain and the United States. The Spaniards, who are great lovers of jewelry, used to be ready buyers of all such goods, and the rich mestizos were the best customers for all articles of value. The custom of giving presents upon all occasions, whether festal, birthday, or nuptial, was generally practised, and shop windows decked with jewelry and nick nacks were emptied almost as soon as dressed. The Spaniards will now be replaced by Americans in all military and civil Government employments; will they spend their wages and salaries in the same way? That is hardly probable. As regards the rich mestizos, many have left for foreign countries; will they return? This leaves the Indians, who have also always been willing to purchase brilliants and articles of jewelry. But two years and a half of insurrections, and loss of money, will undoubtedly affect trade. The only branch of trade now likely to be active is that in cheap watches, chains, rings, etc., but will not the Americans now compete with French and German goods?—French Consul at Manila.

PLOUGHS IN SOUTH AFRICA.

I find this is a desirable plough market. For many years the plough known as "No. 75" has had a large sale. This is a cast plough, with an adjustable wheel on beam, and in sizes from nine to twelve inch width of cut. It is now evident, from information received, that the cast-iron plough is being superseded by a plough after the same model as the No. 75, but with steel mould, share, and wrought standard, and with wood beam. Large quantities of these ploughs have arrived from New York and Kentucky makers, and are well liked. I was informed that an all-steel plough like the pattern above described, but with steel beam and handles, would soon be needed, and some are coming in. It is stated that German makers are producing an all-steel plough at a less price than is asked by Americans. German makers of ploughs are undoubtedly copying American ploughs, both walking and riding. It astonished me to learn to what an extent sulky and gang ploughs have been sold. I was informed by one merchant that he had sold 4000 of a well-known Illinois riding plough in three years. A market, I learn, is open for American "overalls," provided the makers will use a copper rivet at the bottom of the "flap" or fly, and at the pockets. I was told the American makers would not comply with the request.—United States Consul-General at Cape Town.

CONDENSED MILK IN FORMOSA.

We find a decrease, as compared with the year 1896, in condensed milk, flour, clocks and tobacco. The good quality of the Anglo-Swiss Condensed Milk Company's product, which is sold on this market for 25 sen (12½ cents in United States gold), has gradually driven all other brands out, and, although the Eagle brand is superior, the market price of the same—40 sen, or 20 cents in United States gold—is almost prohibitory. Two brands of American unsweetened, so-called evaporated cream, have been imported into the island and found much favor among a very limited number of consumers—foreigners and Japanese, but the Chinese and Japanese generally desire the sweetened milk, as more economical and possessed of better keeping qualities. If a brand of American condensed milk fully equal to the Anglo-Swiss could be placed on the market at a similar price, it would in time doubtless recover much of the trade which the United States once possessed in this commodity. The consumption of condensed milk in the island in 1897 reached some 23,000 dozen cans, valued at about 50,000 yen (\$25,000). Every year shows a rapid growth in the use of this commodity.—United States Consul at Tamsui.

BUTTER IN SOUTH AFRICA.

Although South Africa is a country where the pastoral industry and all its branches should prosper, this part of the world is nevertheless still compelled to import large quantities of butter from abroad. Butter was formerly imported in tins of different weights and sizes, but the rapidity and frequency of maritime communication and the almost general employment nowadays of refrigeration chambers on board the steamers, have given rise to a great change in the trade in certain provisions, and in butter in particular. The use of tinned or specially packed butters is declining from day to day, in favor of fresh butter imported in the cold stores of the steamers. Up to the present Cape Colony has sent her orders for fresh butter to Australia, but that source of supply is unable to cope with the demand, butters—for climatic reasons—being only abundant and cheap there from October to April. From April to October, therefore, butter has to be obtained from Canada, England, Sweden, Norway, and (in small quantities) France. These butters must be fresh, without salt, and free of all admixtures.—French Consul-General at Cape Town.

CIGARETTES IN FORMOSA.

The damp atmosphere of Formosa, like that of many other Eastern countries, is such that tobacco rapidly spoils if it is not put up in hermetically sealed tins. American cigarettes, of which there was at one time a considerable consumption, arrive in little pasteboard packets, the cigarettes protected by a wrapper of tin foil; and in a very short time—a matter of a few weeks only—they turn green and mouldy and are practically worthless. Messrs. Wills & Co., an English firm, pack their cigarettes, which are advertised as being made of American tobacco, in round tin cases holding fifty. By a clever arrangement, a small blade can be brought into position on the outer cover, and a "simple twist of the wrist" cuts a circular hole in the tin, and the contents of the package are before you as fresh and fragrant as the day they left the factory. The total import of foreign tobacco, excluding cigars, is valued at 111,432 yen (\$55,718), of which the United States has but 1146 yen (\$573).—United States Consul at Tamsui.

ACETYLENE AND CARBIDE OF CALCIUM IN SOUTH AFRICA.

The growth which this industry has experienced during the last year or so is tremendous and affords Ernest Edward Williams ample opportunity to write a new book, for as usual Germans and Americans are ahead of us. So far German merchants have been able to dispose of all their output on the Continent at high rates, without, however, being able to cope with the demand. Several big towns in the north of Germany have already been fitted up with acetylene light, which is said to be far superior to electric light. The Hera International Company for Acetylene Lighting, Berlin, have invented a new purifying process, through which the somewhat disagreeable smell of the acetylene disappears and a very steady, pure light is procured. This makes it suitable for indoor lighting. In Germany a ring has been formed amongst the firms concerned, which, however, will hardly be of any consequence to trade out here, unless American and German manufacturers combine. There can be no doubt that this new industry has a great future.—South African Trade Journal.

CHOCOLATE AND CONFECTIONERY IN TURKEY.

Chocolate does not sell in Constantinople in such large quantities as in a French town of the same importance; relatively speaking, the sales are small. The principal brands sold are as follows:—French.—These chocolates obtain a certain amount of business, their quality being good, but they cannot compete with similar foreign products on the score of

price. Swiss.—Quality is not so good as in the case of French chocolates, but the cheap lines are selling well. Italian.—These have almost monopolized the market, in spite of inferior quality, owing to their low prices. English.—Cadbury's, of recent introduction, is of good quality and moderate price. Sales are made on a cash basis, payable after despatch of B/L, with four per cent. or five per cent. discount, or four or at five months' date without discount. A good trade is to be done in confectionery, especially in sugar-plums, fondants, pralines, and fruit comfits. Inferior makes are most in demand.—French Chamber of Commerce at Constantinople.

BUILDING MATERIALS IN NEW SOUTH WALES.

I have seen a newspaper statement that very expensive cement works are to be erected in Vancouver. There is a market for nearly 200,000 barrels per annum in this colony, and a proportionate demand in the other colonies. Building is more active in Sydney and the demand for lumber better. The President of the British Columbia Milling and Trading Company has just returned to Canada after a careful examination of the possibilities of this market. It is probable the result will be a large extension of the trade of the company, but the recent burning of its large export mill may delay contemplated projects. A number of business men of the colonies are arranging to go to England via Canada next spring. A number will visit Canadian manufacturers with a view to business arrangements.—Mr. J. S. Larke, Canadian Commercial Agent at Sydney.

BRITISH CANADIAN TRADE.

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

56. A firm in London who do a large business in all kinds of fruit pulped, canned goods, etc., desire to have the names of Canadian exporters of the first named class of goods.
57. An enquiry has been received for the names of hosiery manufacturers who have hosiery wastes to dispose of.
58. The addresses of Canadian exporters of evaporated apple rings are asked for.

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

READY-MADE CLOTHING IN RUSSIA.

This branch of trade is becoming of greater importance at the Fair from year to year. The largest amount of business is with Siberia. The direct trade done between the large Siberian firms and those of Moscow does not impede in any way the continual increase of this trade at Nijni Novgorod. The number of firms attending the Fair is becoming larger, and the amount of business done is increasing in proportion. In Siberia the chief demand is for the so-called "French" clothing, but buyers are tending more and more to give the preference to cheaper qualities. On the other hand, in the Volga region, ready-made clothing is being sold less and less, due to the improvement in the social and economical condition of the people, and more especially to the development of local industry.—French Consular Agent at Nijni Novgorod.

BEER AND ALE IN SENEGAL.

Beers received here are imported via Bordeaux, Marseilles, Hamburg, and Liverpool. They are put up in bottles of 70 to 75 centilitres, and packed in cases or barrels of 25 or 48 bottles. Prices vary according to brand; French beers cost about fcs. 13.75 per case of 25 bottles, and fcs. 28 per case in 43 bottles, f.o.b. The only English beer we get is "porter," in casks of 4 dozen at fcs. 7.05 per dozen, f.o.b. Liverpool.—French Councillor of Foreign Trade at Rufisque.

STOVES IN ASIA MINOR.

I learn from Mr. Ojalvo, the interpreter to our consulate at Erzerum, that the Turkish Government, owing to the great scarcity of wood, proposes to permit the mining of coal in Eastern Turkey. As wood has been for centuries the only fuel used for heating purposes—excepting, of course, dung—the use of coal should give to our manufacturers of stoves an immense market in Eastern Asia Minor, where the winters are severe and so long that fires are necessary nearly eight months of the year. I would suggest to our manufacturers of stoves that they send circulars and price lists to Mr. Vital Ojalvo, at Erzerum, who will gladly explain their contents to dealers, who have already applied to him to be put into communication with manufacturers in this country.—United States Consul at Erzerum.

LAUNDRY BLUE IN SENEGAL.

Laundry blue sells well here. The qualities most in demand are as follows:—Colman's blue in cubes, coming from Liverpool. This blue is put up in packets of 1 lb., each containing thirty-two cubes. These packets are placed seven at a time in small wooden boxes, sixteen of which go to the case. The price of this blue is 0 frs. 64 per lb. free Liverpool, not packed. Blue in balls comes from France, 480 or 240 balls forming 1 kilo.; it is put up in boxes of 500 or 250 grammes, which are placed in cases holding 50 kilos. The price of the second quality, which is most in demand, is 1.50 frs. per kilo., packed, Bordeaux station; discount 15 per cent. Blue in perfumed sticks is also a French article.—French Councillor of Foreign Trade at Rufisque.

WINDMILLS IN SYRIA.

A Turkish official of high rank in the Aleppo province recently informed me that he had ordered, conditionally, a number of windmills from the United States for irrigation purposes. He seems very confident that a large demand can be created for these machines, and I would suggest to manufacturers that it would be of advantage to investigate the subject. The market for windmills can, I think, be enlarged considerably beyond the Aleppo province. The large plains of the Adana Vilayet, which are devoted to agriculture, should furnish a fine opportunity.—United States Consul at Alexandretta.

BARBED WIRE IN ITALY.

The use of barbed wire is increasing largely in this country. It is used for training vines, and is found of great service in keeping thieves out of the vineyards after dark. The vines being in many cases only a few feet apart, it is a matter of considerable difficulty to avoid the barbs even in the day time, and at night it is practically impossible. The wire need only

be of the lightest kind, as the lengths used are comparatively short, and as no cattle have to be contended with there is never any heavy strain on the posts.—British Consul at Naples.

PAPER BAG MACHINERY.

