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Vol. 39.

TORONTO, DECEMBER 15, 1899.

No. 12.

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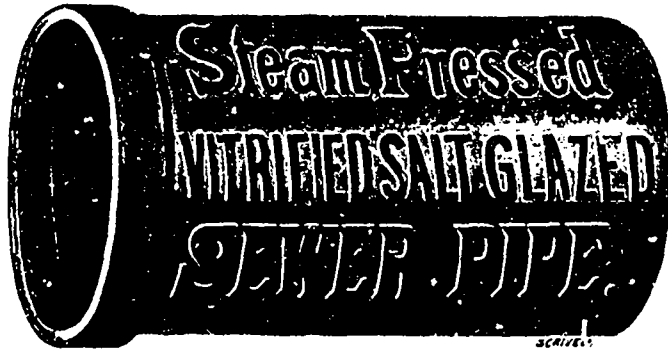
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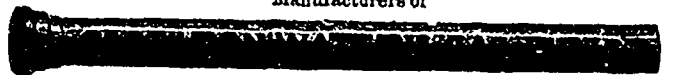
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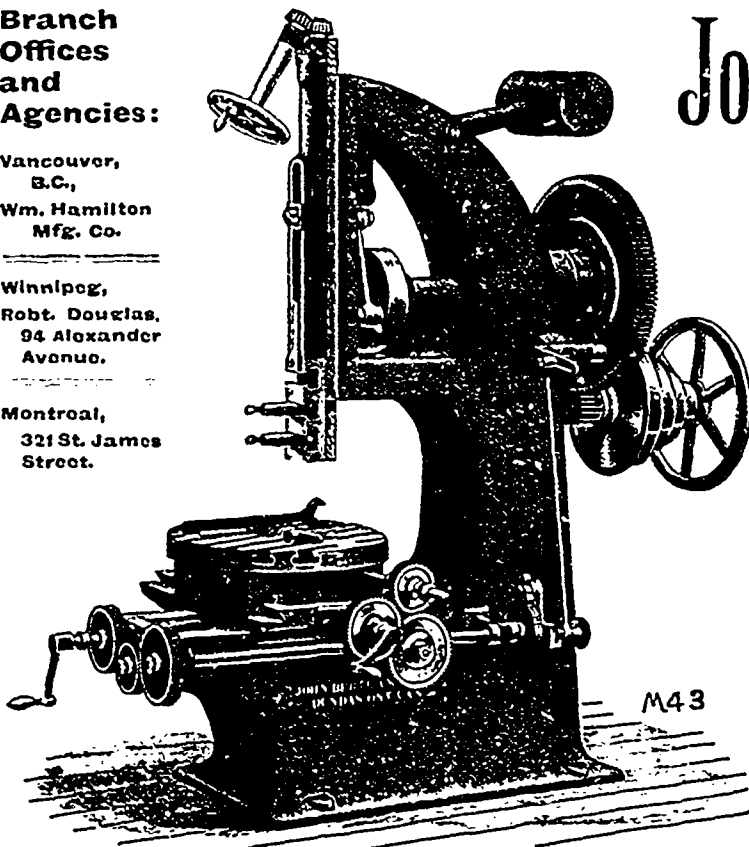
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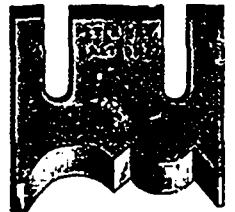
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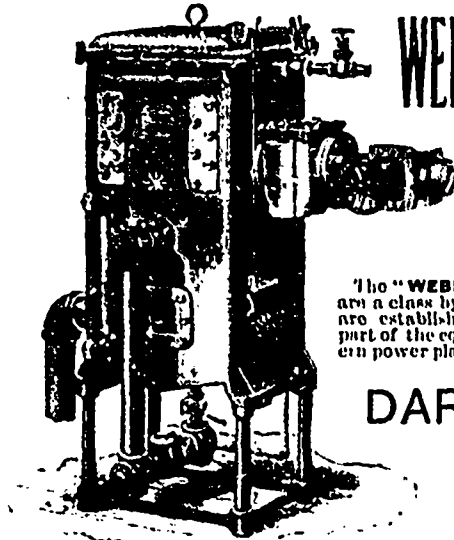
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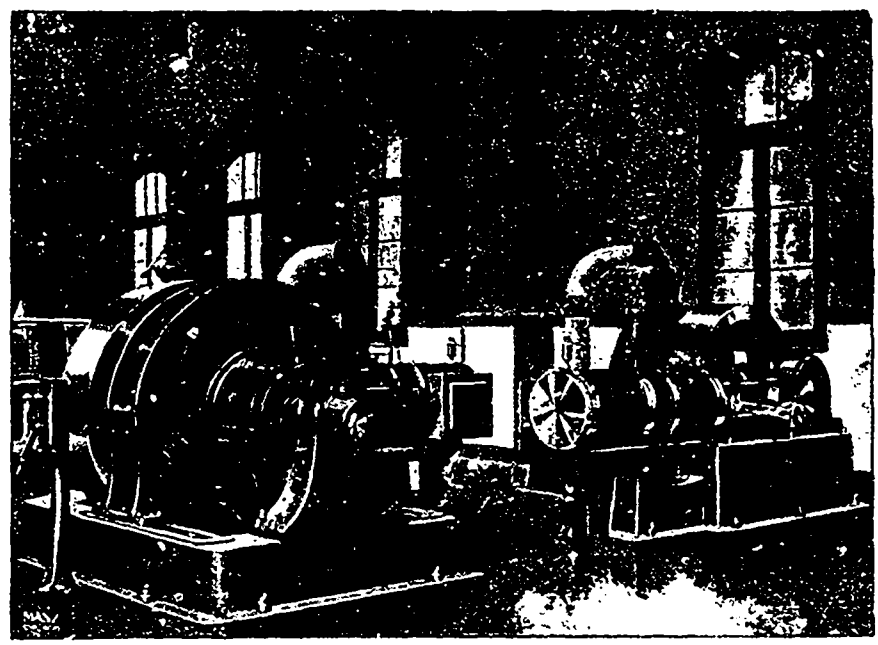
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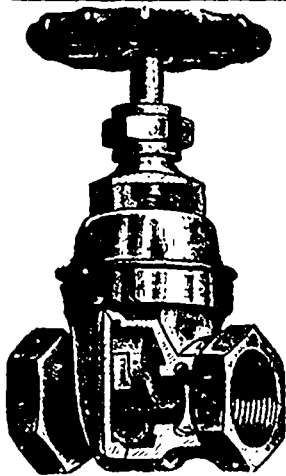
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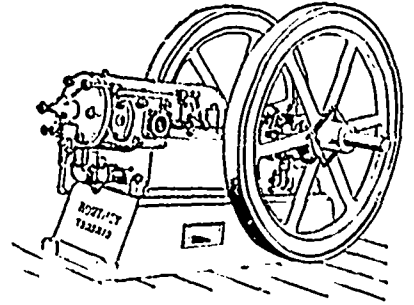
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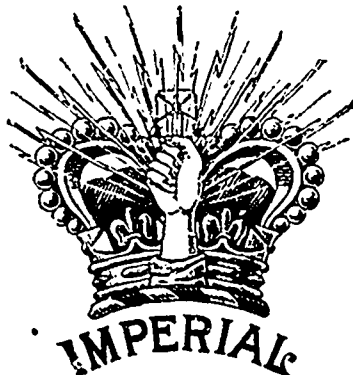
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J. J. CASSIDY, - - - Editor and Manager.

THE ONTARIO GOVERNMENT'S NICKEL POLICY.

The re-organization of the Government of Ontario under the Premiership of Hon. G. W. Ross has been signalized by an important advance in the direction of developing our mineral wealth and securing to the people of the Province the full advantage of the working up of the raw material to an advanced stage of manufacture, hitherto enjoyed by foreigners and in foreign countries.

The recent Order-in-Council issued as an earnest of the policy of the administration in this regard, is the most significant political document which has appeared in late years, considered with reference to its bearings on industrial progress, and the course which it has outlined will meet the cordial approval of all who have the economic welfare of the country at heart.

It has long been evident to those who have given the subject any measure of consideration that in her nickel mines Ontario possesses a source of wealth and prosperity, which, if wisely exploited so as to preserve for her own citizens the benefit of the processes necessary for the manufacture of the finished product, in place of the exportation of the raw material, would result in a vast increase in capital and population and the building up of thriving manufacturing communities in the mining region. As will hereafter be shown, the demand for nickel abroad is continually increasing, while in our principal foreign market, the United States, the domestic supply is so limited that it need hardly be taken into consideration. Under these circumstances we have every opportunity to add to our industries that of nickel manufacturing by prohibiting the export of the raw material. Following the course adopted in connection with the lumbering industry, the Provincial Government proposes, so far as its power and influence extends, to put a stop to the shipment of nickel in its crude form, and otherwise to aid in the building up of the manufacture in Ontario.

The Order-in-Council contains three propositions looking to the encouragement of the nickel manufacture. In view of the importance of this metal in naval construction, it is intended to renew negotiations with the British Government, begun in 1891, with the object of inducing them to accept and

operate a concession of a tract of nickel ores for imperial or national purposes. Should these efforts be successful it will prove an additional factor in stimulating the sentiment of Imperial unity based upon common interest. The most significant feature of the order, however, is that which follows, declaring that if necessary to secure the establishment of refining plants in the Province, it is proposed to ask that effect be given to the Dominion Act under which export duties may be imposed upon nickel and copper, subject to modifications in favor of Britain and other portions of the Empire. It may fairly be presumed that so important a step would hardly have been taken without an understanding with Ottawa looking to the imposition of such a duty. The recognition of the preferential principle, in accordance with which the Empire will be favored as against the United States and other countries which impose a heavy tariff upon our manufactures, is equally gratifying from the standpoint of sound protection and that of enlightened patriotism. In the meantime the Government have put their policy practically into operation to the full extent of their power by providing that all future grants of mining lands shall contain a provision that all ore produced shall be refined in the Province.

In order to enable our readers to fully appreciate the vast benefits which will accrue from the carrying into effect of this broad and statesmanlike policy, some figures showing the growth and extent of the nickel mining industry here, and the capacity of the United States market, which will then be open to fully manufactured nickel are presented. The report for the current year of Mr. Archibald Blue, Director of the Bureau of Mines, contains elaborate tables setting forth the condition of the nickel industry for the seven years, 1892-98, showing for each year the quantities of ore raised and smelted, the product of matte, the estimated metallic contents thereof and their value. The nickel contents in pounds and their value were as follows:—

Year.	Pounds.	Value.	Value per pound, cent.
1892	4,614,000	\$590,502	14.190
1893	3,306,000	454,702	13.754
1894	5,141,000	612,724	11.918
1895	4,631,500	404,861	8.741
1896	3,897,000	357,000	9.166
1897	3,998,000	359,651	8.995
1898	4,567,500	514,220	9.236

During this period the total quantity of ore smelted and reduced to matte in the Sudbury district was 591,852 tons, yielding, in addition to copper, 29,705,000 pounds of nickel, of a total value in the form in which it was exported of \$3,294,060. Had the process of manufacture been completed in Ontario the value of the refined metal at the average selling price would have been \$10,396,750. The copper product of 34,570,500 pounds, valued in its finished state at \$3,975,607, would bring the total up to \$14,372,357. The total outlay for wages in Ontario on account of this production was \$1,929,894—but the share of the value of the refined metals outside of Ontario distributed in wages, services and profits was not less than ten million dollars.

That the prohibition of the export of nickel ore and matte by the imposition of a sufficiently heavy export duty would ensure its manufacture here without lessening the output of the mines is very easily proved by statistics showing that the United States is almost entirely dependent upon us for their supply of nickel.

“The Mineral Industry, its Statistics, Technology and

Trade," recently published in New York, of which Mr. R P Rothwell is editor and compiler, under the head of nickel, says as follows regarding the production of that metal in the United States last year :

"The domestic production of nickel was 11,145 pounds, all from Missouri, against 33,700 in 1897. American refiners, however, produced in 1898 from both domestic and imported ores 7,138,929 pounds. The average value of nickel at New York in 1898 was 34.5 cents per pound against 34.62 in 1897."

In order to obtain further information as to the sources of the American supply of nickel, the writer made enquiries of Mr. Rothwell, who very kindly supplied the following statistics in reference to the years 1895-98.

The production of nickel from all United States sources was:—

Year.	Pounds.	Value.	Value per pound, cents.
1895.. .. .	10,302	\$3,091	30.013
1896.. .. .	17,170	4,464	26
1897.....	33,700	11,568	34.62
1898.....	11,145	3,806	34.15

The figures relating to 1897 and 1898 are of the output of the mines at Mine La Motte, Missouri, where the nickel was recovered as a by-product in smelting lead ores, and there were no other nickel mines in active operation in the United States during those years.