A manufacturer who wishes to engage in the business of making paper bags desires to learn where and by whom paper bag making machinery is made in Canada. If any such there be the fact should be made known through the columns of this journal. Our information is that the latest and most efficient machinery for that purpose is covered by patents that are controlled by a paper bag trust that has its headquarters in Chicago.

READY-MADE CLOTHING IN BRAZIL.

There is no such thing as an establishment in Para carrying ready-made clothing. Every thing of the kind is made to order. It would seem however, that such goods could easily find a market. The cheapest line of clothing, together with calicoes, domestics, and fancy goods, should be sent.—United States Consul at Para.

SHOES IN SWITZERLAND.

Imports of shoes into Switzerland are steadily increasing. In 1897 Germany supplied no less than \$296,400 worth of leather shoes, Austria \$126,400 worth, France \$137,400 worth, whilst the share of the United States amounted to only \$600. In fine men's and ladies' shoes a successful business could be established in Switzerland if proper efforts were made and the requirements of the market studied.

A meeting of the New England vice-presidents and leading members of the National Association of Manufacturers of the United States was held in Boston a few days ago, at which steps were taken towards making arrangements for the fifth annual convention of the Association. It was recommended to the Executive Committee of the Association that the convention be held during the third week of May, 1900, and steps were taken to arrange the details and to inaugurate a general movement throughout New England looking to an increase of the membership of the Association. It is the intention of those interested to make the Boston convention next year of greater magnitude and importance than any of the previous annual gatherings. By reason of the large membership and representative character of the Association a peculiar interest attaches to these annual conventions, which are devoted to the discussion of vital questions affecting in the broadest manner the manufacturing interests of the country.

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CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser on these pages, and to every concern in Canada interested in an 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, alkalies, 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 sawmill of H. F. Eaton & Sons, and John Andrews' axe factory at Milltown, N.B., were destroyed by fire July 5th.

The company controlling the Shawenogan Falls, it is reported, has induced the Pittsburgh Reduction Company to invest \$3,000,000 in the manufacture of aluminum at that place.

The Wire and Cable Co., Montreal, is applying for incorporation with a capital stock of \$500,000.

The Jonquiere Pulp Co., St. Dominique de Jonquiere, Que., has applied for incorporation with a capital stock of \$40,000.

The Leprairie Brick Co., Montreal, has been incorporated with a capital stock of \$150,000.

The Rock City Tobacco Co., Quebec, Que., has been incorporated with a capital stock of \$50,000.

The Preston Furniture Co., Preston, Ont., has been incorporated with a capital stock of \$20,000. E. H. Grove, J. E. Daniel, Jacob Werlich and associates are interested.

A flour mill will be built at Carnduff, N.W.T., by Mr. Smith, formerly with the milling firm of McCulloch & Herriott of Souris, Man.

F. W. Fraser, Chester Nattorville and associates, have been incorporated as the Fraser Cigar Co., London, Ont., with a capital stock of \$25,000.

Max Schleman's overall and shirt factory at Montreal was destroyed by fire July 4th. Loss about \$20,000.

A new 75 k.w. S.K.C. dynamo was put in operation at Grand Valley, Ont., a few days ago and is now supplying from one phase of the machine, the town of Grand Valley with 500 incandescent house lights and some 50 c.p. street lamps. From the other phase of the same machine, which is wound for a 5,000 volt current, they are supplying the town of Arthur, Ont., twelve miles away with about 600 incandescent house lights and five enclosed arc lamps, as well as fifteen 32 c.p. incandescent street lamps. This plant is one of the most unique and complete in Canada.

Messrs. Grafton & Co., Dundas, Ont., are operating their tailor shops by S.K.C. two-phase motors, current being supplied by the Dundas Electric Co.'s two-phase plant.

The new and handsome suspension bridge over the Niagara River, connecting Lewiston, N.Y., and Queenston, Ont., will be formally opened on Friday, July 21st.

The new 100-barrel flour mill at Edmonton, N.W.T. which is being erected for the Dowling Milling Co., will soon be completed.

T. Bullock & Son will enlarge their grain elevator at Melita, Man., and build a new flour warehouse.

Messrs. Eager & Sanderson, Winchester, Ont., are installing a 500-light dynamo. The entire plant was furnished by the Royal Electric Co., of Montreal.

John Mather, Ottawa, and associates are forming a company to establish pulp and paper mills at Keewatin, Ont. The mills will have a capacity of 100 tons daily.

The Casting and Metal Stamping Co., Woodstock, Ont., has been incorporated with a capital stock of \$5,000. Messrs. John Lee, W. P. Robinson, and W. H. Junkius, Woodstock, Ont., are among those interested.

Messrs. A. C. Miller & Co., proprietors of the steamer Alexandria, have placed their order with the Royal Electric Co for a complete electric lighting plant for her. The work of installation is now going on which, when completed, will make her to be one of the best electrically equipped vessels on the lake.

The Dominion Coal Co. have ordered twenty 30-ton cars, the Midland Railway twenty flat cars and the Intercolonial Railway twenty refrigerator cars from Messrs. Rhodes, Curry & Co., Auherst, N. S.

W. J. Cochrane, Gloubooro, Man., is increasing the capacity of his flour mill to 300 barrels daily.

Negotiations are in progress for the establishment of a big pulp industry at Calumet, Ont. Ottawa capitalists have purchased the mills of Alex. Baptiste at that village, and lumbermen state that the limits in this area have been cut for white pine for years, and that there is an enormous quantity of the finest spruce standing.

The new steamer Argyle, plying between Kingston and other Ontario lake ports, is one of the palace steamers of the lake, its fittings being of the finest. It is lighted throughout by electricity and she also has a search light. The entire electrical plant was installed by the Royal Electric Co., of Montreal.

The Diamond Machine and Screw Co., Toronto, has been incorporated with a capital stock of \$75,000. Messrs. R. N. Sterling, F. S. Jackson, J. W. Bull, and R. F. Massie are the provisional directors. The company acquires the business of the Diamond Machine and Tool Co.

McComb & Stanley, Lucan, Ont., will rebuild their oatmeal mill, recently destroyed by fire. The new mill will be of stone and brick.

The Seven Islands Co., Montreal, is applying for incorporation with a capital stock of \$25,000, to manufacture flour, etc.

Messrs. Mullin & Muir, Toronto, who are large dealers in wall paper, were in Orillia, Ont., a few days ago sizing up the situation with a view to establishing a wall paper factory there. The town authorities have made them the usual promises for tax exemption, etc.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET Air Compressors

STRAIGHT LINE
DUPLEX and
COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

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

Other Offices - - - ROSSLAND, B.C.

RAT PORTAGE, ONT.

HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The manufacturing warerooms of Mr. Geo. Bean, of Dundas, Ont., have been changed from the old motive power to electricity, the Dundas Electric Co. furnishing the current, and the Royal Electric Co. a two-phase S.K.C. motor to drive the establishment.

C. Lang's cider and fruit jelly factory, Clifford, Ont., was destroyed by fire July 9. Loss about \$2,000.

Price Bros., of Amqui Mills, Que., have their entire saw mills, docks and yards lighted by electricity. The plant, which was furnished by the Royal Electric Co., started up a few nights ago.

As set forth in the application for a Dominion charter incorporating The British American Pulp and Paper Company, the objects are twofold. The first is to acquire and develop timber limits, water-powers,

mill privileges, and especially to establish and operate pulp and paper mills, principally at the falls of the Peribonka, Mistassini and Chamouchouan rivers in the Lake St. John District, in the Province of Quebec. The second is to construct and operate a line of railway from a point on Ha Ha Bay on the Saguenay River, thence to Grand Falls, on the Peribonka River, thence to the first falls on the Mistassini River, thence to the Chutes a l'Ours, on the Chamouchouan River, and thence to Roberval on Lake St. John. It is further sought to run branch lines from this system, and lines connecting the various pulp and paper mills it is intended to establish at the different falls; also to generate electricity and distribute the same. The capital stock is to be \$3,000,000. Montreal is to be the chief place of business. The applicants for incorporation are Ray-

mond Prefontaine, Mayor of Montreal; Robert Bickerdike, Alfred A. Thibaudeau, Duncan A. McCaskill, Edward Goff Penny.

The Toronto Fruit Vinegar Co., whose capital stock originally was \$25,000, are applying for authority to increase that stock to \$50,000. In 1894 the company, whose factory was then at Cedar Grove, Ont., established to manufacture cider, vinegar, pickles, sauces, etc., erected a larger factory at Stouffville, Ont., where their business has been carried on up to the present time. Owing to the increased demand for their goods it has been necessary to make extensive additions to their plant, and the directors have, therefore, decided to establish a factory in the City of Toronto for the manufacture of pickles, sauces, etc.; also a plant for the evaporation of apples and other fruits at the Stouffville factory.

REDDAWAY'S ORIGINAL

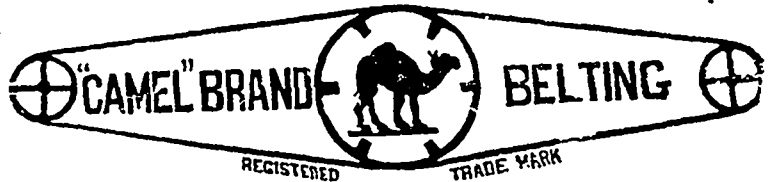
CAMEL BRAND HAIR BELTING

STRONGEST BELT MADE. NO STRETCHING.

NOT AFFECTED BY DAMPNESS,
HEAT OR STEAM.

WRITE FOR PARTICULARS. LARGE STOCK ON HAND.

Fire Hose, Steam Hose, General Mill Supplies.



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

MORE MAGNETIC THAN EVER

Manufacturers

Who would increase their output—
Retain their present customers
and secure new ones, will
not fail to exhibit at



CANADA'S GREAT

Industrial Exposition

TORONTO
AUGUST 28 to SEPTEMBER 9, '99.

Great Demand for Space.

Applications should be made forthwith.

Entries Close Aug. 5.

For Prize Lists, Entry Forms and all information address the Manager.

JOHN J. WITHROW, President.
H. J. HILL, Manager, Toronto.

The attendance of Visitors last year was greater than ever before and this year will be greater still.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Packard Electric Co., St. Catharines, Ont., inform their patrons that they have been appointed the sole agents in Canada for the manufacture and sale of the enclosed non-arcng fuses and apparatus controlled by the D. & W. Fuse Co., of Providence, R. I. A full line of samples of this apparatus was on exhibition at the Canadian Electrical Association Convention in Hamilton, last week.

Fire in the works of the Laurentide Pulp Co., of Grand Mere, Que., July 2, did damage to the extent of about \$25,000.

It is now nearly ten years since the B. F. Sturtevant Co. began to design and build its own electric motors. Although originally designed solely for fan propulsion, these motors were soon built as independent machines, and to a still greater extent as dynamos for direct connection to Sturtevant engines. To-day the Sturtevant generating set stands as well established as does the well known Sturtevant fan, and covers a field peculiarly its own—that of the small set with high grade and high speed automatic engine.

The St. Catharines, Ont., Electric Light and Power Co. have enlarged their water power and are in a position to furnish power and light throughout the twenty-four hours. They have lately installed a 200 k.w. S.K.C. two-phase generator from which they are supplying light on their single-phase mains during the hours of lighting, and during the day are furnishing two-phase alternating

current to the various industries throughout the city. This Company has originally been supplying arc and incandescent lights only, but as there was a considerable field for power, in which one plant operating a 500 volt direct current system was already engaged, they decided to put in something which they could use for both purposes, hence have only one investment in using the poly-phase system instead of two, using the direct current power system and an alternating current lighting system.

The Electric Light Co., who recently secured a contract for lighting the town of Merriton, Ont., and who have about 400 incandescent lamps installed in houses and twenty enclosed arc lamps on the streets, have begun operations with their own water power and apparatus. They have, however, made arrangements by which the St. Catharines Electric Light and Power Co. are to furnish them current from their station which is about four miles distant. The plant of the St. Catharines Electric Light and Power Co. is being considerably changed and enlarged. One side of their new 200 k.w. S.K.C. generator will supply the town of Merriton, Ont., and that district lying south of their power house, and the other phase that portion of the City of St. Catharines north of their power house. During the hours of daylight this poly-phase machine will be used for supplying power to the different industries in and about St. Catharines.

At Mispec, N. B., the new pulp mill of the St. John Sulphite Pulp Company is about ready for business. It is on the bank of the Mispec, and about ten miles from St. John. Its output is to be thirty tons per day. The dam, which is built of solid masonry, is fifty-four feet high and 240 feet long at the top. Its length at the bottom of the gorge is eighty feet. It is 120 feet wide at the base, and tapers off to eight feet at the top. The stonework is faced with timber on the water side. The flume, which is made of iron, is five feet in diameter. It leads from the dam on the surface of the ground down to the water wheels in the mill, and is 830 feet long. There are four water wheels in all, one for each department, which will develop 600 horse-power. In addition to this, the company have a 250 horse-power compound steam engine as an auxiliary. In the boiler-room there is 500 horse-power of steam boilers, for use in the cooking and drying of the pulp. A pipe runs through the flume, by means of which the water required for the boilers is taken into the mill.

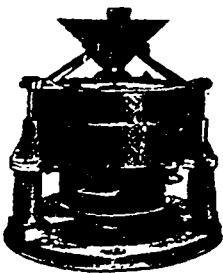
The Guelph Carpet Works, Guelph, Ont., have purchased a number of body brussels looms in Philadelphia. These looms are famous for their product and are of standard English make. The plant will form a valuable accession to Canada's industries.

The new City Hall buildings of Toronto are to be carpeted with the Alexandria grade of chenille axminster carpet made by the Toronto Carpet Manufacturing Company.

ROCK

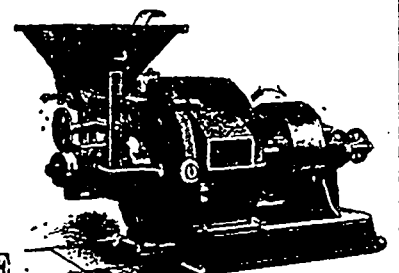
EMERY

MILLS



MILLSTONES

CHEAP. DURABLE.



EMERY STONES are Made to Fit ANY MILL FRAME

SEND FOR CIRCULAR

GRINDS EVERYTHING.

STURTEVANT MILL CO., BOSTON, MASS.

Shafting, Hangers, Pulleys

FRICITION CLUTCH PULLEYS AND COUPLINGS

Rope Transmission of Power.

HANDSOME ILLUSTRATED CATALOGUE ON APPLICATION.

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Messrs. P. W. Ellis & Co., manufacturing jewelers, Toronto, have registered a partnership in Montreal, where they have now established a branch of their extensive business.

The Paton Manufacturing Company, Sherbrooke, Que., are installing an extensive worsted plant.

Messrs. Taylor & Co. of Dundas, Ont., have placed an S.K.C. two-phase motor in their work shop and will hereafter operate by electric current furnished by the Dundas Electric Co. Dundas will soon follow the lead of Hamilton and become, with all its factories, a smokeless city.

Messrs. J. S. Leo, J. Warner, T. Coffin, B. Shepherd and Mrs. J. S. Leo, all of Montreal, are asking incorporation under the name of the Montreal Optical Company, with a capital stock of \$10,000. The object of the proposed company is to manufacture optical goods and jewelry.

Messrs. Geo. Wilson & Co., St. Catharines, Ont., who operate a large planing mill and sash and door factory, where they have plenty of refuse for steam purposes, have found it cheaper and more satisfactory

to operate their mill by electricity and have entered into an agreement with the St. Catharines Electric Light and Power Co. to furnish them with from fifty to seventy-five h.p. They have also placed their order with the Royal Electric Co. for a fifty k.w. S.K.C. synchronous motor. There are also a number of other firms in that city who contemplate making changes from steam to electricity.

Poap's saw mill at Osnabruck Centre, near Cornwall, Ont., was destroyed by fire, July 1, loss about \$3,000.

The W. E. Sanford Manufacturing Co., Hamilton, Ont., have recently purchased an excellent location at the corner of Yongo and Adelaide Streets, Toronto, which they are fitting up as a branch of their well known Oak Hall clothing establishment.

The Ontario Wind Engine and Pump Company, Toronto, have received an order for a large tank to be erected for the town of Louisville, Que., the size of which will be 20x30 feet with a capacity of 100,000 gallons. This company claims to be, practically, the only one in Canada able to handle orders for this size of tanks. They have

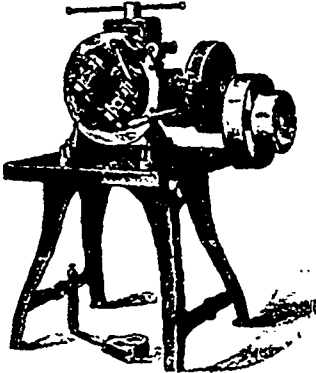
recently supplied the Canadian Gold fields Company with two cypress tanks for their works at Elora, Ont. They manufacture yearly large quantities of tanks for railroads in the North-West. This line of their business is increasing, and their capacity is taxed to the utmost.

Great activity prevails in the foreign department of the Morris, Feild, Rogers Co.'s business at Listowel, Ont. A car load of piano parts to Rotterdam, Holland; another carload to Havre, France, and still another to London, England, have left the past week and orders have been received from London, England; Brussels, Belgium; and Dresden, Germany.

An important mining deal has just been effected at Port Arthur, Ont., by which the Graham-McKellar group of iron properties on the Atikokan range, consisting of sixteen locations, containing 1,200 acres, and covering four and a-half miles of the range, has been bonded to William Hunter, representing American capitalists, for \$350,000, for eighteen months, so that the parties may test the properties. The sum of \$10,000 was paid in cash for this privilege.

THE BEST PIPE THREADING and CUTTING-OFF MACHINES

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



No. 00 Machine, Power Attachment.

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

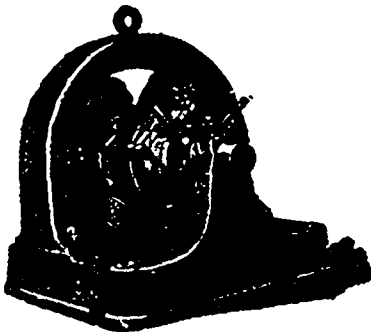
SEND FOR CATALOGUE 27.

Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

Toronto and Hamilton ELECTRIC CO.

(Late KAY ELECTRICAL MANUFACTURING CO.)



ELECTRICAL MACHINERY
HIGH-CLASS ONLY.

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

Engine Packing,

Magnesia Pipe Covering

Lubricating Oils

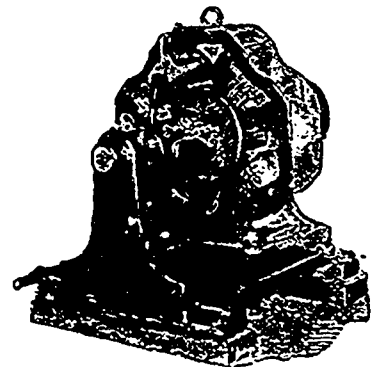
and Grease.

The

William C. Wilson Co.
Limited

24 FRONT STREET EAST
TORONTO, ONT.

THE Electrical Construction Co. of London, Limited.



MULTIPOLAR MOTORS & DYNAMOS

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

HEAD OFFICE AND FACTORY:
No. 90 YORK STREET, London, Canada.
760 Main St., Winnipeg.
12 York St., Toronto. 131 Granville St., Halifax.

An application has been made for a charter for the Quebec, Hamilton, and Fort William Navigation Company, with a capital stock of \$1,000,000. The incorporators are W. T. Wood, M.P., Mr. Southam, C. E. Doolittle, C. S. Wilcox, W. D. Long and A. B. Mackay, of Hamilton, Ont. The company proposes to construct, acquire and navigate steam and other vessels for the conveyance of passengers, goods and merchandise between the ports of Canada, and to and from any port of any other country, and to carry on the business of common carriers of passengers and goods, and of forwarders, wharfingers, and warehousemen, and to deal in goods, wares and merchandise. Two steel steamships will be built in Hamilton this year and others later on.

The Abbott-Mitchell Company's rolling mills are an important addition to the industries of Belleville, Ont. The works lately removed from Montreal are being installed

in the new buildings erected for the purpose on the free site given by the town, and will shortly be in operation.

Mr. W. F. Whitehead, formerly manager of the Magog, Que., Print Works, aided by Montreal capitalists, will start works for printing cottons. The capital will be half a million dollars.

La Patrie, of Montreal, Mr. Tarte's paper, announces that the Dominion Government will undertake the immediate construction of a very large grain elevator at Montreal.

The first of a series of monster new locomotives intended for the fast new service between Montreal and Ottawa has just been turned out of the Montreal shops of the C.P.R. Three others will follow. The specimen on view is the largest locomotive ever made in Canada. It stands fully fifteen feet high, while the driving wheels are seven feet in diameter. The weight of the engine

alone is eighty tons. It is built to give a speed of eighty-three miles an hour, with a train of six coaches.

J. R. Booth, the Ottawa lumber king, has made arrangements to go into the manufacture of calcium carbide on a large scale. He will build on the site of the large sawmill which was burned a few years ago. When completed the works will be four stories high, 150x104 feet. It is expected by Mr. Booth that 250 tons of sawdust will be consumed per day. The plant will be driven by water power taken from the flume and a large force of men will be employed.

The Board of Arbitrators, to whom the matter had been committed, have handed out the award in the case between George Stagg, jr., of Toronto, and John Bradbury over the question of priority of invention of a bung-cutting machine. The judgment has been signed by a majority of the arbitrators, and the award has been forwarded to the Commissioner of patents at Ottawa, with instructions to issue the patent to Mr. Stagg. The Dominion Bung Company, which Mr. Stagg now represents, intend enlarging their works in Toronto, and conducting the manufacture of bungs, spiles, etc., upon a large scale.

The by-law to raise by debentures \$71,000 for the purchase of the Niagara Falls Electric Light Co. plant by the town of Niagara Falls, Ont., has been carried by a large majority. The object in the purchase of the plant is to utilize the power during the day, when not used for light, for the Ontario Silver Plate Co., who decided to move their works to that town, if this power franchise could be secured.

Manager Hill, of the Toronto Exhibition, has received assurances from Director Blue of the Ontario Bureau of Mines that a large display of minerals from North Ontario shall be made at the approaching fair. Mr. Blue states that he has already received four or five hundred pounds from the inspector at Rat Portage, and that more is coming. Assurances have also been received from the Crown Lands Department that an interesting display of the products of the District of Temiscamingue will be forthcoming.