The imports of nickel into the United States during the years indicated, and the value thereof—not including manufactures of nickel, as reported by the United States Bureau of Statistics, are represented by the first group of figures in the following table, the second group indicating the amount of nickel contained in Canadian ores recovered by refiners in the United States with the value:—

Year.	All Imports.		Imports from Canada.	
	Pounds.	Value.	Pounds.	Value.
1895.....	2,355,749	\$629,910	2,678,661	\$594,504
1896.....	102,412	32,532	3,696,939	819,390
1897.....	177,392	53,013	4,099,390	1,419,209
1898.....	Not reported.		7,127,784	2,459,085

It may be noted in explanation that the importation of nickel in 1895 was exceptionally heavy, owing to the activity which prevailed that year in the construction of war ships—a factor of the demand which in the future is likely to increase rather than diminish under the policy of expansion. The noteworthy features of the United States statistics, furnished by so unexceptionable authority, are the infinitesimal fraction of the nickel supply coming from mines within their own boundaries, and the rapid increase in the volume of nickel-bearing ores imported from Canada. These facts place beyond cavil or controversy the wisdom of the policy inaugurated by the Ontario Government. The United States are dependent upon us for their supply of nickel in one form or other, and while they maintain a hostile tariff which under present conditions excludes from their market the refined metal, we should, in self-defence, meet them by an export duty or prohibition regulation on the raw material which will ensure its manufacture here, and give our own people the full advantage arising from the establishment of that industry. In undertaking to carry out this principle, Hon. George W. Ross has deserved well of the country, and will, we trust, receive the hearty support of those interested in furthering our industrial development.

AS TO NICKEL.

The New York Commercial Advertiser, referring to the recent Order-in-Council of the Ontario Government regarding nickel lands, says:—

We are startled, even in these days of trusts, to hear that plans are under way to put the Canadian nickel mines into the hands of the British Government. England and France would then practically control the output of nickel, and the navies of all other countries would be left destitute of that metal, so important in the construction of their armor. Next we are reassured to hear that, if worst came to worst, there are nickel mines in this country that could be developed so as to keep our navies from going forth naked in the world; and furthermore, calm reflection convinces us that, with England controlling half the nickel in the world and France the other half, all countries friendly to England would be supplied by England, and all countries hostile to England by France. That would be the state of affairs as long as peace lasted. In time of war, of course, England would simply go and capture the mines in New Caledonia.

Our New York contemporary should understand that Premier Ross is more interested in building up a nickel refining industry in Ontario than he is in the armoring of American war ships. It passes the comprehension of Canadians why the Conservative Dominion Government never imposed an export duty on nickel ores and matte, at least equivalent to the duty imposed upon refined nickel imported into other countries. The matter was brought to their attention time and again, but for years and years we have seen the country drained of the raw material, while at the same time hostile tariffs have prevented the export of a pound of the finished product.

As far as Ontario goes, Mr. Ross is the man for the occasion. Of course, he cannot interfere with the export of nickel ores taken from lands over which he has no control, but he is acting strictly within his rights in requiring that ores taken from Crown Lands shall be refined in Canada, and in doing this he is carrying out what has always been the policy of the Canadian Manufacturers' Association and of Canadian manufacturers generally.

The Dominion Government has already taken power to impose an export duty on nickel ores and matte, and it is to be hoped no time will be lost in imposing that duty.

A POLICY OF PROGRESS.

A few days ago at a large meeting held at Whitby, Ont., Hon. John Dryden, Ontario Minister of Agriculture, speaking of the work done and to be done under his administration, gave some figures illustrative of the progress that has been made in agriculture since he became Minister. In 1891, he said, we produced in cheese 82,000,000 pounds; in 1897, six years thereafter, 137,000,000 pounds. In 1893 we had only 174 creameries; in 1897 we had 214 producing 8,000,000 pounds, and this advance had not been at the expense of other branches of industry, as was shown by our increased exports of grains and hog products. He also traced the growth of the Farmers' Institutes, the distribution of the reports of the Live Stock Association, and the development of the Fat Stock Show. In 1891 there were seventy-one entries, against 800 in 1893. He announced that at the show in London this year an important innovation will be made in the system of judging. The judges will be required to announce the reasons

for their decisions, and the lecturers for Farmers' Institutes will be present. Then after the decisions the animals will be slaughtered and cut up, so that the statements of the judges as to the kind of cuts that each animal will give may be verified.

But the work would not end here. Only a limited number of people could be reached by means of the exhibition, and the speaker's object was to make an impression upon the whole Province. With this object in view the lecturers in connection with the Farmers' Institutes would attend the exhibition and would become imbued with the ideas they advanced in order that they might be able to communicate them to the people. Photographs of the live animals would be taken and charts prepared, so that educational work in regard to raising the best kind of bacon could go on simultaneously all over Ontario and would result in a great improvement in the quality of the product. He had the assurance of Mr. Flavelle, who was identified with the Wm. Davies Company of Toronto, that if the farmers of Ontario could only produce a better article there was no doubt of their receiving higher prices.

Mr. Dryden pointed out that in every branch of agriculture Ontario had been making progress. In agricultural education this Province not only stood in the foreground but was a constant example and stimulus to the sister provinces. Ontario initiated a dairy department at the agricultural college under Prof. Robertson. The Dominion then decided to introduce a similar department, and invited Mr. Robertson to take charge of it at a much higher salary than the Province could pay. Next Ontario established dairy schools, and Quebec, Manitoba and New Brunswick followed suit. This Province not only established Farmers' Institutes, but completed and perfected the system. Manitoba had copied the example exactly. Ontario created a good roads department. Quebec appreciated the benefit and had established a similar medium of education and information. This Province established fruit stations. Quebec thought it was a good thing and did likewise. In the matter of live stock organizations much had been accomplished under the direction of Mr. F. W. Hodgson. Now Mr. Hodgson had been selected by Mr. Fisher to preside over a Dominion Live Stock Department and would continue his good work in a wider sphere.

Mr. Dryden evidently understands his duty as Minister of Agriculture of Ontario.

THE TARIFF.

At a banquet held at Pictou, N.S., November 28th, tendered to Hon. W. S. Fielding, Minister of Finance, in a speech made by that gentleman, alluding to the tariff, he was reported as follows:—

As to the revision of the tariff, Mr. Fielding referred to the blue-ruin predictions of the Opposition. Then the Opposition leaders, and those who accepted their views, began to look for the disaster that was to come. Then they expected to see the tall chimneys come down, the mines and factories close, and disaster everywhere; but nothing of the kind happened. The business of Canada went on as before, but much faster. Confidence was established, the burdens of industry were lightened; trade and commerce flourished; every interest in Canada began to prosper. The very manufacturers who were supposed to be specially selected for ruin found their business improving. Relying less on the tariff and more on their capital, skill and enterprise, they pressed for-

ward their business. Instead of closing their factories they began to enlarge them; instead of working by day only, their factories were found at night ablaze with light, while their employees worked overtime for higher wages. Canada entered upon the enjoyment of a period of peace, progress and prosperity such as had never before been known in the history of the Dominion.

EDITORIAL NOTES.

Mr. E. M. Trowern is no longer in the employ of the Canadian Manufacturers' Association.

Hon. Mr. Foster has taken his time in replying to Sir Richard Cartwright's midsummer speech, delivered in this city, and it must be admitted that in dealing with figures of population, expenditure, etc., the reply is formidable throughout, and sometimes the vast array of facts and figures which the late Minister of Finance brings forward is unanswerable. The tariff policy of the future is a matter of profound interest. On this question of what tariff policy was promised when the Liberals were in Opposition, Mr. Foster dwells at length, his object being to show that what they then promised they now refuse to make good. In this line of argument the ex-Minister of Finance scores several points; but if he can prove inconsistency, Mr. Foster, from his own point of view, does not undertake to say that the present attitude of the Government is wrong. He does not say that they ought to preach or act "death to Protection." When both the great political parties act substantially upon a common tariff policy, in the item of Protection, a change of Government promises no decisive change of policy, in this particular. A reaction in the Liberal party itself is possible; but there are at present no signs that the Liberal party fail to condone what has been done by the Government, in tariff legislation. Mr. Martin and a few others growl, but there are no signs of a party protest strong enough to make the rulers change the policy they have accepted.—Monetary Times.

The CANADIAN MANUFACTURER believes that it voices the sentiment of a very, very large majority of the manufacturers of the country in expressing satisfaction at the stand the Government have taken on the tariff question. Of course we have substantially the same protection now that Mr. Foster gave us, and we have the satisfaction of believing that the tariff has been removed from the field of debatable politics. The manufacturers are satisfied with the tariff as it is, and will not countenance any man or party attempting to disturb it.

Hon. George Washington Ross has adopted Mr. Tarte's wait-till-you-see-us-next-year policy, and proposes to shovel out the money of the people of Ontario as it never was shovelled before. Every Tom, Dick and Harry who is of the proper political stripe, and who can find a route for a railway from anywhere to nowhere, is to be subsidized by the Government. The farmers are to be supplied with cold storage warehouses for their fruit, butter, eggs, meat and other perishable goods, where these may lie until the market prices get as high as the farmer's idea. This scheme alone is capable of absorbing more money than the entire present revenue of the province. Millions may be sunk in the reclamation of swamp lands, while whole districts of good, high and dry lands remain uninhabited, and the building of colonization roads opens up a bottomless pit in which to cast the money of the people. Mr. Ross has taken a leaf out of the Tarte book, and will make the money fly. Wait till you see him next year.—Hamilton Spectator.

Only disgruntled politicians rant in that silly manner

What Mr. Ross proposes doing in Ontario is just what the people of Ontario want Mr. Ross to do. It would be all right with *The Spectator* if the other fellows were in control.

Through the courtesy of Lud K. Cameron, Esq., one of the managers, we are in receipt of an invitation to attend the opening of the new Toronto Western Hospital, on the evening of December 15th. The appearance of the building, as shown on the lithographed invitation, shows a very large and imposing institution surrounded by trees and walks that suggest an ideal home for the invalid. The necessity of such an institution is well known to all who have given the matter attention, and the names of the Board of Governors are sufficient guarantee that the Toronto Western Hospital will be kept up to a high standard of efficiency.

Mr. Osburn Howes, a Vice-President of the Boston Chamber of Commerce, addressed the members of the Rochester Chamber of Commerce the other night on "Our Present and Possible Future Trade Relations with Canada." Mr. Howes showed that Canada was by long odds the best foreign customer, per head, of the producers and manufacturers of the United States. Mr. Howes said there were three interests which opposed better trade relations with Canada—the lumber, the coal and the fish interests—and he showed how insignificant these were in comparison with the classes interested in maintaining and increasing trade with Canada. He suggested petitioning the President, the Secretary of State, the American members of the Joint High Anglo-American Commission, and the Senate and the House of Representatives of the United States to do what they can to have adopted reciprocal trade relations between the two countries upon the broad business principles of give and take.

In retaliation against the United States for the Dingley Tariff law, Canada, a few years ago, adopted a measure which discouraged the exportation of lumber to this country. Certain Michigan men, who at that time already had contracts with the Province of Ontario for lumber cutting privileges, immediately protested that this course was a violation of a constitutional guarantee. With difficulty, and after a long series of delays, the Michigan parties have at last obtained an order authorizing them to bring suit against the province to terminate this interference. The recent addition of Mr. Stratton to the Ontario Cabinet is construed as an indication that the province means to make it easier for the United States to get lumber in Canada than formerly.—*New York Tribune*.

It does not remain with Mr. Stratton to say whether it shall be henceforth easier for the United States to get lumber in Canada, but rather with the United States Congress. Free lumber—free logs; high duty on lumber, prohibition of export of Ontario logs. See?

The British Board of Trade returns for the eleven months ending with November, show the following increases in the British imports from Canada.—Sheep, £36,000; wheat and flour, £172,000; hams, £65,000; butter, £486,000; cheese, £70,000; wood, hewn, £20,000; wood, sawn, £414. Decreases:—Cattle, £139,000; wheat, £49,000; peas, £65,000; maize, £381,000; bacon, £237,000; eggs, £21,000; fish, £234,000; horses, £49,000. The increases in British exports to Canada are:—Cotton, piece goods, £85,000; linen, piece

goods, £21,000; woollen tissues, £25,000; railroad iron and steel, £143,000; tin plates, £80,000; iron hoops, boiler plates, £48,000; unwrought steel, £93,000; haberdashery £21,000. Decreases:—Apparel and slops, £30,000; earthenware, £24,000.

The Methodist Magazine and Review for December completes the fiftieth volume of this valuable publication. It has nine illustrated articles, with Christmas stories, poems, etc. The announcement for 1900 is particularly attractive. An important series of illustrated articles, by Sir John Bourinot, on "Canada during the Victorian Era," will be of special interest. Illustrated articles are also announced on "England's Oldest Colony, Newfoundland;" "Canada-by-the-Sea;" "Growth of the Canadian Northwest;" "Evangeline's Country;" "Methodist Progress of a Hundred Years;" "Highways and Byways of Travel;" "Britain's Long Arm, the Royal Navy," and many other topics. Serial and short stories, character studies and sketches, popular science articles social and religious topics, missionary articles, world's progress, and other features of interest are announced.

The glory and glow of the fall and the tang of early winter color Outing for December. Its votaries are not deprived of their pleasures because high summer is past. The Wild Fowl in Old Virginia compensates for past pleasures on the prairie. A 'Possum Hunt by Night is as enticing as a fox hunt by day. The Building of an Ice Yacht for \$60 is as pleasurable as the building of a canoe, and Fishing in the Bahamas no whit less exhilarating than that in the closer waters of the earlier season. Nothing has been omitted which would make Outing for December comprehensive, instructive, and interesting; sport afield and afloat, amusement, adventure in foreign lands, travel and the acquisition of health are all comprised within its pages, and elucidated and illustrated by the best that pen and pencil can produce.