The Grenfell Milling Co. will erect a new grain elevator at Summerberry, N.W.T.

..CHICAGO.. TIME RECORDER

A RELIABLE TIME RECORDER MUST POSSESS THESE THREE QUALIFICATIONS:

1.—It must be an accurate Timepiece.

We use the famous SETH THOMAS CLOCK.

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Our Sight-opening feature, whereby each man can inspect his record when made, eliminates all chance for dispute.

3.—IT MUST BE SIMPLE, POSITIVE, AND QUICK OF OPERATION.

The "CHICAGO" has less complicated mechanism than any other Recorder made, and by the simple manner of operating employees can register two-fold more rapidly than on any other.

If you have none you pay for it in lost time every year.

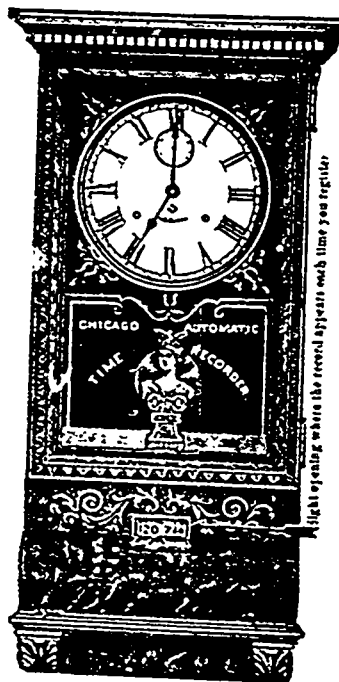
CHICAGO TIME REGISTER CO., CHICAGO, ILL.

SOLE AGENTS FOR CANADA:

W. C. BULLOCK,

348 Markham Street

TORONTO, ONT.



Numerical (or Key) Recorder

Sight opening where the record appears each time you register.

The Economical Development of Water Power

Requires, where the supply of water is limited, that every available foot pound of energy contained in it be properly set to work. On the other hand, if the source of power is abundant your interests suggest that the plant be made as compact and powerful as possible, to reduce the space occupied and the first cost.

The Crocker Patent Turbine....

Is peculiarly adapted for service under any of these conditions, as it possesses great efficiency under varying degrees of gate opening, and the ratio of power developed to diameter of wheel is remarkably large. To those interested we will supply catalogues and particulars of leading plants, together with a copy of latest official Holyoke test, 1893. Water powers reported upon, and estimates prepared. Correspondence invited.



Horizontal Setting, with Quarter Turn Elbow.

CHICAGO TIME REGISTER COMPANY.

The JENCKES MACHINE CO.,

42 Lansdowne St., Sherbrooke, Que.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Contracts have been awarded as follows for the construction of the new St. Lawrence market in Toronto :

Excavation, masonry, piling and cut stone work — Oakley and Holmes.....	\$27,720
Steel and iron work — Dominion Bridge Co.....	58,590
Sheet metal work — Metallic Roofing Co.....	12,970
Carpenter work—M. Hutchinson..	14,995
Plumbing and heating—W. J. McGuire.....	10,300
Brick paving—Dominion Construction Co.....	5,821
Painting and glazing—C. Davies & Co.....	3,831
Hoists—Fensom Elevator Co.....	1,350
Electric wiring—Electric Maintenance and Con. Co.....	675
Cinder concrete arched flooring—Expanded Metal and Fireproof Co.....	11,187
Rolling shutters—J. S. Wilson....	4,000
Architect's fees—S. J. Siddall....	7,500
Total.....	\$158,942

The Booth Copper Co., of Toronto, of which Messrs. George Booth is president, and A. G. Booth, secretary, have sent us their new illustrated descriptive catalogue and price list having reference to the various lines of goods manufactured by them. They are manufacturers of brewers' distillers, confectioners and plumbers' copper work in all its branches. Reference is made to the "Victor" copper range kitchen boiler, constructed not only to resist both inward and outward pressure, but the continuous action of expansion and contraction, and tested to withstand 175 pounds pressure. A diagram is given showing how to properly connect a range boiler to prevent accidents, etc. Other articles alluded to are

copperpantry sinks, water balls, showers, imperial urns for gas or steam, tea and coffee urns, hot water urns, all in large variety, Booth's instantaneous water heater, brass coal hods, tea and hot water kettles and cuspadores, steam tables, chafing dishes, oyster cookers, confectioners' copper work and machinery, brewers' copperwork, distillers' copperwork, steamboat copperwork, etc. When we remark that the mechanical and artistic execution of the book was done by the Milne-Bingham Printing Co., Toronto, it is equivalent to saying that it is first-class in every respect.

Mr. F. H. Clergue, of the Sault Ste. Marie, Ont., Pulp and Paper Co., has announced that his company will at once erect at that place an extensive sulphite pulp mill. When the new plant is completed the shipments of pulp will cease and the complete manufactured article will be turned out on the spot. The present works employ 1,000 hands. Mr. Clergue made the still further important statement that he had just completed a contract, under which his company would supply Krupp, the German gunmaker, with nickel steel for a period of five years. By a new process he had turned out in his laboratory at Sault Ste Marie nickel steel of the best armor plate quality at a cost of \$15 per ton, though the United States Navy paid \$400 per ton for a similar article. Algoma nickel will be used to fill Krupp contracts, and the Soo, he said, would soon boast one of the greatest metallurgical reduction plants in the world.

Messrs. Sadler & Haworth, manufacturers of leather belting, Montreal and Toronto, are sending to a number of the engineers having charge of the steam plants of large manufacturing establishments, a very substantial and useful leather body belt. It is just the article a man would like to wear in

warm weather, when braces worn over the shoulder are hot, inconvenient and uncomfortable. It is made of russet leather upon which is embossed the name of the makers. Haworth—our own George, is a dandy in getting up advertising novelties.

The United Electric Co., Ltd., Toronto, have closed a contract with the Kingston Hosiery Co., for a 30 k.w. direct connected generator, switchboard, engine and the installation of lights throughout their mills at Kingston, Ont.

John Labatt's brewery at London, Ont., was partially destroyed by fire July 4th. Loss about \$30,000.

The saw mills of Conroy Bros., at Deschenes, Que., were destroyed by fire July 6th. Loss about \$125,000.

The Bow Park Packing Co., Brantford, Ont., has been incorporated with a capital stock of \$150,000 for the purpose of taking over the Bow Park packing industry.

Messrs. Hourd & Co.'s furniture factory, London, Ont., was destroyed by fire July 12th. Loss about \$8,000.

The McLaughlin Carriage Co., of Oshawa, Ont., have placed an order with the United Electric Co., Toronto, for a 25 k.w. direct connected generator and engine with complete accessories for operating same.

The Canadian Breweries Co., Montreal, has been incorporated with a capital stock of \$600,000 to carry on the business of brewers and maltsters.

The Great West Saddlery Co., Winnipeg, Man., has been incorporated with a capital stock of \$250,000.

The United Electric Co., Toronto, have received an order from the Kootenay Electric Supply and Construction Co., of Nelson, B.C., for 100 k.w. generator direct connected to Pelton Waterwheel to operate under 360 feet of waterhead.

FOR


Mechanically Drying Everything

THE F. D. CUMMER & SON CO.,
HUNDREDS IN OPERATION. CLEVELAND, OHIO.

Use Syracuse Babbitt Metal

IT IS THE BEST AND CHEAPEST FOR

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



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

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

SYRACUSE SMELTING WORKS.

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

Very great activity prevails at the engineering works of I. Matheson & Sons, at New Glasgow, N.S. They are building a steam launch for the Nova Scotia Steel Co., to be used at their iron mines at Belle Isle, Nfld.; remodelling the machinery and furniture of the Minor Products Co., of Bridgeville, N.S., and supplying to the Drummond

Colliery a coal handling plant, consisting of triple screws, picking belt and loading arrangements.

The foundry of Burrow, Stewart & Milne, at Hamilton, Ont., was destroyed by fire July 14th. Loss about \$20,000.

The McLachlan Electric and Gasoline Motor Co., Toronto, has been incorporated with a capital stock of \$39,000.

Messrs. D. H. Croft, A. W. Croft, Jas. R. L. Starr, and associates, have been incorporated as the Croft Acetylene Gas Co., Toronto, with a capital stock of \$20,000.

It is stated in Montreal that the Pittsburg, Pa., Reduction Company have agreed to take 10,000 horse-power from the Shawenegan Water & Power Company, and will erect a plant at Shawenegan to make aluminum. The Warren-Scharff Company are making progress with their contract at Shawenegan, some 800 men being engaged on the branch line to connect their works with the Great Northern Railway.

Messrs. Corey & Campbell, of Bedford, Que., have given the United Electric Co., Toronto, an order for one of their 1,000 light inductor alternators for street and commercial lighting.

The Talbot Brussels Carpet Co., Montreal, has changed its corporate name to that of The Dominion Brussels Carpet Co., and the place of business will be at Sherbrooke, Que.

J. E. Townsend's mattress and bedding factory, Montreal, was damaged by fire July 7th to the extent of \$1,500.

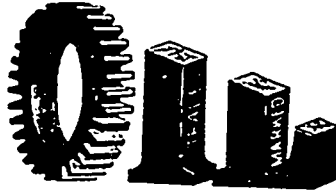
The Gowans Kent Co., of Toronto, have given a contract to the United Electric Co., Toronto, to equip their new wholesale warehouses with a complete electric plant, consisting of 30 k.w. generator direct connected to high speed engine, also boiler, switchboard, three elevator motors and the installation of lights and fixtures throughout their five storey building and basement.

The Bell Organ & Piano Co., Guelph, Ont., have received an order from England for 800 organs.

H. P. Alguire's saw mill at Osnabuck Centre, was recently destroyed by fire. Loss about \$3,000..

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"RENOVN"
ENGINE
"ATLANTIC" RED



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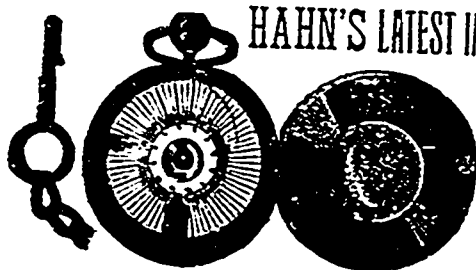
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THE TRADES PUBLISHING COMPANY.

102 South Twelfth Street,

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When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The digester building, sulphite tower, and sulphur-burning departments of the Laurentide Pulp Co's works, Grand Mere, Que., were recently destroyed by fire. Loss about \$30,000.

McKenzie & Co.'s elevator at Brandon, Man., was recently damaged by fire to the extent of \$500.

The Chemanus, B.C., lumber mills are sending lumber to North China in large quantities, and charters are numerous both for this mill and the Moodyville, B.C., mill. The Hastings mill at Vancouver, B.C., will soon be ready for business. The machinery is now being put in and when in operation the exports of lumber from British Columbia will be very materially increased.

Owing to the very small space allotted to the machinery exhibitors at the Paris Exposition of 1900, the Armstrong Mfg. Co., of 139 Centre St., New York City, and Bridgeport, Conn., announce their intention to open an exhibit store in Paris during the time of the Exposition and will be pleased to hear from any firms who will take a share of the store for that purpose.

The Industrial Society of the County of Maskinonge, Que., are negotiating with American capitalists for the sale of the St. Ursale falls of the Maskinonge river, which

falls, it is said, can be made as useful for industrial purposes, if not superior to the Shawonogan falls at Grand Mere, on the St. Maurice river. The falls have a decline of 180 feet in a few arpents, and no less than seven cascades, at the foot of each of which industrial establishments can be erected on solid rock foundations. The channel is guarded by solid rock. The company also owns 275 acres of land at the falls, and the Grand Nord railway runs over the ground. The Maskinonge river is supplied by numerous lakes, as well as from Lablanche and other rivers, and by the means of locks an immense supply is supplied by water from numerous lakes as well as thousands of horse power. The residents of the district think that before long it may become a rival of Grand Mere. The falls are situated at a distance of nine miles from the St. Lawrence.

The manufacturers of the new explosive known as fumelessite have decided to erect a factory at Rat Portage, Ont., to turn out ten tons of that material a week. It is said that the explosive has been tested in the deepest mines in England and has been found superior to nitro-glycerine, which is now in use. It will displace a tremendous amount of rock and leaves no fumes, so that miners may enter chambers where fuses have been set off immediately thereafter. It

is understood that Messrs. Mackenzie & Mann, Toronto, are interested in the manufacture of the new explosive, which was introduced into this country by Messrs. Harold Boyd and A. T. Winters, of England. It is claimed by Mr. Winters that such an accident such as recently occurred in the War Eagle will be impossible with fumelessite.

The power house of the Hull Electric Co., at Lake Deschenes, was destroyed by fire July 5th. Loss about \$15,000.

The Manitou Milling Co., Manitou, Man., is overhauling its mill and adding new machinery.

Mr. Lannoy, representing the Pierre Mahy Glass Works Company of Rahnsart, Belgium, was in Chatham, Ont., a few days looking over the possibilities of a window glass factory in that vicinity. He has been shown the sand deposits on the St. Clair River. These were said to be suitable for glass manufacturing. A test of a quantity of this sand was made by the Wallaceburg Glass Factory, and it was found to contain a small iron deposit, which renders the sand undesirable for window glass. The proximity of Chatham to the American sand deposits, however, is considered an advantage, and the probability is that a company will be organized in Chatham composed of Belgians, who will take sixty per cent. of the stock.



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Wire Screens for Every Class of Material.
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ST. CLAIR AND ERIE SHIP CANAL.

The announcement that the St. Clair and Erie Ship Canal Company will begin operations in the early fall is of much interest to shippers and others interested in lake traffic. The canal has been known on paper for about two years, and the stock has been sold in Canadian cities and in London. The company only waits for certain promised legislation in the Provincial Parliament to begin the work of excavation. The canal is known in detail, less to New Yorkers than to the people of Cleveland, Buffalo, Detroit, and the western lake cities. By lake shippers it is looked upon as an important link in the deep-channel system which is to aid commerce considerably, and it is hoped, extend it, by means of a ship-canal, to the seaboard.

The St. Clair and Erie Ship Canal is to cross the Canadian Peninsula which lies between the two lakes. The canal is to extend in a straight line from a point opposite the "St. Clair flats," to a point on Lake Erie, which is in a direct line as the crow flies to Cleveland. It is to have a length of thirteen miles, and the dredged channel in Lake St. Clair to its entrance will be nineteen miles in length. This will give a total length of thirty-two miles, as against one hundred and eleven miles over the course now in use by the lake-carrying trade, through the Detroit River. The building of the thirteen miles of canal proper is said by engineers, who have examined the plans, to be a matter of comparative ease.

Borings have shown that there is no rock within several feet of the level of the bottom of the canal as planned. It will be a straight cut through blue clay of great firmness, and can be accomplished under the most favorable circumstances. The canal will be seventy-two feet wide on the bottom. The

sides will slope in the ratio of two to one, making the water surface 156 feet, with a depth of thirty-one feet. There will be a berm, three feet wide, five feet above the water. Turnouts or "gats," will be provided, besides ample space at each end. The estimate of the engineers for the total cost of the canal—\$5,519,629—is alleged to be a conservative one.

Through the Detroit River at present, passes almost the entire traffic of the lakes, the only notable exception being that between Lake Superior and the ports on Lake Michigan. In 1890 the tonnage registered at American ports passing through the Detroit River both ways was 21,684,000 tons, in 1893 it was 23,001,889 tons, and in 1895, 26,165,000 tons. This year it is estimated that it will certainly increase to 30,000,000 tons. Many of the large ship-building firms are now pressing the work of building large vessels. An order given during the present month was for four of the largest boats ever built for fresh-water service, each more than 500 feet in length, and with a gross tonnage of 8,000 tons. The estimates of the canal projectors are that 20,000,000 tons will prefer to pass through the canal, and upon this basis they fix the income in tolls at \$660,000.

Two years will be consumed in building the canal. It will be crossed by four existing railways, which will necessitate that number of draw-bridges, and three other bridges will be required for highways. As the difference in level between the two lakes is only three feet, no locks will be needed, but there will be a guard gate at the St. Clair end, for use during construction, and afterwards when repairs are necessary. The entrance from Lake St. Clair is shallow, and to obtain a twenty-one foot channel through the lake three miles of dredging will be necessary. At the Lake

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PARIS EXPOSITION, 1900.

Kelly's Directories, Ltd., of London, Eng., desire to announce to their many patrons in the Dominion, and to Canadian Manufacturers generally, that they have made arrangements for prominent space in the Paris Exposition in 1900, in which to exhibit their

COMMERCIAL DIRECTORIES

prominent amongst which are the Merchants, Manufacturers and Shippers of the World. Employes conversant with the French, German, Italian, Spanish and other languages will be in daily attendance, and the names and addresses of British and Colonial Manufacturers will be furnished to enquirers interested therein.

N.B.—Special type-written lists furnished of all the Professions, Trades, Agricultural, Cattle and other industries of the whole of Australia, New Zealand, Tasmania and South Africa—for 80 cents per hundred; and rebate allowed on all envelopes returned to us post-marked "Can't find."

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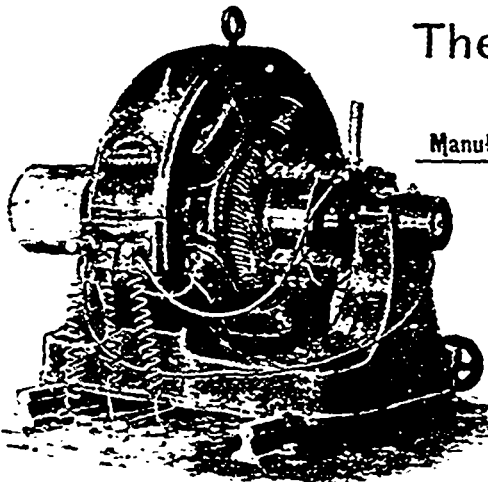
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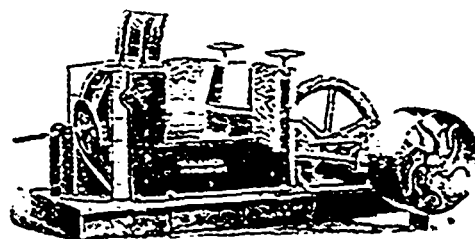
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Erie end less than half a mile of dredging will be needed to reach deep water. At this end it is proposed to construct a harbor of refuge, which has long been needed, in which vessels may find protection from the storms of Lake Erie. The canal approaches will be easy of access. At the north end the dredging in Lake St. Clair will be 300 feet wide at the outer end, and this approach will be well buoyed and lighted at night by electricity. At the south end, the entrance to the harbor of refuge on Lake Erie will be 200 feet wide, with an ample basin for waiting or delayed vessels. The whole length of the canal will be electrically lighted with arc lamps. At the outer end of each entrance there will be

a lighthouse. The draws of all bridges will be operated by electricity.

The difficulties of navigation in the Detroit river are the principal arguments upon which (with the saving in time) the projectors base their claim that the canal is a necessity. The government maps of this channel show it to be a tortuous and perplexing one. Lake craft in working through make thirty-four changes of course in the one hundred and ten and three-fourths miles which will be shunned by vessels passing through the canal. In the early days crooked channels and sharp bends caused little trouble to short and shallow-draft vessels. But now that the bulk of the freight is carried in large steamers, many of

them over 400 feet in length, and of as deep draft as the channels will allow, these sharp turns make navigation difficult and dangerous.

Under the most favorable conditions, on account of shoals and bends, the fastest freighters can scarcely make ten miles an hour through the Detroit river; hence the trip consumes a little over eleven hours. The canal route would take five hours—two through Lake St. Clair and three through the canal. This would be a saving of six hours on each trip, or half a day in the round trip. For vessels of slower speed the gain would be even more. If a steamer and her consort average seven miles an hour, they would be sixteen hours traversing the one hundred and eleven miles, while they would be but six hours on the shorter route, thus making a saving of twenty hours on each round trip. The average number of round trips from Port Arthur or Duluth to Port Colborne or Buffalo is in a season twenty-two, giving from nine to ten days to each trip. Half a day saved on each trip by using the canal would be eleven days saved in a season, or more than sufficient for an extra trip, the receipts for which would be almost clear profit. It is further urged that a very substantial saving to shippers and owners will result from lower insurance rates.

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BOBBINS and SPOOLS
FROM SELECTED STOCK.
Correspondence Solicited ...
.....Orders Promptly Filled
SHERBROOKE, P.Q.

In 1855, when the first "Soo" lock was opened to commerce, the tonnage passing through was only 106,295 tons, there being at that time a depth of only ten feet over the sill. In 1891 a new lock was opened, with sixteen feet over the sill, and the St. Mary's River shoals were deepened. During that year 2,000,000 tons passed through. In 1895 two new locks were constructed, with twenty-one feet over the sill, and in 1896 the traffic had increased to 16,806,781 tons, and in 1898 the tonnage passing the "Soo" amounted to 21,284,664 tons. Today the big 400-foot freighters carry cargoes at one-tenth the amount received when the channels were only eight to ten feet in depth. The low rate of water transportation has also forced the railways to lower their rates on all bulky articles correspondingly; and thus a commerce has been built up which would have been impossible had there been no great waterway. It is claimed therefore, that the new canal will increase materially the yearly tonnage, and will reduce the rates of transportation to a considerable degree.

Possibly the most important function of the new waterway will be its use as a channel for the shipment of coal westward. The transportation of grain and ore from the West and North-West has fallen into the hands of the steamship companies in greater proportion each year. The special value of the St. Clair and Erie Canal in this connection, say the promoters, is because of a singular fact. Across Lake Erie from east of Port Pelee, and the islands of the south shore, there is an open belt of clear water all through the winter. Here a line of car-ferries could run from Cleveland, Sandusky, and Toledo to the canal, with scarcely any danger of an ice jam. Coal could thus be transported direct to the canal without breaking bulk the year

round, and transferred in cars to the western railways. This would be the transfer station for the coal used in Western Ontario, and for much to be distributed in the West, the transportation of which is now monopolized by the railways.

ANOTHER CANADIAN ENTERPRISE.