The Canadian Magazine is easily the equal of any similar publication offered to the reading public, and far away the superior of most of them, and the Christmas number now before us possesses features of unusual excellence. The adornment of the front cover, designed by the artist J. D. Kelly, is a beautiful picture, and, as its name indicates, suggestive of "The Golden West" in which is shown a mounted policeman, one of the sui generis of life in our own North-West, gazing under shading hand across the vast expanse of prairie at some distant object, backgrounded by the rising sun and blue mountains. The frontispiece is a Christmas picture, a Canadian Madonna, painted by J. S. Gordon, while the reading matter includes "A Faithful Servant," by Ouida; "A Mother's Touch," by B. A. Macnab, editor of the *Montreal Star*; "Christmas Day at Sea," by W. Clark Russell; "The Canadian Winter," a poem by T. R. C. McInnes; "The Big Game of Canada," "The Canadian Contingent," by Norman Patterson, with photographic reproductions, having reference to our brave boys who are now fighting for Queen and Empire under the burning sun of South Africa. Canadians should be proud of such a beautiful and well-edited magazine.

The Christmas number of Scribner's Magazine contains several striking novelties in illustration. The methods are not only new, but the results are in every way artistic. Clarke's pictures, which accompany Harrison Morris's *Ballad of Three Kings*, are as rich in color as an old stained glass window. The original pictures have been reproduced with absolute fidelity, so that there are none of the violent contrasts of color so often seen when a painting is reproduced by modern processes of printing. The whole question of Antarctic exploration is prominent at the present time by reason of several projected expeditions. Dr. F. A. Cook, who recently returned with the "Belgica" expedition, writes of the possibilities of future expeditions, and Albert White Vorse reviews America's past achievements in Antarctic exploration. (Profusely illustrated from Dr. Cook's photographs.)

The contributors to the December Ladies' Home Journal include F. P. Dunno (author of "Mr. Dooley") Rev. C. T. Brady, Ian MacLaren, S. T. Pickard, Mrs. Burton Kingsland, Edward Bok, G. W. Cable, A. W. Smith, and a half-score of other equally well-known writers. To the pictorial embellishment of the same number A. B. Frost, W. L. Taylor, H. C. Christy, Frank O. Small, Walter Russell, Lucius Hitchcock and others have contributed their best efforts. The Christmas Journal covers an unusually wide field of interest. The great featal day is the theme of carol, story and pictures, and of various practical, useful articles, while numerous topics that are uppermost in the minds of women and helpful in the conduct of the home, are practically discussed. The Curtis Publishing Co., Philadelphia. One dollar a year.

IRON BEDSTEDS IN CANADA.

Under this heading U. S. Consul Martin recently reported to his Government as follows:—

"I desire to call the attention of manufacturers of iron and brass bedsteads to the opportunity offered in Canada for the establishment of one or more factories for their manufacture. Many of the dealers throughout Canada are at present sent buying their iron and brass goods in the United States, and paying the duty of 30 per cent., while the iron and brass from which they are made are free of duty under item 617 of the Canadian Customs Act of 1897, viz.:

"Tubes, rolled iron, not welded or joined, under 1½ inches in diameter; angle iron, 9 and 10 gauge, not over 1½ inches wide; iron tubing, lacquered or brass covered, not over 1½ inches in diameter—all of which are to be cut to lengths for the manufacture of bedsteads, and are to be used for no other purpose; and brass trimmings for bedsteads, when imported by or for manufacturers of iron or brass bedsteads to be used for such purposes only in their own factories, until such time as any of the said articles are manufactured in Canada."

There are good openings in Canada for the manufacture of iron and brass bedsteads. There are several such factories engaged in this line. Yet a large number of bedsteads are imported both from the United States and the Mother Country. We know of some good up-to-date factories recently established in Ontario, and as no duties are paid on material entering into the construction, there is no reason why such goods should not be made in quantities sufficient to supply our home market, and also to furnish a very nice item of export.

ELECTRIC MACHINERY WANTED IN FRANCE AND EGYPT.

From the New York Journal of Commerce we quote:—

"Some foreign capitalists representing large street railway interests in France and Egypt are now in Cleveland, O. The members of the party are M. Montagne, of Paris, a representative of the Enterprise and Electric Company, of Paris and Brussels, and M. Cahen, of Alexandria, Egypt, representing the Alexandrian Tramway Company. They came to the United States for the purpose of buying rolling stock for electric street railways in France and Egypt. Through an interpreter M. Montagne said: 'We intend to place orders for at least \$1,000,000 worth of equipment while we are in America. American made electrical supplies are the best in the world, and are exclusively used in Europe.'"

This shows that the same demand will come to Canadian manufacturers whenever they desire to supply the goods wanted.

MANUAL TRAINING IN CANADIAN SCHOOLS.

Prof. Robertson, the Dominion Commissioner of Agriculture, states that arrangements are being made for the establishment of manual training in Canadian schools, which has been made possible by the generous offer of Sir William C. Macdonald of Montreal, as announced by Prof. Robertson a few weeks ago. Mr. Jerome Wallace of the south of Scotland, a well-known Scottish expert on manual training, has been engaged to come to Canada and take charge of the department in the Ottawa public schools for three years. Mr. Wallace was sent by the County Council of Dumfries to Sweden to study the Sloyd system, and afterwards lectured on it in his county. He will arrive in Canada about the end of the month, and it is expected the training will be undertaken by him, with two assistants, in the Ottawa public schools in January or February. Prof. Robertson is also in negotiation with a Canadian who has been engaged in manual training in the United States for eight years, with a view to having him return and take charge of another school, possibly at Quebec. A third teacher may be secured in the person of

a Liverpool gentleman, and from the three different systems represented by these three men Prof. Robertson hopes that Canada may evolve a successful system suited to our needs.

ENGLISH PAPER MANUFACTURERS TO VISIT CANADA.

English manufacturers of paper to the number of about sixty will, it is said, make a journey to Canada next year. In the course of their trip they will visit Quebec, Montreal and Toronto. It is understood that arrangements for their reception are being made by the Governments of Quebec and Ontario, and the Canadian manufacturers will co-operate in entertaining them. The itinerary has been arranged by Mr. S. Charles Phillips, who represents about eight different English publications devoted to the interests of paper pulp and paper manufactures. Mr. Phillips was in New York a few days ago on his way back to England after an extended tour of Canada and the United States. England's demand for Canadian pulp is growing enormously. Three years ago it imported annually about 5,000 tons of ground pulp from this country. To-day the importation from Canada amounts to over 200,000 tons, and there seems to be no limit to the expansion of the trade.

POSSIBILITIES OF TRADE IN PORTO RICO.

It would seem that Canada will benefit in the near future through an increasing trade with Porto Rico, especially in the lines of salt fish and other food products, lumber, etc. The New York Journal of Commerce publishes a telegram from Washington to the following effect:—

The War Department makes public a statement of exports and imports at the five principal ports of Porto Rico for the months of May, June, and July, 1899. The report shows a slight balance of trade in favor of these ports of \$347,832. The total of imports into the ports named for the three months is \$2,572,618. The exports during the same period were \$2,920,500. There was exported to the United States during the three months \$871,671 worth of merchandise, and there was imported from the United States \$973,545.

From this it will be seen that only one-third of the total imports went from the United States.

CORRESPONDENCE.

TORONTO, Dec. 6, 1899.

EDITOR, THE CANADIAN MANUFACTURER.

As a native Australian and having, thus, much interest in common with Canadians as part of the British Empire, it has given me a great deal of pleasure to visit your Dominion and to have become comparatively familiar with the general conditions which obtain here.

Though my visit has been almost exclusively of a business nature, the kindly disposition of your people—which it has been my uniform experience and pleasure to enjoy—has enabled me to make many friends during my travels in different sections of the country.

I want, however, to write somewhat of matters which will be of interest to your manufacturing readers.

It is, of course, well-known that Australia is one of the greatest fields, if not the greatest single outside field, for the manufacturer of all nations to seek a market, more especially perhaps in the case of my colony of New South Wales for the simple reason that "manufacture" has not been the principal end and aim of legislation.

Practically, we buy everything from abroad, but, that we can buy more is fully illustrated by this fact, that our last year's statistics show imports (N.S.W.) £24,453,560; exports, £27,648,117. Our exports have increased at a much higher percentage than the rate of import. For purposes of figuring on prospects, it will be interesting to Canadian

manufacturers to know that of the amount N. S. W. imported, Canada supplied considerably less than one per cent.

Thus, we have on the one hand, a colony with a spending power of over £3,000,000 in excess of what we actually spent in one year, and on the other hand, a Dominion with the manufacturing pretensions of Canada, supplying such a meagre proportion of what that wealthy country wants, and both part of the great British family!

Personally I am prepared to see N. S. Wales leave factory and chimney stack largely alone if, proportionately, other portions of the British Empire are the suppliers of the manufactured articles she needs, while she raises and extracts her natural wealth in other directions, and therefore I want to see Canadian stuff pour into our ports in place of from other parts of the world which need not be invidiously named.

What then, are the chief matters to engage the attention and direct the effort of the Canadian manufacturer?

Attention is needed most particularly in the matters of "prices" and "exporting facilities."

The simple fact that Australia is such a huge buyer from outside sources as she is suggests lively competition on the part of her suppliers and keen home buying, and it is clear on these counts that the Canadian manufacturer can spare himself the trouble of looking for business across the Pacific unless he is in good shape on the subject of "prices."

"Exporting facilities," is a matter of first importance. The "Pacific" waterway is too far distant to make it possible for Ontario and Quebec to send their goods that way, at any rate until land haulage becomes cheaper, and in this respect therefore attention must turn to the "Atlantic."

At present New York is the only port on the east coast of this continent with anything like regular carrying communication to Australia, consequently the minimising of costs of transport to, and shipment at, New York is to be accomplished, and if it has not already done so, this matter might well engage the strict attention of your Trade and Commerce Department, which Department, I might say by the way, is most assiduous in affording information and in attention to enquiries.

It is unnecessary for me to list lines which may be expected to find a footing on our markets; at proper prices and in proper shape any manufacturer of any line may rest assured that any enterprise and energy he bestows upon Australia as a market for his wares will not be in vain, from the largest to the smallest line, costly machinery to trivial knick knacks, everyday bread and butter lines to latest novelties. Of course, there are obviously a number of commodities which, by reason of bulky packing, etc., would be excluded from sale but generally speaking, right prices, and goods well put up, will command attention and ready disposal.

By reason of arrangements already completed, and others under way, I propose upon my return thither to place more Canadian goods on the market of our Australian "Commonwealth," (such will shortly be our designation).

My business as a manufacturer's representative is being established solely with Canadian houses, and it will always be both a duty and a pleasure to me, as a business man and a British Cousin, to further the interests of this great Dominion.

I have to thank you for the valuable assistance accorded me both by your paper and information supplied at your office. Yours faithfully, C. Bowes, Thistlethwayte (of Sydney, N.S.W.).

AGRICULTURAL IMPLEMENTS IN SOUTH AUSTRALIA.

The Adelaide correspondent of the *Implement Age* writes: American drills are preferred by almost every farmer, because they are less complicated, less expensive, and much easier to work for the ordinary farmer. Some few English drills have been sold principally to farmers who gained their

early experience in the Mother country, and while there is no doubt these drills do much more perfect work in the regularity of distribution, it is not likely they will ever be sold in large numbers, because of the high prices which are asked for them. The drills which are most in favor are the Farmer's Favorite, Massey-Harris, Buckeye and Superior, and of all of these makes a large number has been sold. As is usual, each has its partisans, and speaking generally each has given satisfaction.

Since the advent of steamers into the trade the period of transit has been much reduced, and it is all the more necessary that shippers send the bill of lading without any delay. The steamship companies refuse to deliver to any consignee who cannot produce bill of lading, unless the companies' form of guarantee is signed by the consignee and also by his bankers. So numerous have these requests for guarantees become that the banks have just issued notices to the effect that for every guarantee signed by them in future a charge of 10s. 6d. will be made if the value of the goods amounts to £100 or over. This means that merchants in Australia are to pay a penalty of "half a guinea," because American shippers will not conform to the ordinary business methods, and put their clients in possession of the only legal document which will secure to them the delivery of the goods on arrival. It is very unusual for English shippers to give cause for complaint in this respect.

CANADA'S VALUABLE MOSS PRODUCT.

In this era, when a new fibre, either vegetable or animal, is announced about every month, it is interesting to note that the Canadian Sea Island mosses, which have been tested now for some eight years past, have proven highly acceptable to that branch of the upholstery trade requiring substances for stuffing purposes.

We are assured by well-informed men that these mosses are absolutely clean and sweet, and that their springy and resilient nature makes them highly adaptable to the purposes above indicated. The carriage trade, which is always critical, finds the Canadian sea moss in every way suitable, and for general cushion and mattress trade they are meeting wide approval.—*American Carpet Journal*.

The United States consumes large quantities of the Canadian product and there seems to be a market for it in nearly every part of the world. Only last week an Australian merchant visited our office in search of all the information possible as to its production, handling, etc., remarking that there was a good demand in his market for upholstery moss.

POSTAL SHIPMENTS TO RUSSIA.

United States Consul Monaghan, at Chemnitz, Germany, transmits the following instructions relative to postal shipments to Russia:—When a letter is found in a package sent by post, note of same will be made and signed by the customs official in charge. This note will contain the name of the place whence the letter comes, whither it is to go, when sent, and for whom, and from whom. The letter is to be taken out and sent with the above-mentioned note to the postal authorities at the place whence the package came.

A package containing a letter is to be sent forward to the addressee, under general regulations. The letter will also be delivered upon the party with whom it is addressed paying a fine. In case such payment is refused, the letter is to be forwarded to the general postoffice. In cases where packages from foreign parts contain letters or notes or circulars in open envelopes, even though they have the character of correspondence, such inclosures will not be removed. The package, with its enclosures, will be delivered to the parties to whom it is addressed.

BRITISH CANADIAN TRADE.

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

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

97. Walnut boards of good quality, and wooden screws, are required in considerable quantities by a London firm.

98. The names of Canadian makers of sporting ammunition such as 22-calibre rim fire ball cartridges used for small bore sporting rifles are enquired for.

99. Enquiry is made for firms in Canada who would supply cheap wood mantel-pieces to be sent over in a knock down condition.

100. A manufacturer of fancy goods (plush photo frames, fancy caskets, fitted up cases, etc.), wishes to appoint an agent for the sale of these goods in the Dominion.

101. A large firm of manufacturers of enamelled, tinned, galvanized and japanned hollow-ware, sauce pans, buckets, pails, etc., desire to do business with Canadian houses, and ask to be placed in communication with buyers.

102. The names of one or two firms engaged in the refining of maple sugar who could export extensive quantities of maple syrup for table use, are asked for by an important firm who are disposed to import on a large scale if a satisfactory arrangement can be effected.

103. A firm in the Midlands having a connection with the manufacturing confectionery trade throughout England and Ireland, wish to be placed in communication with Canadian producers of fruit pulps.

104. The names of Canadian exporters of eggs in large quantities are asked for by a Glasgow firm.

105. A Scotch firm largely interested in the export of Canadian goods, such as furniture, woodware, hardware, provisions, etc., desire to extend their business in the export of Canadian goods to British India and the Cape, and are therefore open to hear from houses who may wish for their co-operation.

106. A firm in Glasgow is desirous of being placed in communication with importers of cast iron pipes. They are now making specially for the Canadian market the following sizes:

2 in. x 5 feet	.....	20 lbs. each.
3 in. x 5 "	.....	30 " "
4 in. x 5 "	.....	45 " "
5 in. x 5 "	.....	85 " "
6 in. x 5 "	.....	100 " "
Light 4 in. x 5 "	.....	32 " "

107. Another Scotch house which is extensively engaged in manufacture of cableways, hoisting and conveying devices, cranes, winding engines, stone and granite working machinery, ask to be referred to parties in Canada who would be likely to use such goods.

108. Enquiry is made by a firm of mining machinery manufacturers respecting the demand for "steam-thawers" and other similar machinery in the Yukon territory and elsewhere.

DEMAND FOR STEAM ENGINES, ETC., IN GUADELOUPE.

I have been asked to procure information regarding steam boilers, engines, accessories, etc., for the largest machine shop here. This shop is connected with the steamboat line of the island.

The manager particularly desires information regarding portable steam boilers, mounted on wheels; marine engines for small steamers; marine boilers; steam and safety valves;

lubricators; steam and vacuum gages; ordinary steam pumps; ordinary pumps; steam fire engines, small; centrifugal pumps; horsepower rigs, with and without shafting or other gear for transmitting power.

In every case illustrated catalogues, in French if possible, are desired and the following information: Weights, net and boxed or packed for shipment; dimensions; price f. o. b. New York City. Exterior elegance and beauty of appearance are not so much desired as solidity, efficacy, and cheapness.

The discriminating duties against our machinery are very great, and have heretofore totally discouraged the importation of such articles but last spring the experiment of bringing two small portable boilers and some other articles from the United States was made. The manager referred to thus expresses himself:

"When they came, we were much disappointed. They looked rough and ugly, and we are accustomed to receive from France similar goods that are very beautiful and graceful to look at. But when we came to examine the interior, we were most pleasantly surprised—perfect adjustment, exquisite fittings, the minimum of friction and lost motion and maximum of efficiency and solidity. Your machines are incomparably better than our own in these respects, and much cheaper. If it were not for the enormous tariff, we would use no others; but, in spite of this, we want to see if we can not buy from you. If your manufacturers will help us, we can do it. Let them give us cheap, solid, honest work, with no expense for mere outside appearance, putting the finish only where it is needed; packing the goods as lightly as is consistent with strength and safety in transportation; and quoting as bottom prices free on board in New York City. (for we can not consider your inland freights, etc.). I believe that we will find the advantages of efficiency and durability sufficient to warrant our purchasing all such goods from the United States. Of particular interest are the horsepower rigs, an apparatus by which horses traveling in a circle drive a shaft through which power can be supplied to small machinery, pumps, etc., on sugar estates. If we can get our information and carry on our correspondence in French, it would be a very great advantage."

I have quoted him at length, as he covers the ground completely. The people he represents are of the very best financial standing.

I shall be pleased to receive catalogues, price, and discount lists from manufacturers of the various articles above enumerated, and will do all in my power to foster the introduction of our machinery here. To succeed, however, honest workmanship, good materials, absence of useless and expensive adornment, and low prices are imperative. These people are slow to change, and if our goods can once get a foothold here, we can hold the trade for all time.—United States Consul Ayme, at Guadeloupe.

LEATHER INDUSTRY IN CAPE COLONY.

An association of colonial manufacturers recently sent a committee to call upon the prime minister of this colony, to urge a special tariff on certain lines of manufactured goods that, it is alleged, are being produced in the colony and other goods that might be produced, together with the free admission of all raw materials entering into the manufacture of said goods, to the end that the present manufactures may be fostered and other industrial enterprises inaugurated. The association also desires free interchange of all South African products and manufactures throughout the states and territories of South Africa, the same to be brought about by a new "customs union." The claim is made that leather tanning, boot and shoe manufacture, saddle and harness making, furniture and cabinet making, and biscuit making which can consume large quantities of South African products are languishing for want of adequate protection against imported manufactures. Fruit preserving is mentioned as an instance where the admission of raw material free is necessary for the development of an established industry. In the opinion of

the association, it is necessary for the encouragement of colonial industries that all manufactures in which colonial products or colonial labor represents fifty per cent. of the total value, should be carried over the several systems of railways at third class-rates.

It is claimed that the tariff on leather goods was unable to stop the importation of goods which competed with those produced here. The manufacturers say that the Americans are sending boots and shoes and leather into this country, while colonial manufacturers can not send their goods into America under a duty of twenty-five per cent. for boots and shoes, and forty-five per cent. for harness. They claim that all they want is sufficient protection to place them on the same footing as their English and American competitors. The present duty in Cape Colony on boots and shoes and leather goods is nine per cent.

In reply to the request, the prime minister stated, in substance, that South Africa would never be largely a manufacturing country, and that in the matter of boots and shoes the colonial manufacturers could not begin to supply the needs of the country. He would not promise any action, but suggested that they appoint a committee and submit suggestions as to the tariff.

I speak of this for the reason that, within the past year, manufacturers of the United States have been paying more attention to the introduction of American made boots and shoes, conforming to the English patterns, and have also been active in the saddlery and harness line.—United States Consul-General Stowe, at Cape Town.

CANADIAN-AUSTRALIAN TRADE.

Mr. W. J. Moxham, head of the large importing firm of W. J. Moxham & Co., Sydney, N.S.W., was a welcome visitor in the office of the CANADIAN MANUFACTURER a few days ago. Mr. Moxham was a representative of the Sydney Chamber of Manufacturers at the International Commercial Congress recently in session in Philadelphia, and is now touring through Canada and the United States in the interest of his firm. He has been in the commission and importing business in Sydney for forty years, and was the pioneer there in that line.

Discussing the opportunities for trade in Australia, Mr. Moxham says:—

"New South Wales offers a great field for the employment of both capital and labor in the development of both natural and artificial industries. The iron industry, for example, is awaiting development. Both the ore and coal are located in contiguous districts and it has been shown by experts that iron can be manufactured there to compete with imported iron. Another important industry, paper making, offers great inducements, only two establishments employing under 100 hands being at present in operation in the colony. There are innumerable trades that the colonists have not attempted to introduce, but will do so as the colony increases in wealth and population."

Referring to the address he made at Philadelphia, Mr. Moxham gave the following figures as the value of New South Wales imports last year: Iron and steel, \$4,014,715; machinery, \$3,080,415; agricultural implements, \$1,801,775; boots and shoes, \$1,583,250; paper, \$1,000,000. Other manufactured products, the value of which ran into the hundred thousands of dollars, were: Paper, jewelry, arms and ammunition, bags and sacks, bedsteads, blankets, brushware, candles, cheese, furniture and upholstery, millinery, pickles, saddles and harness, soap, cement, confectionery, preserves and varnish.

CANADIAN EXPORTS OF BUTTER.

The exceedingly mild weather in Canada this autumn has resulted in good pasturages and a very large production of butter. These same conditions have prevailed largely over the whole of northwestern Europe, from which Great Britain imports the most of her Continental butter, while Australasia conditions are also favoring an exceedingly large production. The

imports into Great Britain have thus been heavy, and prices are showing signs of weakness. The quantity of butter going forward from Canada is, however, under the circumstances well maintained. Australian butter was by last mail advices too dear to retail at a shilling per pound, the popular price, and Canadian butter is getting the trade. From this time forward until June we must, however, expect almost a continuous decline in the exports of butter from Canadian ports by reason of the season of the year.

Although a great deal has been said and written of what has been done by the Department of Agriculture at Ottawa for the butter trade, it may not be uninteresting to give the following table as recently presented by Prof. Robertson to the Montreal Butter and Cheese Association. The table shows the growth of the butter trade from the port of Montreal; it also shows how the growth has been coincident with the improvement and extension of cold storage: Butter shipped from Montreal during period of navigation:

1894, 32,055 packages; no cold storage.

1895, 65,664 packages; ice cold storage on steamships and refrigerator car service railways.

1896, 157,321 packages; same as in 1895.

1897, 220,200 packages; mechanical refrigeration on steamships, refrigerator car service railways; bonus to cold storage at creameries.

1898, 278,922 packages; extension of above.

1899 (to Nov. 11), 444,376 packages; extension of above.

Fourteen times as much in 1899 as in 1894.

Recognizing that butter needs cold storage from the time it is made, the Minister of Agriculture authorized the payment of a bonus of one hundred dollars to the owner of every creamery who would provide cold storage according to plans prepared by the department, and keep the same in use during three years. Already three hundred creameries have availed themselves of this offer. Of these, in round numbers, about two hundred are in the province of Quebec, and one hundred in other parts of Canada. While the work done by the Government has been valuable there yet remains room for some improvement, and dealers in Toronto will agree with the Montreal trade in holding it advisable that the cold storage chambers on vessels should be divided into smaller compartments, and they should be kept at a temperature of twenty degrees.—Monetary Times.

BRITISH-CANADIAN TRADE.

The British Board of Trade returns for the ten months ending with October show the following increases in British imports from Canada:—Sheep, £3,000; peas, £23,000; bacon, £11,000; hams, £5,000; butter, £36,000; eggs, £21,000; timber, £9,000; horses, £3,000. The decreases were:—Cattle, £97,000; wheat, £268,000; flour, £25,000; corn, £36,000; cheese, £51,000; fish, £38,000; pulp, £16,000; lumber, £55,000. The increases in the British exports to Canada were:—Cottons, £11,000; woollens, £12,000; pig iron, £10,000; bar iron, £6,000; railroad iron, £39,000; tin plate, £27,000; iron manufactures, £8,000; unwrought steel, £37,000; clothing, £9,000.

The imports which passed through the port of Montreal during the month of October amounted to over \$1,000,000 in value in excess of those for the same period of 1898. The figures are as follows:—Grand total for October, 1899, \$5,124,730; 1898, \$4,105,300. Iron goods increased over 100 per cent.—from \$419,051 to \$840,632—which, probably, was due wholly to the increase in the cost of the raw material.

COOKING STOVES IN SYRIA.

Petroleum cooking stoves are gaining ground, especially as petroleum is, relatively speaking, much cheaper than charcoal. Such stoves have a large future before them here. These kitchen stoves are supplied almost exclusively by Germany.—Austro-Hungarian Consul at Aleppo.

LUMBER WANTED IN HOLLAND.

Canada is a lumber country and has lumber to sell—and the attached clipping from the Journal of Commerce shows that trade is knocking at her doors.

At the request of lumbermen in this country for information as to the status and prices of the lumber market at Rotterdam, Holland, Consul S. Listoy, at that city, has sent an extensive report, in which he states that on the whole the demand for American lumber in the Rotterdam market is steadily increasing. He is informed that the total imports for 1899 will far exceed those of last year, and the prospect for next year is very encouraging. Several of the local lumber dealers have recently visited the United States or are now here for the purpose of establishing connections. The Consul is of the opinion that it will pay large lumber manufacturers to send a representative to that city to establish branches or lumber yards of their own.

Is this not good advice for us to follow?

ADVICE TO EXPORTERS.

United States Consul-General Guenther writes to his Government from Frankford-on-the-Main as follows:—

Kuhlow's German Trade Review and Exporter contains the following article, "Color versus Business," which should receive the attention of American manufacturers of cloth, sewing needles, and leather goods, who sell to the countries named. It illustrates how important it is to study the tastes of the people to whom one wishes to sell, not only as to shape of the articles, but also as to color. It is by paying close attention to the study of special tastes that Germany has made such headway in gaining foreign markets. Let our people do the same, and the results will speak for themselves.

"It has been recently stated that Germany has captured much British trade in Russian markets simply by catering to the popular taste for red in wearing apparel. English sewing needles have also been ousted in Brazil because they were wrapped in the old-fashioned black paper. The manufacturers of Saxony went in for pink, and hold the market. A French exporter of high-class leather goods has just discovered the Heathen Chinese's antipathy to green by the non-sale of his elegant articles made up in that color. Moral: Leave color fancies for the drawing-room, and make money from the rainbow if the market requires it."

From which it is to be plainly seen, that it is policy to make what your customer wants and is willing to pay for. No matter what your opinion as to merit may be.