The Quebec, Hamilton and Fort William Navigation Company, with headquarters at Hamilton, Ont., are applying for incorporation with a capital stock of \$1,000,000.

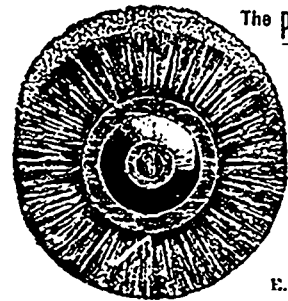
The purposes for which incorporation is sought are to construct, acquire and navigate steam and other vessels for the conveyance of passengers, goods and merchandise between the ports of Canada and to and from any port in any other country, and to carry on the business of common carriers and forwarders, wharfingers and warehousemen, and to deal in goods, wares and merchandise. The applicants for incorporation are A. T. Wood, merchant; Hon. W. E. Sanford, senator, manufacturer (since deceased); William Southam, publisher; W. D. Long, merchant; C. S. Wilcox, manufacturer; C. E. Doolittle, manufacturer, and A. B. Mackay, wharfinger, all of Hamilton, these to be the provisional directors.

It is the intention of the company to proceed as soon as possible with the construction, at Hamilton, of two steamers, each of 2,000 tons or over—as large as the new St. Lawrence canals will admit, these two to be followed by others.

The company will have the advantage, to begin with, of the carrying of ore from the Lake Superior company to the Hamilton smelter—a considerable business in itself—and will be in a position to take advantage of the great increase in the shipment of grain by the St. Lawrence route which must follow upon the completion of the new St Lawrence canals.

NEW MACHINERY HALL.

Having reference to the machinery hall of the Toronto Industrial Exhibition which was recently destroyed by fire, the Parks and Exhibition Committee of the Toronto City Council, who have the matter in hand, have contracted for the erection of a better and more up-to-date building on the old site, to cost \$13,080. It is not anticipated that there will be any delay in the construction of the building. It will be equipped with all necessary steam power, shafting, etc., and all usual requisites for the display of machinery in motion, etc.



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FACTORY
Manufacturers of
ALL KINDS
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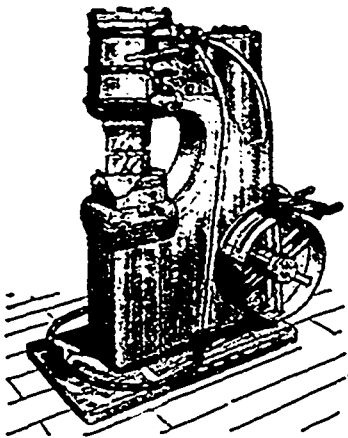
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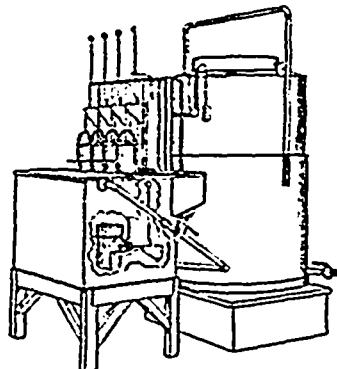
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LATEST DYESTUFFS.

Brilliant Benzo Green B.—The above is a new homogeneous aniline, the very latest addition to the important but recent Benzo Green family, specially adapted for cotton dyeing, producing clear bright shades, which could formerly only be obtained by a mixture of the clearest blues and yellows, of this group of dyestuffs. Fastness to light is decidedly better than such mixtures or any other homogeneous dyestuffs, hitherto known on the market. It dyes easily level, very fast to acids, perspiration, ironing and rubbing. Fastness to washing about equal to Benzo Green and for light shades should answer all requirements, but if necessary fastness to washing can be increased by an after treatment with fluoride of chrome or chrome alum.

Brilliant Benzo Green B. is equally well adapted for dyeing loose cotton, silver, cross reels and cops as for yarns and piece goods. Also well suited for dyeing wool and mixed fibres.

Diazo Indigo Blue M.—This new diazo

product possesses valuable properties. As a further addition to the Diazo Blue group already well known as substitutes for indigo, it holds an important place. The shades of this new benzidine dyestuff when diazotized and developed with developer "A," are marked especially by their fastness to light and on cotton are considerably superior in this respect to indigo as well as all other diazotizable products on the market. Fastness to washing of the diazotized shades is very good, being equal to the older "B" brand, especially adapted for cotton piece goods, yarn and loose cotton.

Pluto Orange G.—This benzidine group has recently been added, in the form of Pluto Orange G. (Patented). Very fine shades, ranging from a delicate cream to the brightest orange may be obtained, which possess good fastness to light: especially adapted for dyeing cotton, half silk and silk, as the shades of these fibres are fast to

washing, and when dyed on silk, its fastness to water is also good.

In dyeing of half wool, Pluto Orange G. can be employed in conjunction with other dyestuffs, suitable for half wool. When developed with Benzo Nitrol paste on cotton, yellowish browns, fast to washing, are obtained.

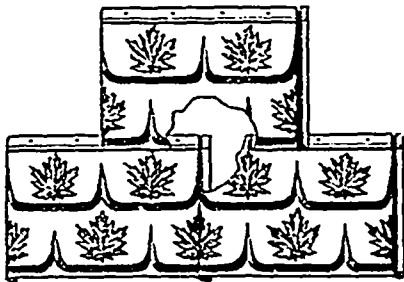
Benzo Red S.G.—A red cotton dyestuff fast to acids, has long been sought after. The Farbenfabriken of Elberfeld are now placing a product called Benzo Red S.G., on the market and which is fast to acids. Up to the present time, Delta Purpurine and Brilliant Congo have been used but they are only moderate in regard to fastness to acids.

In regard to fastness to light, it is better than the average substantive red.

Victoria Violet A.B.S., and Azo Acid Blue G.B. The two products while not new are now manufactured by the Farbenfabriken. These colors dye wool easily level in a

IF PEOPLE ONLY KNEW

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



OUR "SAFE-LOCK" SHINGLES

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

THE METAL SHINGLE & SIDING CO.
(LIMITED).

PRESTON, - ONTARIO.

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Steam and Gas Engines,
Pumping Machinery,
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A Few Mines

WHO USE



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

CANADIAN RAND DRILL COMPANY, Montreal

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sulphuric acid bath. They are moderately fast to alkalis and light, extremely fast to rubbing and are moreover very cheap. Rinse Azo Acid Blue well or resulting shade is somewhat redder. Cotton checking threads remain white.

Both the above colors are especially suited for producing cheap navy blues, very fast to rubbing and yarn (hosiery yarn) and ladies' dress material.

Patterns, circulars, samples and latest information about colors, etc., supplied gratis by the Dominion Dyewood & Chemical Co., sole agents in Canada for the Farbenfabriken, vorm. Friedr Bayer & Co., Elberfeld, Germany.

PATENT REPORTS.

Below will be found a list of patents recently granted through the agency of Messrs. Marion & Marion, patent attorneys, Montreal and Washington, D.C.

CANADA.

- 63,176—Victor Barford, Tara, Ont.—Desks and Seats.
- 63,196—Cliff & Wardlaw, Dundas, Ont.—Automatic water supply device for acetylene gas generator.
- 63,231—W. R. Caldwell, Amhorstburg, Ont.—Rag sewing needles.
- 63,239—Mrs. Annie S. Miles, Oromocto, N.B.—Fly escape.
- 63,277—Isaac Ochs, Hespeler, Ont.—Acetylene generators.
- 63,297—Francis Gallant, Tignish, P.E.I.—Hand shade for bicycles.
- 63,298—L. A. Nadeau, St. Athanasie d'Iberville, P.Q.—Pole tips.
- 63,299—L. A. Nadeau, St. Athanasie d'Iberville, P.Q.—Neck yokes.

- 63,301—McIntyre & Dickinson, New South Wales Colony.—Non-Refillable bottles.
 - 63,347—Henri J. & N. A. Giroux, Charlesbourg, P.Q.—Acetylene gas generating apparatus.
 - 63,385—Jos. A. Plante, Quebec, P.Q.—Acetylene gas generators.
- GREAT BRITAIN.**
- 24,640—Paul F. Payan, St. Hyacinthe, P.Q.—Knife for skinning animals.
 - 17,256—Maynard & Frederick, Campbellford, Ont.—Driving mechanism for bicycles.

BELGIUM.

- 138,601—Henri Edmond Casgrain, Quebec, P.Q.—Carburettor.
- 139,160—Mullarky and Hingston, Montreal, P.Q.—Shoe sole sewing machine.
- 63,353—Emery Coulon, Blaton, Belgium.—Manufacture of artificial stone.
- 63,348—Savier Turcotte, Ste. Agathe de Lotbiniere, P. Q.—Acetylene gas generator.

FRANCE.

- 283,245—Mullarky and Hingston, Montreal, P.Q.—Shoe sole sewing machine.
- 283,243—Paul F. Payan, St. Hyacinthe, P.Q.—Knife for skinning animals.
- 284,423—Geo. M. Donaldson, Kentville, N.S.—Adjustable garment pattern.
- 285,044—Paul Lair, Lotbiniere, P. Q.—Engine.

- UNITED STATES.**
- 625,887—Paul Lair, Lotbiniere, P.Q.—Engine.
 - 625,942—Paul R. Trothowey, Muskoka Falls, Ont.—Boat propelling mechanism.
 - 626,477—Odilin Archambault, St. Hyacinthe, P.Q.—Acetylene gas generators.
 - 626,485—David Ireneo Bruneau, Kingsley Falls, P.Q.—Attachments for stoves.
 - 626,710—Charles Magnuson, St. John, N.B.—Envelopes.

SWITZERLAND.

- 63,384—A. Wartenweiler & R. Splenger, Engwang, Switzerland.—Automatic apparatus for production of acetylene gas.

NORWAY.

- 63,390—Axel Krofting, Christiansa, Norway.—Manufacture of organic products from sea weeds.

THE NEW IRON INDUSTRY IN NOVA SCOTIA.

The Whitney people have decided upon Sydney as the site of their extensive iron works. About a square mile of land has been appropriated in the vicinity of Muggah's Creek. All the necessary deeds have been drawn up by the town and the company have complied with the conditions of the bargain.

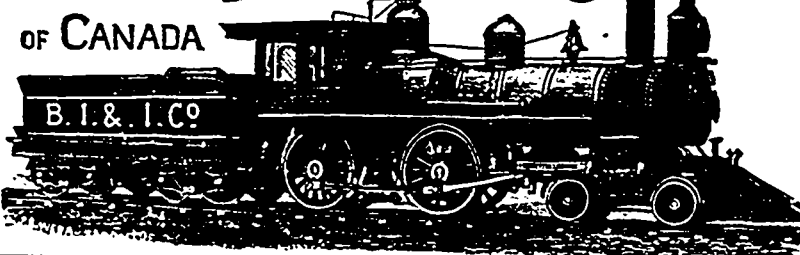
Work on the foundations of the blast furnaces will commence in a few days. It is possible that the building of the furnaces will be by contract, while the foundations,

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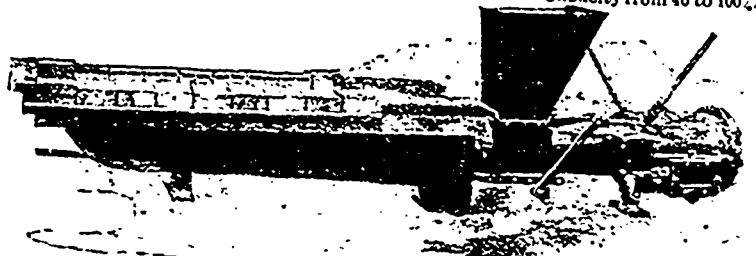
Head Office,
TORONTO.