A certain American plow builder spent several thousand dollars trying to induce Mexican farmers to use steel plows, harnessed to the horses in the Yankee way, and did not succeed—while another manufacturer made cast plows, with one handle, beams six or seven feet long, and arranged to hitch with a rope to the mule and ox team, and has a trade worth thousands of dollars.

CANADIAN AUTUMN FRUITS IN ENGLAND.

Speaking of a recent successful shipment of Canadian autumn fruits to England the Canadian Gazette, London, says:—

A few days ago a goodly parcel of Canadian peaches and pears was sold in Covent Garden Market by auction, with the most satisfactory results. The peaches were late Crawfords and Elbertas, and they were particularly good. But the pears were exceptionally fine, and they made as high as 9s.6d. per small case.

As the result of this sale, the Californian fruit-growers will have to look to their laurels. Canadian pears, such as the prime Angous (the variety which made the price quoted), are of finer quality than those sent from California. The fruit reaches us in better condition, is more aromatic and juicy, and is perfectly adapted for the English fruit trade.

The shipment was sent out under the auspices of Professor Robertson, of Ottawa, who is specially responsible for the trial shipments which have lately been sent over in small fancy packages, and there is no doubt that in future seasons Canadian pears will secure the patronage of the best buyers in the trade.

The representative of Professor Robertson, who has been in this country, told a Daily Mail representative that they have now obtained the right temperature to keep the fruit in perfect condition while on board the fruit boats, so that nothing stands in the way of large and regular shipments of Canadian peaches and pears during the autumn months. Millions of both kinds of fruits are promised the trade for next year.

KEEN COMPETITION.

In these days of keen competition for foreign trade, when an import firm in any of the commercial centres abroad is receiving quotations from merchants and manufacturers and is thereby kept posted as to current prices in their particular branch, it is not to be wondered at that exporters here, when they receive a large order, try their utmost to procure the merchandise at the lowest possible price and thus surprise their foreign customers. In years past, before the export trade was so thoroughly canvassed abroad by manufacturers, it was possible for a local export merchant to buy many lines of manufactured products through a wholesale or a jobbing concern, but to day, unless purchases are made direct from the makers or their authorized agents, it is said that a claim is sure to follow. For these reasons middlemen cannot succeed to-day in selling local export merchants as they could only a few years ago. In fact, to-day a wide-awake manufacturing concern will not even solicit orders from local export firms. They create a demand abroad for their wares, and in that way compel the exporters to buy them. In some instances this method is easier for certain branches of trade, but on the whole, even exporters say the method is the best and only way to create a demand in foreign countries. Even at this late day, it is argued, many American manufacturers are of the opinion that an export firm can buy at will and consign the goods to the particular market they are doing business with. These manufacturers are constantly making offers and soliciting business from concerns who have never bought a cent's worth of the particular kind of merchandise offered. They are losing both time and money in their endeavors, and after a while condemn the export business as an absolute failure, when they have never gone beyond New York city to seek for it, and then among a limited number of merchants. Out of some six hundred and fifty local export merchants who are transacting business with every quarter of the globe there are possibly fifteen who buy for their own account, they having branch houses abroad where manufactured articles are dealt in extensively. With these few merchants special deals can be made, and for that reason frequently such merchants control certain articles in some foreign market. As a member of a prominent export firm having branches in South America and Australia said yesterday, next to the method of creating a demand abroad for their wares, manufacturers would do well to employ local export sales agents who have been following the export business for years. They are thoroughly posted with local buyers and know exactly to what country each concern ships. Within five years six or seven such concerns have sprung up in this city who are doing admirably for out-of-town manufacturing firms not familiar with the export trade. The approaching of the new year brings the time when these sales agents begin to renew their accounts.—New York Journal of Commerce.

TRAMWAY EQUIPMENTS WANTED IN SPAIN.

Philadelphia street car builders are receiving orders for equipment for the Barcelona Street Railway of Barcelona, Spain, which shows how quickly trade will return to its proper channels after war.

WHAT MR. FISHER IS DOING.

One of the most active administrators of public affairs is Hon. Sydney Fisher, Minister of Agriculture, ably assisted by Prof. Robertson, Commissioner of that Department. Speaking of the development of our export trade under the management of Mr. Fisher, The Toronto World says:—One of the most noticeable features of our export trade is the marvellous increase in our shipments of butter. Up to November last the exports from Montreal amounted to 444,376 packages, as against 278,922 packages for 1898 and 32,055 packages in 1894. The development in this trade is due almost entirely to the system of cold storage instituted by the late Government in 1895, and improved from year to year by the present Government. Canada's experience in the specialization of farm products has been highly satisfactory. Canadian cheese scored a notable triumph in Great Britain. Then followed the victory of Canadian bacon, and now Canadian butter has established an enviable and permanent reputation for itself in the motherland. Among other specialties that are capable of equal development in the markets of Great Britain are Canadian poultry, eggs, canned meats and vegetables, fresh fruits, pickles, etc. The export of fowl to the Old Country this fall and winter will be larger than ever, but this branch of the business is capable of great expansion. The Daily Mail, London, had the following paragraph the other day: "A few days ago a goodly parcel of Canadian peaches and pears was sold in Covent Garden Market by auction, with the most satisfactory results. The peaches were late Crawfords and Elbertus, and they were particularly good. But the pears were exceptionally fine, and they made as high as 9s. 6d per small case. As the result of this sale, it is clear that the Californian fruit growers will have to look to their laurels. Canadian pears such as the prime Angous (the variety which made the price quoted) are of finer quality than those sent from California. The fruit reaches us in better condition, is more aromatic and juicy, and is perfectly adapted for the English fruit trade."

CAREFUL PACKING REQUIRED.

The London correspondent of The Globe writes:

It will be good news to Canadians that the efforts which have been made by the Government to build up the butter export trade are already meeting with marked success. Canadian butter used to be graded below Australasian, but it is now held in better esteem than the general run of the Australasian product, though perhaps considered not quite so good as New Zealand in many quarters. Nevertheless it is making good headway, and there is every reason to believe that under the system now in vogue it will soon have as firm a place on the British market as Canadian cheese, when the demand is likely continuously to exceed the supply. Speaking

of cheese, by the way, complaints are very prevalent of the manner in which Canadian cheese is being handled at the various ports to which it is shipped. Not only are the boxes frequently broken, but the cheeses themselves frequently bruised and injured. Everything, of course, which detracts from the neat and tasty appearance of the parcels tends to lower the price obtainable, and the matter is therefore one which cannot be too speedily remedied. I understand that it is receiving due attention on this side, but those interested in Canada should also bring what pressure they can to bear upon the steamship companies on that side, and they can do a great deal if they go to work in the right way.

PLOUGHS AND PLOUGHSHARES IN TURKEY.

Of late large quantities of ploughshares have been imported partly from Germany, and found a very rapid sale. German prices were MK. 4.25 per ctr., f.o.b. Salonica. There was also a marked demand for ploughs, which sold at MK. 54, including insurance but exclusive of freight.—German Commercial Report from Monastir.

TRADE IN CANADA.

Official returns, by the officers of the Customs Department, show that the aggregate trade of Canada increased from \$304,475,736 in the year 1897-98 to \$321,661,213 in 1898-99. The imports increased from \$140,323,053 to \$162,764,308, and the exports amounted to \$158,896,905, as compared with \$164,153,683 in the previous year. The total revenue increased from \$22,157,788 in 1897-98 to \$25,734,229 in 1898-99. The total imports of dutiable goods from Great Britain increased from \$22,969,721 in 1897-98, to \$27,450,325 in 1898-99. The amount entered for consumption from Great Britain during the year 1898-99 was \$27,521,508, of which \$22,854,080 came under the preferential tariff and \$4,667,428 came under the general tariff. The amount imported from Great Britain under the preferential tariff in the previous year was only \$19,651,495. Thus, though the amount imported increased largely, the amount of duty collected upon British goods under the preferential tariff was \$5,049,685, as compared with \$5,102,260 for the previous year. This fact is accounted for by the increase in the preference from one-eighth to one-fourth of the duty. The imports of dutiable goods from the United States increased from \$16,096,995 in 1897-98 to \$53,281,683 in 1899. The amount entered for consumption amounted to \$41,471,824, as compared with \$38,063,950 in the previous year. The gross value of imports of dutiable goods from all countries amounted to \$98,349,633, as compared with \$84,141,104 in the previous year.

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CAPTAINS OF INDUSTRY.

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

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

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belt-ing, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, 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 town of Duffrin Bridge, Ont., is to have a new Methodist church.

Montreal will not have all the elevators on the St. Lawrence if the plans of the Great Northern to erect an elevator and storage plant of 3,000,000 bushels capacity at Quebec materializes. There cannot be too many elevators and other facilities for handling the immense crops of breadstuffs of the North-West which naturally seek an outlet to the world's markets through Canadian canals and the St. Lawrence river.

A larger number of mines in the Kootenay District will be operated this winter than ever before. The Swansea, the Delphine, and the California, will all be operated full. It is reported that it is difficult to get either lumber or machinery to meet the requirements and that this trouble will delay the development of many new mines.

A new Methodist church is to be erected in the town of Glendale, Ont.

Eholt, B.C., is to be improved by the erection of a large Presbyterian church.

The McEachren Heating and Ventilating Co., Galt, Ont., is doing a brisk business. Since August last the works have been constantly running overtime to keep pace with the orders. Recently a carload of steam hot blast heating apparatus was shipped to the British Canadian Timber and Mfg. Co., at Kearney, Parry Sound District. In June last the McEachren Heating Co. installed the largest dry kiln they have ever made for the same company. Two big fans and twelve tons of galvanized iron piping, for taking refuse from wood-working

machinery and conveying it to the furnace room are now being set up for Gilmour & Co., Trenton. The company has one man in Prince Edward Island looking after the installation of a heating apparatus in the Prince of Wales College, Charlottetown, and another at the Prince Edward Island Hospital at Charlottetown.—Galt Reporter.

Shurly & Dietrich's new bedstead factory at Galt, Ont., has been finished, and three car loads of machinery and material have arrived from the factory at St. Catharines, Ont., and been deposited in the new building. The machinery has not yet been set up, however. The firm expect to have the industry going by the beginning of the year, but will get it under way sooner if possible. The building is a substantial and neat one, being one of the best of the kind in the country.

Notice has been given by the Ontario Milling and Mfg. Company of De'oraine, Manitoba, of intention to establish a general milling business with \$40,000 capital stock.

The John MacDougall Caledonian Iron Works Company, Montreal, are applying for incorporation to continue and enlarge the present business of that concern so long and well established by this firm.

The Lennoxville Water Works Company, of Montreal, are seeking incorporation with a capital stock of \$50,000 for the purpose of building and operating water works at various places in Canada.

Miniota and Carlingville, Man., are both to have new grain elevators to be put up by The Winnipeg Elevator Co.

The Government at Ottawa has given a company composed of Canadian and Buffalo men privileges at Montreal for the erection of elevators, wharves and all necessary attachments to handle 35,000,000 bushels of grain per annum. This means the success of Canada's canals and the transferring of an immense volume of trade from Buffalo to Canadian ports.

E. C. Pew, of Toronto, is planning for a large blast furnace at Ottawa and will supply gas to the city, it being obtained from the coking of the coal, all of which must be procured elsewhere. Mr. Pew, it is said, has contracts with Buffalo parties for delivering 5,000 tons of ore per month for his mines at West Hull.

The Owen Sound chair factory recently received an order for 130,000 chairs for the Australian market. This, we believe, is the largest order placed lately in this country for chairs and is the best evidence of what proper effort will do when Canadian manufactures are pushed. An increasing steady harvest is coming to this company through seed sown some five or six years ago.

It is reported that the W. R. Johnston Co., clothing manufacturers, of Toronto, have lately purchased the corner lots fronting on York and Front streets, opposite the Walker House and will erect a modern factory building and warehouse.

The Toronto Rubber Shoe Mfg. Company are asking enlarged powers as a corporation for the purpose of entering the electrical field.

The McKee Machinery and Lumber Co., of Ottawa, propose to use \$15,000 capital to advance their interests as lumber and machinery dealers.

The incorporation, with head office at Picton, of the Bloomfield Packing Company, with \$40,000 capital stock is announced. This adds another fruit canning and evaporating factory to the many successful ones already in operation in the fruit districts of Canada.

The Guelph Pork Packing Company has been incorporated with a capital of \$40,000, to pack pork at Guelph, Ont. This means more Canadian bacon for export and more cash for Canada.

The United Canneries Co., of British Columbia, Limited, with a capital of \$500,000, was incorporated last month for the purpose of combining some five or six small canning factories already established, head office to be at Vancouver, B.C.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

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

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RAT PORTAGE, ONT.

HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

It is reported that American parties were lately looking at sites in the Gatineau district, near Ottawa for the location of a 300 ton per day pulp mill. Let them come and in five years Canada will produce the major part of the world's consumption of pulp and paper.

The lumbermen who are shipping to various building centres are complaining of lack of cars, and say that building operations will be closed down early this winter because of the scarcity, but this means renewed activity in the spring. The country is prospering and more building is going on than at any time before in twenty years.

The Grand Trunk Railway Co. report that they could use 2,000 more cars east of Toronto if they could get them, and the C. P.R. could manage to squeeze through with 1,500 more. It is remarked that no American cars are hurried back home at present or allowed to be side-tracked very long.

The Yale-Columbia Lumber Company, Limited, with a capital stock of \$500,000, with head office at Greenwood, B.C., are just starting and will build mills, railroads, etc., to handle lumber.