Are You
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Good Con-
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Reduce Your Fuel Bills
Increase Your Output...

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



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No Underfeed Stoker is successful without infringing our Patents, and the public are warned against importing or using infringing devices.
N.B.—Have you seen our Underfeed as applied to Houses, Schools, Churches, etc.? (Send for Circular).

For Estimates and other Information write
The General Engineering Co. Limited

SOLE MANUFACTURERS FOR CANADA.

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

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

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concrete, with top layers of brick, will be laid by the company.

There will be four furnaces of larger capacity than any in the Dominion. Each of these furnaces will be capable of producing 150 tons of pig iron per day, that is, when charged to full capacity, but as it may not be wise to overwork the furnaces, a total of 500 tons per day for the four furnaces may be a safe estimate. Assuming that the four furnaces are kept in blast without mishap for twelve months the product for the year will be 182,500 tons, or twice the amount produced by all the furnaces in Canada in operation in 1898. The building of these mammoth furnaces will involve the employment of a great deal of labor, and the consumption of an immense quantity of different materials. Take the item of bricks for instance. The bricks for lining, etc., will have to be imported as they are not made in this country, but of red brick a very large number, not counted by the thousands, or the hundreds of thousands, but by the millions will be required. By the end of November, if no hitch occurs in the building, two million bricks will be swallowed up.

And the materials and labor entering into the construction of the works form small items, in comparison with the material and labor which will be required once the works are in operation. Take limestone. Of this article from 125,000 to 150,000 tons annually will be required. What a 'lift' this will be to farmers owning lime lands, and to labor not fully employed in the sections producing it.

Of coal for use as it comes from the mine and for the making of coke 750,000 tons annually will be required. This will give steady employment to the coal miners and necessitate the employment of a larger force. Indeed the labor required in the direct operation of the furnaces will be but a small proportion of the labor necessary to supply materials for the ever gaping maw of the furnaces.

Then of iron ore 360,000 tons will be swallowed annually by the furnaces. Of this large quantity the greater proportion will at first come from Newfoundland, but the company will be only too glad to secure all

the ore necessary in Cape Breton and Nova Scotia, if it can be obtained, for the reasons: first, that Mr. Whitney is solicitous for the development of the resources of the province; and secondly, because a larger bounty is received on pig iron made from native than from foreign ore. And let it be said that Hon. Mr. Fielding is all right in refusing to place Newfoundland ore on a footing with native ore, and that Sir Chas. Tupper is all wrong in desiring that the bounty on pig be the same whether made from native or foreign ore. It is hard to understand how Sir Chas. representing a mineral county made such a suggestion, in view of the belief that Cape Breton abounds in iron ore, which needs but

a little encouragement, to prospectors, to demonstrate.

The starting of blast furnaces in Cape Breton in our opinion is of far greater importance than is apparent on the surface or at the present time. While there is no doubt a market for pig iron in Britain, and possibly, Germany, yet after all the home market is and ought to be the best. In order to consume a part of the pig iron made in Cape Breton in this province industries must be established which will use it. The making of rails may be one such industry, but the making of ship plates and iron angle may be counted as the readiest solution of the question "How to use the iron at home."

Felts for Pulp Mills

20 years in the business —the first to make Felts in Canada; capacity 1,000 lbs. per day. All our

Felts are woven endless, without a splice. Our Felts will last longer and make dryer Pulp. All up-to-date mills use our Felts. New mills, when in need, write for samples and prices.

HAMELIN & AYERS, Lachute Mills, P.Q.

THE "SAFETY" Acetylene Gas Machine

Manufactured by

THE SAFETY LIGHT AND HEAT CO.,
DUNDAS, ONT.

WHAT SOME OF OUR FRIENDS
SAY OF US:

DEAR SIRS.—I purchased last fall from your agent, Mr. Isaac McKee, one of your Safety Acetylene Gas Machines. I find it very economical and quite satisfactory. I light my store and dwelling. We have a beautiful, clear steady light and no hitches. I believe it much safer to handle than some machines that I have examined.

W. H. POGUE, LITTLE BRITAIN.



The London Machine Tool Co., LONDON, ONT.

Toronto Office, 42 York Street. {PHONE} 293 {MANUFACTURERS OF GENERAL MACHINERY....}

Having recently sold our patterns and plant to the A. R. Williams Co., of Toronto, retaining only such machines as are useful in our business, we beg to say that we are rapidly putting in New Machinery, from new and improved designs, and are now in a position to receive orders for all Standard Tools for Metal Working in all branches. It will be our aim, by personal supervision of the product of works, with expert men of large experience at head of each department, to turn out nothing but first-class work at moderate prices. And as we tend to deal directly with the manufacturers, they will be enabled to get their machinery at first cost.

As we shall not be able to personally visit each manufacturer, it is for this purpose that we publish this advertisement. This is our agent who is going about to solicit a share of your patronage. We are thankful for the patronage extended to us in the past, and hope that we may secure an extension of the favors for the future.

- All correspondence relating to the following Tools will be promptly answered, viz
- LATHES—Engino, Gap, Break, Turrot, Fox, Spinning, Etc.
 - PLANERS—Standard, Crank, Plate, Etc.
 - DRILLS—Standard, Sensitivo, Multiple, Radial, Etc.
 - MILLING MACHINES—Lincoln, Plain, Universal, Etc.
 - SHAPING MACHINES—Whitworth, G. & E. Rack-Driven, Etc.
 - HAMMERS—Steam, Sandage Drop, Stiles Drop.
 - BULL-DOZERS for all purposes.
 - PUNCHES AND SHEARS for Plate, Angles, Channels, Gauges, Etc.

And we would call special attention to our PRESSES for Cutting, Stamping, Drawing, Wiring, Riveting, Etc. We shall also esteem it a pleasure to give quotations on Special and General Machinery in our line.

LONDON MACHINE TOOL CO.

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

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3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers

Special Castings and all kinds of

FLEXIBLE AND FLANGE PIPE.

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Cotton Blankets,
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Only Wholesale Trade Supplied.

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AGENTS

MONTREAL and TORONTO.

And with the making of ship plates follows the industry of chief advantage to any country, viz. steel shipbuilding and engineering.—Maritime Mining Record.

COAL PRODUCTION IN 1898.

The output of coal in the Dominion for the last calendar year shows an increase over previous year, the figures, as tabulated below, from returns furnished by the various collieries, showing an output of 3,714,217 as against 3,528,133 tons in 1897. It is noteworthy, that British Columbia contributed 1,127,869 tons, as against 798,458 tons in 1897. The present year will show a large increase all round on these figures.

NOVA SCOTIA.		Tons.
Dominion Coal Co., Cape Breton.	1,135,182	
General Mining Assn., "	272,279	
Cape Breton Colliery "	12,647	
Broad Cove Coal Co., "	5,022	
North Sydney M.&T. Co. "	7,186	
Marbou Coal "	325	
Acadia Coal Co., Pictou County...	203,613	
Intercolonial Coal Co., "	210,191	
Cumberland R. & Coal Co., Cum- berland Co.	322,542	
Canada Coals & Ry. Co., Cumber- land Co.	67,616	
Scotia Colliery, Cumberland Co.	485	
Add not included above.....	10,000	
Total.....	2,247,088	

MANITOBA AND N.W. TERRITORIES.		Tons.
Alberta Railway and Coal Co., Lethbridge.....	168,260	

BRITISH COLUMBIA.		Tons.
H. W. McNeill Co., Anthracite...	23,000	
" Canmore.....	121,000	
Roche-Perce Colliery, Estevan, Man.....	10,000	
Sundry Minors Estimated.....	10,000	
Total	332,260	

BRITISH COLUMBIA.		Tons.
New Vancouver Coal M. & Land Co.....	520,222	
R. Dunsmuir & Sons.....	315,738	
Union Colliery Co. of B.C.....	236,395	
" Alexandria Colliery	45,560	
Total.....	1,117,915	
Crow's Nest Pass Coal Co.....	9,954	
And New Brunswick Estimated..	7,000	
Grand total tons.....	3,714,217	

JOHN J. KELLER & CO.

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NEW YORK

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Printing.

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LUXFER PRISMS



The latest device for

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dark rooms and
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By Daylight

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Pulleys, Hangers, Tube Cut-
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Dough Mixers, or Paper Box
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Make all these lines, and can
quote you as good, if not bet-
ter prices than other people.

G. T. PENDRITH & CO.,

78 to 81 Adelaide St. West,
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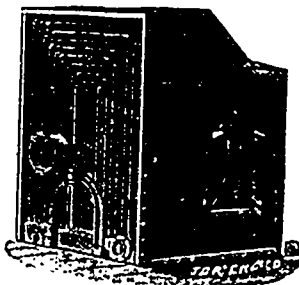
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Appliances for Drying

**Lumber, Brick, Wool, Cloth,
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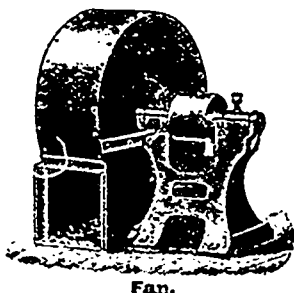
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**Dyewood Extracts,
One Dip Alizarines,
Aniline Colors,
Dyestuffs and
Chemicals.**

THE STURTEVANT GENERATING SET WITH HORIZONTAL ENGINE.

The center crank type of horizontal engine has become much more popular since the advent of the type of generating set of which it so readily forms a component part.

ditions. The engine and generator rest upon a common cast iron bed. The engine itself is of such design as to practically enclose the running parts. The oil guard and the removable side plates serve still further to render it of the enclosed type, and to this extent prevent the entrance of dust and the throwing of oil.

is thoroughly lagged. All moving parts are adjustable, and continuous sight feed oiling arrangements are provided throughout.

The armature is mounted upon an extension of the engine shaft, which is supported at its outer end by an independent pedestal with ring oiler. This generator is of the multipolar type, the field ring and cores being of cast steel, and the pole shoes of cast iron.

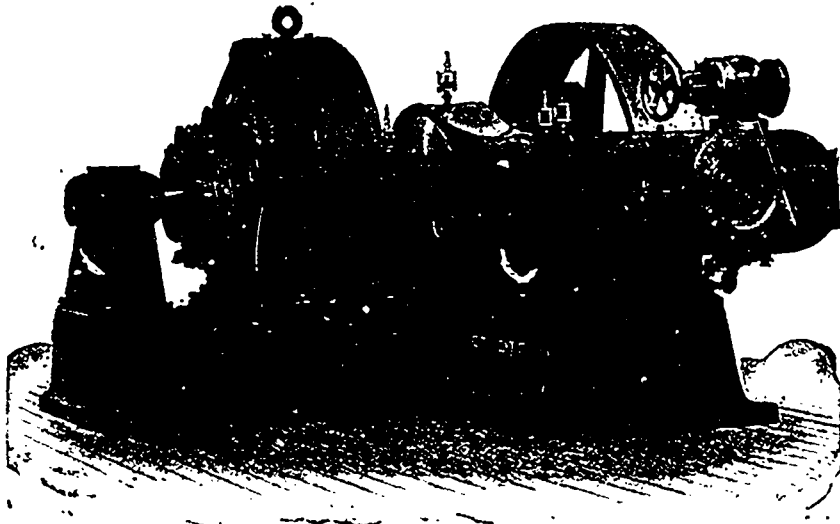
The proportioning of the magnetic field and armature is such as to insure absolutely sparkless operation under all changes of load from no load to 25% overload. The temperature rise after a full load run of ten hours is limited to 90 deg. F.

The armature is of the barrel wound type. A cast iron flange, bolted to the armature spider at each end of the core, forms a support as well as a cylindrical receptacle for the projecting ends of the coils. The flange extension also protects the windings from any oil that may be thrown from the windings.

The surface of the interior of this flange is perfectly smooth, offering no opportunity for the collection of oil or dust. Ventilation is effected by the use of specially constructed veins, forming ducts between the laminae of the core. These convert the armature into a blower, and create a strong draft through the windings.

The series winding of the field coils consists of flat copper ribbon, the shunt winding being of wire. Both windings are placed on the pole entirely independent of each other, and either may be readily removed. Both shunt and series windings have free circulation of air upon all sides.

The type of set here illustrated is built in sizes from 6x6 engine to 16x14 engine, with



Generating Set with Horizontal Engine.

The form of set illustrated herewith is one of several types, designed and manufactured by the B. F. Sturtevant Co. of Boston, Mass.

The engine was primarily designed for dynamo driving, and in every particular, attention was given to those features necessary to successful operation under such con-

The valve, which is of the balanced piston type, is provided with snap rings, and operates in a removable bushing, thereby making it a simple matter to always keep it tight.

The regulator, which is capable of the closest possible regulation, operates through a range of zero to 1/2 cut off. The engine cylinder

THE STURTEVANT SYSTEM

OF

Heating and Ventilating

APPLICABLE TO ALL CLASSES OF BUILDINGS

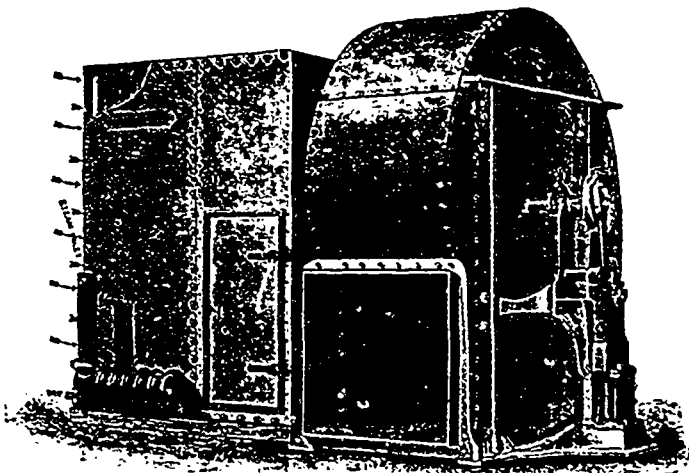
Has had a THOROUGH TEST in the Dominion AND THE Northern Portion of the United States.

Over 300 Plants in Successful Operation in this Cold Climate.

Send for Catalogue No. 84, Describing this System and No. 86, Showing 2,500 Representative Buildings Heated and Ventilated

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BOSTON, MASS., U.S.A.

A. R. WILLIAMS MACHINERY CO., LIMITED
General Canadian Agents
Toronto, Brantford, Montreal



The Sturtevant Steam Heating and Drying Apparatus

**For . . .
Drying**

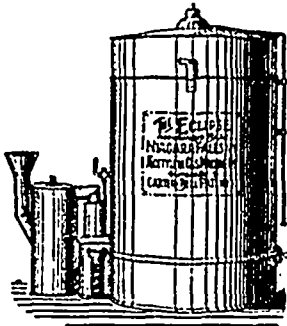
This Apparatus is unexcelled for Lumber, Cotton, Wool, Hair, Brick, Pottery, Glue, Soap, Cloth and all Textile Goods.

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The ECLIPSE

ACETYLENE



GENERATOR

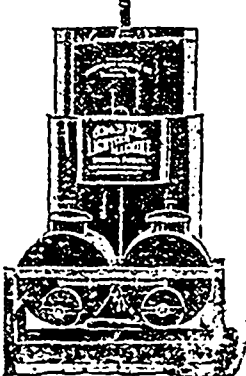
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The Acme of Perfection in Lighting.

At the Minimum of Cost.

Suitable for any place where Artificial Light is required. Dwellings, Stores, Churches, Factories, Hotels, Street Lighting, etc.

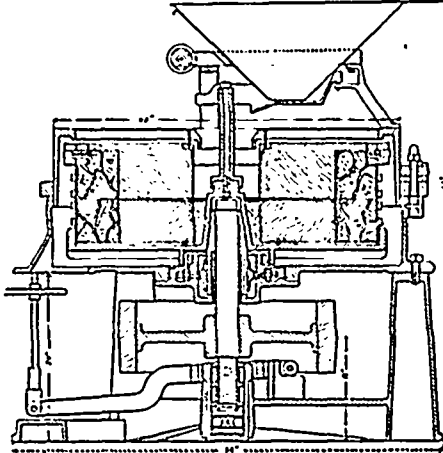
Write for Catalogue.

THE **Acetylene Lighting Co.** (LIMITED). LONDON, ONTARIO.

output ratings of from fifteen to seventy-five K W. and weights from 6,000 to 23,000 pounds. The engine frames are arranged so as to be fitted with cylinders of a minimum of eighty pounds, or a maximum of 120 pounds pressure.

THE STURTEVANT ROCK EMERY MILL.

The accompanying illustration is of a patent horizontal rock emery grinding mill, manufactured by the Sturtevant Mill Co.,



Patent Horizontal Mill.

Boston, Mass. Regarding the mill, its construction and capabilities, we are informed as follows:—

The process of grinding by the use of millstones is one of the oldest mechanical arts known to man. From the biblical days,

when women ground at the mill, and by a slow and laborious hand method prepared the meal needed for daily food, down to the latter part of the nineteenth century, the millstones ground and pulverized all articles of food or of commercial use. The only changes that have been made have been in the addition of mechanical power as a substitute for hand labor. It is only within a comparatively recent period that any decided advance has been made in the art of grinding by use of stones. This improvement consists in substituting for the softer stones in ordinary use millstones made from large blocks of rock emery.

Rock emery is peculiarly adapted to this purpose. In hardness it is only equalled by the diamond, which it greatly surpasses in strength. An emery stone is always sharp, it never glazes, and cuts with unexampled rapidity.

Rock emery millstones are not made of small grains of emery cemented together like the emery wheel, but are formed from blocks of emery rock in its natural state set in a filling of metal that is nearly as strong as iron. In use the metal filling about the blocks wears gradually away, slightly exposing the hard edges of the emery blocks which cut like files. The bosom of this millstone and the furrows are made of a softer stone that is easily cut away to suit any class of grinding. Nails and small bolts do the emery stone no harm.

To the small miller, as well as to the grinder of the hardest rocks, rock emery millstones have an especial interest; as the emery face seldom requires dressing, they stay sharp, thus dispensing with the necessity of a skilled miller.

Emery millstones are not expensive; they

The Packard Electric Co., Limited.

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Lamps and Transformers

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

MARINE SUPPLIES

FOR ENGINE ROOM.

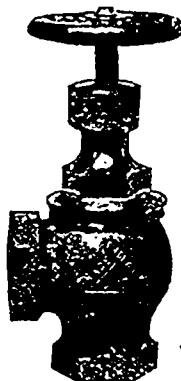
SAFETY VALVES—Single and Twin, Government Standard.

Steam Ship Telegraph Signals, Pilot to Engine Room

BRASS BINNACLE STANDS.

HOMESTEAD BLOW-OFF VALVES—Works Easy—Always Tight.

J. M. T. VALVES—The Standard For Valve Excellence.



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grind everything, and are by far the fastest grinders known. They are so hard and strong that they easily reduce rocks that would soon destroy all other mills. More than 1,200 factories, some of them among the largest in the world, are using rock emery millstones, reducing cements, paints, chemicals, carbon, soapstone, slate, marble, plaster, phosphates, barytes, infusorial

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cents per horse-power. Under the new arrangement the revenue derivable by the Government for the first 30,000 horse-power developed will amount to \$32,500. If the company develops up to 100,000 horse-power, it will pay a further sum of \$35,000, making a total revenue of \$67,500. The town of Niagara Falls, Ontario, has made a vigorous protest to the Government against any agreement being made which would prevent a later company obtaining more favorable terms from the Government. The whole question is a very difficult one, and in the

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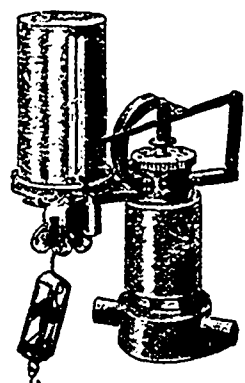
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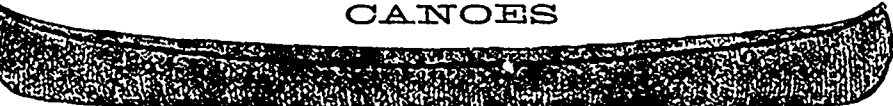
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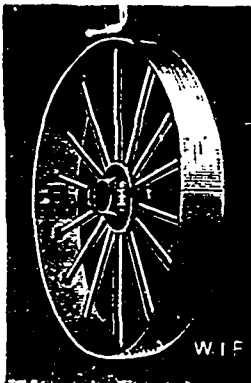
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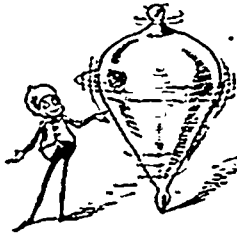


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past the Government has shown very little capacity in handling it. So far little but mistakes have been made. It is to be hoped that a very considerable development will at once be undertaken, but at the same time it is essential that the Ontario Government should obtain for the use of the people the highest possible rental from the companies compatible with the works being conducted on a commercially profitable basis.—The Paper Mill.

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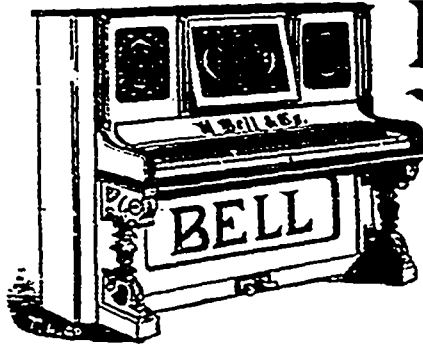
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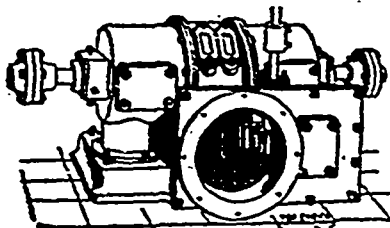
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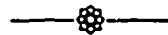
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