A new copper company to be known as The Western Copper Company, Limited, has been incorporated with \$1,000,000 capital stock, with head office at Greenwood, B.C.

A new hotel will be built at Phoenix, B.C., by The British Columbia Hotel Co., Limited, at a cost of \$7,000.

The M. A. Furbush & Son Machine Company is busy at its large shops in Camden, N.J., building cards, looms, etc. It is sending cards to Cleveland, Ohio, and building four sets for Sykes Brothers, the well-known yarn spinners of Philadelphia; also building cards for James Lees & Sons Company, Bridgeport, Pa.—American Trade. This company has had good trade in Canada in the past and the quality of their products is always standard.

The Dominion Iron & Steel Co., of Sydney, C.B., have awarded to Messrs. W. A. Fleming & Co., of Montreal, a large contract for belting for their new plant.

The Longue Pointe Asylum, Longue Pointe, Que., are installing nine motors, manufactured by the United Electric Co., Toronto, for direct connection to elevators.

A new condensed milk factory will be built at New Westminster, B.C., by The British Columbia Condensed Milk Company, Limited, with a capital of \$30,000.

The Harrison River Mills Timber and Trading Company, Limited, at Harrison River, B.C., has been incorporated with \$45,000 capital stock for general milling, lumbering and merchandising business.

A new system of waterworks will be installed in the City of Phoenix, Yale District, B.C., by the Phoenix Waterworks Company, Limited, who are chartered with a capital of \$10,000.

Messrs. Marion and Marion, patent solicitors, Montreal, send us the following information regarding recent inventions:—The United States Patent Office has been unusually busy granting patents to inventors for new and useful inventions. Some of them are as follows:—A machine for plucking polts or boating the hair of hides or furs. Clamp for overshoes so they will not slip up and down on the heel of the shoe. A very valuable device for the newspapers, consisting of a galley so arranged that the printer can put late news on his press, using a rotary cylinder for the purpose. A very handy little opener for envelopes, shaped very much like a tin can opener, to run along the edge of an envelope, and warranted not to miss when the end is started rightly. The making of cigars by machine has been facilitated considerably by a device for bunching or filling, something the cigar maker has tried a long while to accomplish. Quite a novelty for boiling eggs, so arranged with an alarm as to ring a bell so hung on a wire; when the egg is wanted soft the bell vibrates a little, and when the egg is wanted to be boiled hard the bell is set in motion violently. Self-lubricating journal in which a box containing grease is so arranged inside of a bearing as to revolve with the shaft and lubricate it. A car for carrying poultry on the railroad, or in other words, a poultry car, divided into tiers of coops, separated by a longitudinal aisle.

The Maple Leaf Rubber Co., with head office at Toronto, has been incorporated with a capital stock of \$250,000 to acquire the business of the Toronto Shoe Mfg. Co., with works at Port Dalhousie, Ont., and also to operate electric works for the production of heat, light and power. The provisional directors are James Robinson, Lachlin McKellar, R. H. Greene, Neil McCrimmon and Robert Neill.

The Ontario Glass Company, Limited, of Hamilton, has been incorporated with a capital stock of \$100,000, to manufacture glass and glassware.

Jas. Edwards & Sons, Toronto, purse manufacturers, have adopted electric power in their factory, and have placed an order with the United Electric Co. for the apparatus they require.

The Ontario Government has issued letters of incorporation to the Grant-Hamilton Oil Company, of Toronto, with a capital stock of \$40,000.

Davis & Henderson, Toronto, have placed an order with the United Electric Co. for motor to operate their printing presses.

The St. Charles Condensing Co., of Illinois, has been incorporated in Ontario to manufacture condensed milk at Ingersoll.

The Cling Surface Mfg. Co., Buffalo, N.Y., have received an order for 2,500 pounds of Cling Surface Belt Dressing, to be shipped to Sydney, Australia. Their agents in that city are Messrs. W. J. Moxham & Co.

The United Electric Co., Toronto, have sold to R. E. T. Pringle, Montreal, four of their latest type motors.

A. O. Norton, Coaticook, Que., has an order from South Africa for ball bearing jacks. Mr. Norton states that he makes the most expensive jacks on the market, selling for double the price of competitors' goods. This shows that Canadian goods are sold on their merits and will find their market anywhere in the world.

Walter Dean, the canoe builder of Toronto, recently shipped a fine lot of canoes to Paris. This shipment of mahogany canoes will be followed soon by another lot, all going to a club on the Seine. Whenever Canadian goods, well and honestly made, are introduced, they are bound to find a good market.

The Imperial Starch Company, with head office at Toronto, has been incorporated with a capital stock of \$200,000, to manufacture starch and other food products. The provisional directors include Hugh Blain and T. P. Coffee, Toronto, Christian Kloepper, Guelph, Ont., and H. C. Beckett, Hamilton, Ont.

The Imperial Woolen Mills Co., with head office at Streetsville, Ont., has been incorporated with a capital stock of \$200,000, to manufacture cotton goods, knit goods, carpets, etc., and to take over the property and business of the Streetsville Woolen Mfg. Co. The provisional directors include John Graydon, J. F. Switzer, F. A. Clary and W. P. Page.

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NON-SLIPPING BELTS

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EVERYONE KNOWS THE VALUE OF RUNNING BELTS SLACK BUT ARE AFRAID TO TRY EXPERIMENTS ON VALUABLE BELTS.

CLING-SURFACE IS NOT A BELT DRESSING BUT A BELT FILLER, WHICH STOPS SLIPPING PERMANENTLY, SO THE BELT CAN RUN FREE OF TENSION, YET TRANSMIT AT LEAST 15 PER CENT. INCREASE IN POWER, WHILE THE BELT WILL BECOME SOFT, PLIABLE AND ELASTIC,

THIS IS UNUSUAL, AND MEANS MONEY SAVED IF TRUE. WE HAVE OVER 200,000 SUCH BELTS, AND WILL BE GLAD TO SEND YOU PHOTOS OF BELTS AND OPINIONS OF MANY WELL-KNOWN CONCERNS TO PROVE IT, IF YOU WILL WRITE US.

CLING-SURFACE MFG. CO.,

120-126 VIRGINIA STREET, BUFFALO, N.Y.

Boston and East Canada Branch—

170 SUMMER STREET, BOSTON, MASS.

Chicago Branch—225 DEARBORN STREET.

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SLACK AND EASY BELTS

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THE CANADIAN IRON INDUSTRY.

The Montreal Star is publishing a series of articles having reference to the extensive possibilities of the manufacture of iron and steel in Canada, and in an editorial on that subject discusses it as follows:—

A study of the industrial development of other countries shows that no country had ever established a great iron industry without the stimulus of protective duties or bounties. The Conservative Government, in framing the National Policy tariff of 1879, while affording protection to many industries, failed to apply the principle to that industry which is the basis of nearly all others. In the year 1886 the Star published a series of editorials calling upon the Government to rectify this defect in the National Policy, and, as it was expected the tariff would be revised during the Parliamentary session of 1887, a member of the editorial staff was sent to Cape Breton and other coal mining sections of Nova Scotia to write up the question of the value of an iron industry from the standpoint of the coal mines, the purpose being to show how much the coal miners would be benefited by the establishment of an iron industry. A series of articles was published extending over a period of some weeks, and marked copies of the Star containing these articles were sent to every member of Parliament. Sir Charles Tupper was then Minister of Finance. He was the first of our public men to appreciate the necessity of developing an iron-making industry, and in his budget speech he announced that it would be the policy of the Government, by protective duties and bounties, to encourage the establishment of blast furnaces and steel mills.

The development of an iron industry is always a slow process in its early stages.

Mines must be opened, ores tested and transportation provided. Then it requires a very large investment of capital to carry on the industry, even upon a small scale. A blast furnace is very costly, and it takes a long time to build one. With all the millions at the command of the newly organized Dominion Iron and Steel Company, it will be impossible to get a single blast furnace in operation in a shorter period than sixteen, or perhaps eighteen months from the time of giving out this contract.

Although protective duties and bounties were granted in 1887, there was such bitter opposition to this policy that it was difficult to induce capitalists to invest upon a large scale, because they feared that a change of Government might result in the abandonment of protection before they could get their works in operation. However, it was not long before the good effects of the new policy began to be seen. A blast furnace using coke as fuel was built at Ferrona, in Pictou county, N.S., by the Nova Scotia Steel Company, and a charcoal furnace at Radnor, Que., by the Canada Iron Furnace Company, both of which produced excellent iron that soon obtained a reputation even outside of Canada. But the development of a great Canadian iron industry was delayed owing to the fact that a world-wide depression existed in the iron industry, and prices were abnormally low for some years.

The Ontario Government seeing the good effects of the Dominion Government's iron policy, supplemented the Dominion duties and bounties by a provincial bounty. The first furnace to go into blast in Ontario was the one at Hamilton which proved a success, although it had to bring both coke and ore from a distance. Then the Rathbuns built a charcoal furnace at Deseronto,

and another charcoal furnace is now being built by the Canada Iron Furnace Company at Midland, on Georgian Bay, which is considered a most favorable point for assembling the raw material, as charcoal and limestone can be obtained near at hand, while the ore can be brought in the largest lake vessels from the north shore of Lake Superior.

The future of the Canadian iron industry is very promising. Prices of iron and steel are now very high throughout the world, and the best authorities are of the opinion that they will not for many years reach the abnormally low figures which prevailed for a few years. The Liberal Government has wisely decided to accept the Conservative policy of encouraging the iron industry. At the last session of Parliament Mr. Fielding, Minister of Finance, with the hearty approval of Sir Charles Tupper, announced that the period for which bounties would be granted would be extended until the end of the year 1907. By that time we believe that Canada will have a number of great iron and steel making establishments of which the Canadian people will have reason to be proud. The greatest of them is likely to be that of the Dominion Iron and Steel Company, at Sydney, N.S.

The Safety Light & Heat Co., Dundas, Ont., has recently made the following shipments:—A 50 light machine for R. J. Neal Co., Plattsville, Ont.; a 25 light machine to S. Weaver, Grimsby, Ont.; a 10 light machine to W. Steffens, Lytton, B.C., and an 80 light machine to Guthrie Presbyterian church, Harriston, Ont. The new burners, "The Durable," manufactured by the Safety Light & Heat Company are also selling well, and have proven very satisfactory.

W. A. FLEMING & CO.

MILL SUPPLIES

CAMEL BRAND BELTING

HOSE of all kinds

DRIVING ROPE

BELTING of all kinds



57 St. Francois-Xavier St., Montreal.

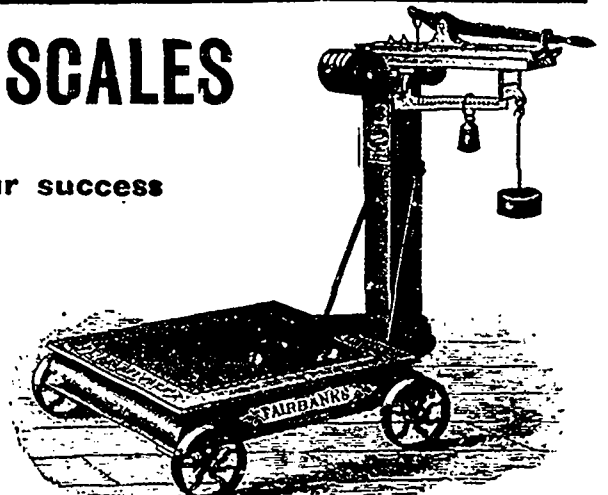
FAIRBANKS STANDARD SCALES

Good Scales are as essential to your success as accurate Bookkeeping.

Our Montreal Stock is Complete.

SEND FOR NEW CATALOGUE

THE FAIRBANKS COMPANY,
MONTREAL.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

A NEW LIFE-BOAT ENGINE.

Lieut. McLellan, of the life-saving service, has recently been at Marquette, Mich., inspecting an engine for use in the big thirty-four foot life-boats in use in the great lakes. The first object, of course, was to get an engine of sufficient power that should take up little room and weigh but little, and whose fuel would meet with the same requirements. He concluded that to secure this the gasoline engine was best adapted to meet these requirements. It also is necessary that the machine should be easily managed, and would not be disabled when the boat should be filled with the heavy seas—another requirement that barred the steam engine.

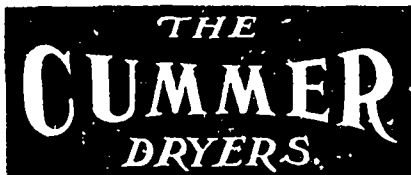
Lieut. McLellan, on behalf of the Government, opened negotiations with the makers, and they demonstrated that their machine would run just as well upside down as any other way. This was a prime necessity, as it often happens that a lifeboat is capsized, but craft of this kind are made self-righting as well as self-bailing. Consequently, if the men could clamber back into a capsized life-

boat as soon as she righted herself and find that the engine was still in working order, they would be ready to proceed. But an engine that would be disabled by turning over would be of no use whatever. The engine is located in the after watertight air compartment, while seventy-five gallons of gasoline, enough fuel to run the boat more than 200 miles, is stored in one of the forward compartments. Everything is out of the way, the valves and keys necessary to start and stop the engine being located in recesses.

The propeller used is of the twin screw variety, and the engine is ingeniously adapted so that one engine drives the two screws entirely independent of the other. By one engine's running forward and the other reversed the lifeboat in the recent tests turned around almost on her own length. It took but twenty seconds in still water to stop the boat when going at full speed and start her going backward at full speed. The boat was also capsized by using a derrick, in a slip between two docks, but she came up smiling and the engine was still revolving. One of the advantages which the boat possesses is

that the engine being in the air compartment taking up no room, allows the use of oars and sails as auxiliary power whenever desired.

Speaking of the new pork packing factory which is to be established in Brantford, Ont., The Expositor says:—"The intention of the company is to construct for a killing capacity of 2,000 pigs a week, with a collarage of 4,000. The ground selected is all that could be desired and is situated directly on the Grand Trunk and T. H. & B. tracks. The company's office is now situated at the corner of King and Dalhousie streets, and before this time next year it is expected that large shipments of County of Brant pork will be on their way to the United Empire. One has only to understand the immense volume of business that is being done with a similar private packing company in Ingersoll and by the Collingwood plant, both of them lacking in many material respects the many advantages that the Farmers' Co-operative County of Brant one will have owing to our large mechanical population.



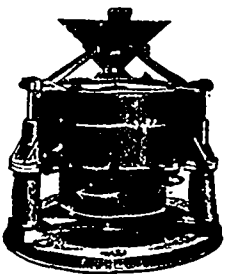
FOR **Mechanically Drying Everything**

THE F. D. CUMMER & SON CO.,

HUNDREDS IN OPERATION.

CLEVELAND, OHIO.

ROCK



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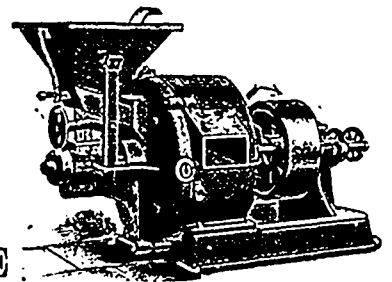
EMERY

MILLSTONES

CHEAP. DURABLE.

EMERY STONES are Made to Fit ANY MILL FRAME

MILLS



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.

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LOCKE'S INSULATORS.

Patent Sustained by United States Patent Office.



An Exclusive Agent Wanted for Canada or would arrange to Manufacture in the Dominion. Address F. M. LOCKE, Victor, N.Y.

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Leather Belting,
Lancashire Hair,
English
Card Clothing,

D. K. McLAREN

Head Office and Factory—
MONTREAL

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WESTERN TRADE—TORONTO STOCK DEPOT,

Phone 374

88 BAY STREET.

NEW COMMERCIAL DEPARTMENT IN GREAT BRITAIN.

The London Daily Mail announces in the following way the opening of the new commercial department of the British Board of Trade:

The commercial intelligence office—the new department of the Board of Trade which is to supply merchants and manufacturers with information as to trade and markets all over the world has been opened.

The department is in charge of Mr. Thomas Worthington, whose recent reports on the trade of South America attracted wide attention. The commercial intelligence office is an experiment, the object being to learn all that is to be learned about markets and tariffs and competition and rates; to tabulate it, to edit it, and to put it in order; and to place it promptly at the disposal of the merchants to whom it may be of use.

Besides collecting information from colonies and India in the ordinary way, the department, it is expected, will send special missions to foreign countries as occasion requires or procure special reports by experts upon particular trades or industries, subject to the sanction of the Foreign Office. It will arrange for the exhibition of patterns and samples. It will bring together, from different parts of the world, information bearing upon particular industries and the markets with which they are concerned.

All this information will be distributed, frequently free of cost, to chambers of commerce and other public bodies, and at a small cost to manufacturers, merchants, and other private persons. But

HORIZONTAL VERTICAL

IF YOUR COAL MAN SHOULD QUOTE YOU

A Confidential Price

of ten per cent, below the market value, he would be pretty sure to get your order because

YOU ARE IN BUSINESS FOR PROFIT

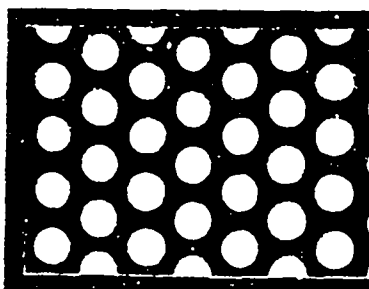
and that discount means profit.

Yet there are thousands of manufacturers who are running power plants without a steam or oil separator when we can easily convince them they would be equally as profitable as the initial discount on coal bills.

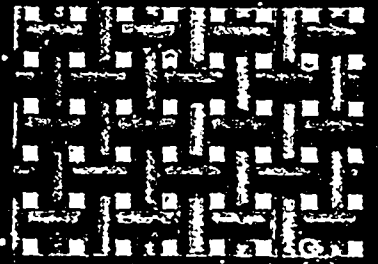
But leaving out altogether the question of fuel economy, the use of an Austin Separator for oil or live steam means a saving through the increased efficiency of the engine and the cleansing of your exhaust for boiler or other uses. We have recently brought out several new patterns covering the whole field of steam usage and are prepared to ship machines to responsible concerns in any part of the United States on 30 days' trial, paying freight both ways if our claims are not substantiated. Results are best arguments and we guarantee the most satisfactory service.

AUSTIN SEPARATOR CO.

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



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



Wire Screens for Every Class of Material.
Perforated Metal of Steel, Copper, Brass, Zinc for all purposes.
Special Attention given to Miners' Requirements.

the office may in its wisdom, "withhold from general circulation such information as may be more suitable for communication confidentially to chambers of commerce and other associations."

The department should meet two classes of exception to the present system—that of traders who say the consuls are too busy on the diplomatic side to devote a proper attention to trade, and that of the consuls who say that the traders worry them with futile inquiries and never read their reports.

CANADIAN SEA GRASS FOR UPHOLSTERING.

Sea grass is a long, thin grass that grows on the protected flats of the Lower St Lawrence River, along the south shore of the Counties of Gaspé and Bonaventure, in the Province of Quebec, and on the east shore of the Province of New Brunswick. The grass grows from two to four feet long at Isle Verte and Rimouski. At these places the bottom is hard, and teams drive anywhere on the flats. The flats at Gaspé, Bonaventure, and New Brunswick are generally soft, and the grass grows from five to twelve feet long.

The grass is known here as "herbe à bernigo" (brant grass) and "herbe à outarde"

(wild goose grass). These flats are very extensive in places. At Isle Verte over 1,000 tons of grass are cut, and 400 tons can be cut at Rimouski. Islands protect these flats from heavy seas. The grass is mown with scythes. It takes a very large area to dry much of it, and it shrinks rapidly in the sun, 100 pounds of the green grass making only about twelve pounds of the dry. If dried quickly with the salt in it, it is very brittle. To season it well requires from three to four weeks. After it becomes dry, showers are needed to take the salt out of it. The dew will accomplish this object, but it takes much longer. Much experience and care is necessary to cure it properly and have it entirely free from salt. When properly dried the grass is strong, elastic, and curly, giving it its value for upholstery. It is largely used by carriage manufacturers.

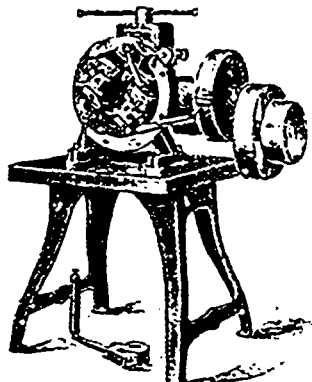
The amount of the yield in 1898 was as follows.—

	Tons.
Isle Verte, St. Eloi, and Cacouna....	1,120
Rimouski.....	163
Seven Islands.....	55
Paspébiac district.....	45
New Brunswick.....	90
Total.....	1,473

About 10 per cent. of this was used in Canada and the balance went to the United States, largely to Ohio and Illinois, very little being used in the East. As it becomes better known, I believe it will become more popular. It is clean, healthy, elastic, durable, light, and cheap. The average price on the car is \$25 per ton, or \$30 delivered at Chicago or Cincinnati. All but 190 tons were gathered in this consular district. The work is done in about three months. The dealers buy it from farmers, sort it, press it, and market it.

Last season, the farmers received for their grass from \$15 to \$20 per ton; this season, from \$12 to \$15 per ton. The dealers have also been cutting prices, so that grass has netted only from \$17 to \$20 per ton on the cars here. There will be about twice as much shipped to the United States in 1899 as in 1898. At the present rate of shipment, the amount on hand will be exhausted long before next year's supply will be ready for shipment. Some dealers have thought "sea moss" a better name to sell under than "sea grass," so they have adopted it. It is not a moss, does not grow like it or resemble it in any way.—C. A. Boardman, United States Commercial Agent at Rimouski, Que.

THE BEST PIPE THREADING and CUTTING-OFF MACHINES



No. 00 Machine, Power Attachment.

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

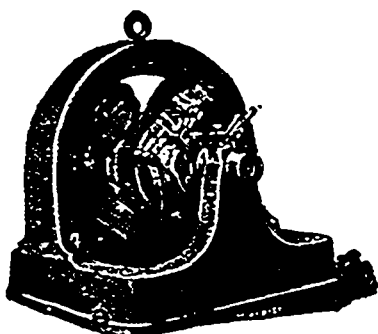
Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** And **WATER, GAS and STEAM FITTERS' TOOLS.**

SEND FOR CATALOGUE 27.

Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

Toronto and Hamilton ELECTRIC CO.



Motors and Dynamos FOR SALE

Second-hand, 200-light Dynamo, multipolar, as good as new.

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

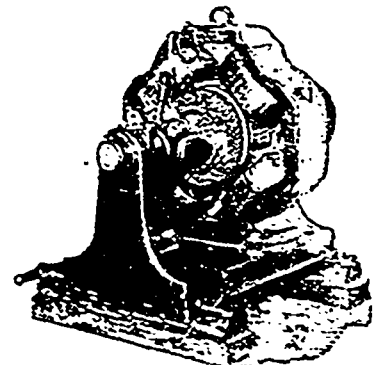
Engine Packing, Magnesia Pipe Covering, Lubricating Oils and Grease.

The

William C. Wilson Co. Limited

24 FRONT STREET EAST TORONTO, ONT.

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. 9D YORK STREET, London, Canada. 760 Main St., Winnipeg. 12 York St., Toronto. 131 Granville St., Halifax.

MOTOR VEHICLES.

As at present constructed, a storage battery for an electric vehicle will weigh from 500 to 1,500 pounds, while the vehicles range in total weight from 900 to 4,000 pounds. It would be a very light motor vehicle, however, that would weigh 900 pounds, and it would be adapted only for a one-passenger carriage. A phaeton built for two persons will have a battery that weighs 900 pounds, and the whole carriage will weigh something like 2,000 pounds. Such a vehicle will have a speed of twenty-five miles an hour, and will climb a hill with a rise of twenty feet in a hundred feet. At top speed, however, such a vehicle would not run more than an hour, as then the storage battery would be exhausted, and would need to be recharged or replaced. A careless driver, however, will get much less than the maximum endurance from such a vehicle. The personal equation enters into motor-driving as into pretty nearly everything else in life.

The first cost of an electric carriage

varies very much. Buggies and runabouts are advertised from \$750 to \$1,500; phaetons and stanhopes at from \$2,000 to \$3,000; omnibuses at from \$3,000 to \$4,000. The first cost, it will be seen, is greater or less than carriages with horses, according to the value of the horses. There is an idea that horses are now going begging in the market, and that fine animals can be purchased for little or nothing. This is very erroneous. A fine horse is as valuable in the market as ever he was; it is only the very common horse that does not command a good price. A man, therefore, can pay as much as he pleases for a good horse, but he cannot get one for a song. If, therefore, a good driving horse is worth \$250 and a pair worth \$500, we see that a turnout with a horse or a pair of horses does not cost so very much less than a motor vehicle. The saving is in the keep. A poor horse eats his head off every day, and it costs at least \$30 a month to keep and shoe any horse a gentleman would care to drive. The cost of the electricity at a central station for a vehicle that would do the work

of two horses, if the horses could work twice as long as is possible, would be only \$25 a month. There is where the saving comes in—in the cost of the keep and the amount of work performed. Even when common horses are used, and the first cost must be reduced, a comparison shows that the electric vehicle is cheaper, though the interest on the investment be computed. A two-horse waggon, with two horses and the harness for them, may be bought for \$700; an electric waggon corresponding in carrying capacity may be had for \$2,250. Now, to stable, shoe the horses, and keep the waggon and harness in repair for a year, besides adding the interest on the



IMPORTANT ANNOUNCEMENT.

Recognizing the importance to the manufacturing industries of Canada of all matters touching Export Trade we have decided to open a Bureau of Information embracing every point of interest connected with this subject, and which Bureau is available to all our many patrons.

The very great experience of this house in this and in all commercial affairs—an experience extending over one hundred years, and our connection with the British consuls throughout the world, enables us to extend to our patrons information both valuable and reliable—for instance:

To give them the names and addresses of ACTUAL BUYERS in any line of trade, and in any country in the world.

To answer special inquiries of every character relating to trade interests.

To give PRIVATE information of a Commercial nature.

To quote Tariffs, Imports and Exports of any country, and leading industry of any City in the World.

To give Rates of Freight and Marine Insurance, and to advise as to the manner of shipping goods and collecting accounts, etc., and we cordially invite our Patrons to make use of this Bureau of Information free of charge, and also to make full use of our offices in Toronto and abroad, and all other reasonable information and services to promote the export of Canadian manufactures.

KELLY'S DIRECTORIES, Limited

28 Victoria St., Toronto, Ont.

PIANO FACTORY FOR SALE

At HUNTINGDON, Que.

Three-storey Brick Building, with two Lumber Sheds, Dry Kiln House, 25 h. p. Engine, Dynamo, Wood-working Machinery, Fixtures, Tools, Scales, Patterns, Cauls, etc., Dry Lumber from one to six years old, Veneers, Piano Hardware, etc., in perfect order, and everything the best that could be purchased. The factory to be sold with or without machinery, and the other lots separately to suit purchasers.

Applications should be sent in immediately. Huntingdon is pleasantly situated on the Chateauguay River, with a fine view of the Adirondacks, 50 miles from Montreal and 3 miles from the U.S., has two railways, the G. T. R. and N. Y. Central, four churches and two excellent high schools.

Lists and other information will be forwarded on demand.

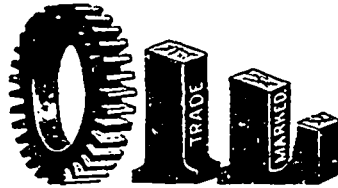
PRATTE PIANO CO.

(In Liquidation).

L. E. N. PRATTE, Liquidator.

"Capitol" Cylinder

"RENOVN" ENGINE "ATLANTIC" RED



RELIABLE WELL-KNOWN BRANDS.

ALL ORDERS PROMPTLY FILLED

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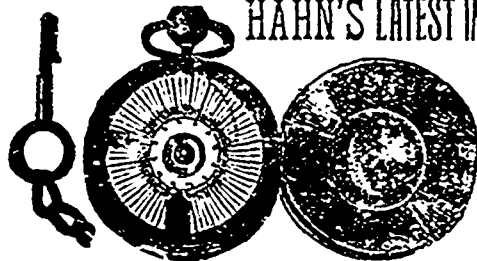
QUEEN CITY OIL CO.

LIMITED,

SAMUEL ROGERS, President.

TORONTO, CANADA.

HAHN'S LATEST IMPROVED WATCHMAN'S TIME DETECTOR



This Clock is adapted for six or twelve stations, and the keys are all different, ranging from 1 to 6, and 11 to 12, instead of as in the old style Time Detectors, which mark either by holes or an impression on the dial, being the same for all stations.

For Circulars, prices and further information address

A. NANZ & CO., Room No. 15, Graham Building, 127 Duane St. **NEW YORK**

This Clock received the First Prize at World's Fair.



SEND FOR CATALOGUE AND PRICE LIST

The Diamond Machine & Screw Co. Manufacturers of **TORONTO, Limited.**

MACHINE SCREWS and BICYCLE PARTS OF EVERY DESCRIPTION

When writing to Advertisers kindly mention 'THE CANADIAN MANUFACTURER.'

outlay for such a horse and waggon, would amount to about \$525. For an electric automobile, where the electricity is purchased at a station, the equivalent cost would be about \$425; if the electricity were supplied by a private plant, the cost would be \$135. Here is a saving of from twenty to seventy per cent. Figures such as these cannot fail to make those who depend on horse-pulled waggons in their business think seriously. Indeed, many of the stores in New York are adopting motor vehicles

for delivery waggons. In these calculations the cost of the driver is not taken into consideration. "Any man with sufficient intelligence to fit him to take charge of a horse can be taught to manage an automobile." This is what the manufacturers say. Far be it from me to endorse the statement; for I am persuaded by long observation that, low though the intelligence of the horse is ranked among domestic animals, quite one-fourth of those in use now do the work and the thinking as well.

The company in New York that operates the electric cabs puts a new man through a course of training before he is entrusted with a cab in the streets. The teacher's cab is very strongly built, with a buffer at each end, so as to lessen the chances of damages either in front or behind. In this double-ender the instructor, by means of levers, can always take control and so prevent accidents. In France there is a regular training-school for drivers near Paris. On a hillside there are dummy figures to

John R. Barber, President.

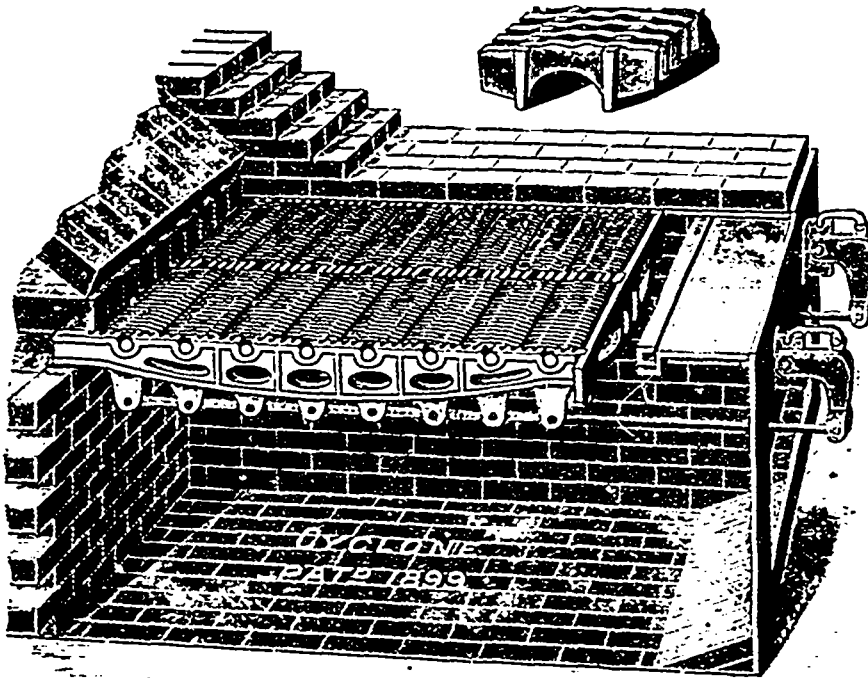
Geo. E. Challos, Sec.-Treas.

Henry Truesdell, Bus. Man.

THE CYCLONE GRATE BAR

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



SIMPLICITY,
DURABILITY,
ECONOMY.

Burns the Cheapest
Fuel with the
Best Results.

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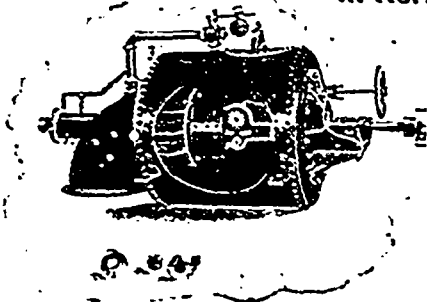
Manufactured
by...

Cyclone Grate Bar Co. Limited,

10 KING ST. WEST
TORONTO, CAN.

THE Crocker Patent Turbine

In Horizontal Setting, with Quarter Turn Elbow.



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

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

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

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

make the course as much like a city street as possible. The driver is considered expert when he can go over the course without toppling over any of these dummy figures. As the law of right-of-way is the same in France for automobiles that it is for ordinary carriages, the dummies on the training course are presumably put there merely to exercise the driver in deftness of guiding, and not to teach him to respect the lives and limbs of foot-passengers. In this country, however, an automobile driver has no more license to run down a pedestrian than has that of any other vehicle. As most of the vehicles belong to incorporated companies, it is a wise economy to employ only expert drivers, for juries exercise a sympathetic discretion in assessing damages when a corporation is a defendant in a suit at law. And a driver of an electric vehicle has both hands full while both his feet are employed. With his left hand he manages the power lever, pushing it forward one notch at a time to increase his speed. With his right hand he controls the steering lever. His left heel is on the emergency switch, and his left toes ring the gong. With his right heel he turns the reversing switch, while he can apply the brake with either foot that happens to be disengaged. A man can learn to do all this in a week, big job though it seems. If he has had experience

in driving horses in a crowded city, he learns more quickly; for the automobile requires alertness of eyes, hands, and mind as well as natural quickness of movement.

As has been suggested, improvements in the future are to be expected in the electric motors, but at this time the gasoline motor, for general use both in the city and country, appears to be the most practical and the most economical. It is lighter and cheaper, and no charging station or charging plant is necessary. Gasoline is cheap and is obtainable everywhere. Gasoline carriages are, however, more subject to vibrations, and the passengers are rarely free from the unpleasant odors of burned gases. The most successful of the French automobiles are of this kind, and the long-distance races on the Continent have generally been won by them. A speed of fifty miles an hour has been maintained for short distances, and thirty miles an hour has been kept up for long distances, but even abroad this is exceptional. Of course such rapid travelling is out of the question in this country in the present condition of our roads. And even in France, where the roads are excellent, and an injured pedestrian is the culprit, such a rate of speed is for sport, and not for business, except when sport is made business. Many of the American manufacturers discourage

road racing, and their vehicles are not made for a speed greater than twenty-five miles an hour when doing their utmost.

The first auto-propelling road carriages were for steam, and there are those who believe to-day that the best automobile will be propelled by steam. Several American manufacturers are preparing to put steam carriages on the market, even steam buggies. In Europe for heavy coaches those designed for steam propulsion are now considered satisfactory. Road steam engines for heavy loads at slow rates of speed have long been used in Europe, where there are hard roads fit for such traffic. For light waggons the use of steam is another matter. Some critics say that the fact that the law requires that each operator of a steam engine shall have a license will prevent steam road motors from becoming popular. This does not seem to be an insuperable objection.

In addition to electric, gasoline and steam motor vehicles, we have compressed air, carbonic acid gas, alcohol, and ammonia motor vehicles. The first three have been proved to be practical road vehicles. The others are, to an extent, still in an experimental stage, though companies with large capitalization have been organized to do the trucking in great cities with heavy waggons propelled by compressed air. The promoters of this enterprise do not agree that there is anything experimental in their project.

As to the best name for these new road motors there is much discussion, The French Academy has done what it could to settle the matter by deciding that "automobile" is a properly constructed word. This dictum may be binding in France, but here the makers prefer "motor vehicle." Others, with a fondness for picturesqueness of expression, like "horseless carriage." It may be that none of these will be satisfactory to the public, as each is long, each a big mouthful of syllables. There is sure to be a shorter—ono or two syllables at the most.

A new chair factory is proposed for Listowel, Ont. Messrs. Forbes and Washburn are making arrangements for the necessary machinery. Both gentlemen are experienced in this line and should meet with success.

..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.

2.—IT MUST PRODUCE A CLEAR RECORD, AND ONE THAT CANNOT BE DISPUTED.

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.

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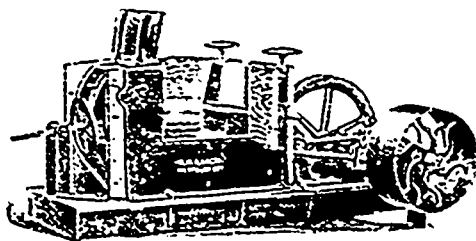
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Manufacturer of

WOOLEN MACHINERY,

Rotary Fulling Mills, Kieker Fulling Mills, Soaping Machines, Cloth Washers, Wool and Waste Dusters, Rag Dusters, Drum Spool Winders, Reels, Spooling and Doubling Machines, Ring Twisters, Card Creels, Dead Spindle Spooler for Warp or Dresser Spools, Patent Double-Acting Gig Dyeing Machines.

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HARDWARE and METAL

Bar Iron, Steel,
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MACHINIST TOOLS, PIPE FITTINGS.

A COMPLETE STOCK OF
STOCKS and DIES. PIPE VICES.

STILLSON & TRIMO
WRENCHES.

STEAM PIPE.

Cor. King and Victoria, TORONTO

TO FLOOD THE DESERTS.

Two vast schemes, combining the geographical and commercial, on a magnificent engineering scale, are now being discussed. One of these is the reconversion of the great Sahara Desert, which was once an inland sea, to its former state; that is, it is argued, a canal sixty miles long, connecting with the Atlantic the immense depression which runs close up to the coast nearly midway between the 20th and 30th parallels of latitude, would solve the problem. The water would not, of course, cover the entire surface of the desert, here and there portions remaining above sea level, these becoming the islands of the new Sahara ocean. Another proposed enterprise in this line is that which has in contemplation the submersion of the Yuma Desert in Southern California, and this plan, if carried out, will involve a tract of absolutely uninhabitable territory comprising nearly 13,000 square miles, and the greater portion of which lies between 500 and 1,000 feet below sea level. Prodigious as are these plans, modern engineering science views their realization as among the possibilities of the future.

SIMPLE TEST FOR OILS.

A writer in Machinery says. "A little chemistry will help in selecting and testing lubricating oils, and the following points may be useful to some. I speak here of hydrocarbon or mineral oils. The color of the oil should be perfectly clear, as cloudiness indicates the presence of water or excess of paraffin. When treated with an alkali it should not saponify. If it does, it is mixed with animal fats.

"To detect acid or alkali, was a sample of oil with distilled water Draw off the water,

add to it a few drops of phenolphthalein; if it turns a red color, the presence of alkali is indicated. If a piece of litmus paper dipped into the water changes color, it is a sign of acidity. Next take a sample and add a little sulphuric acid, which should give a yellowish brown color only. Should it darken or blacken the oil, or increase the temperature considerably, it indicates a low-grade oil mixed with resin and fat oils. Exposed to a temperature of 200° Fahr., it should not lose weight."

THE VALUE OF SMALL INVENTIONS.

In an article on the value of small inventions the Patent Record, of London, says, The inventor of the roller skate made \$1,000,000. The gimlet pointed screw has been responsible for more wealth than most silver mines. Half a million dollars in first class securities would not represent the fortune made by the man who first thought of copper tips to children's shoes. Even a little thing like the common needle threader is worth \$10,000 a year to its owner, while the "return ball"—a wooden ball fastened on a piece of elastic—yields \$50,000 per annum. This is only one of many profitable toys. We may mention the "dancing Jim Crow," which produces \$75,000 a year; the "wheel of life," worth in all fully \$500,000; the walking figure "John Gilpin," and the "chameleon toy." The sale of the last named toy has been enormous, and the profits also.

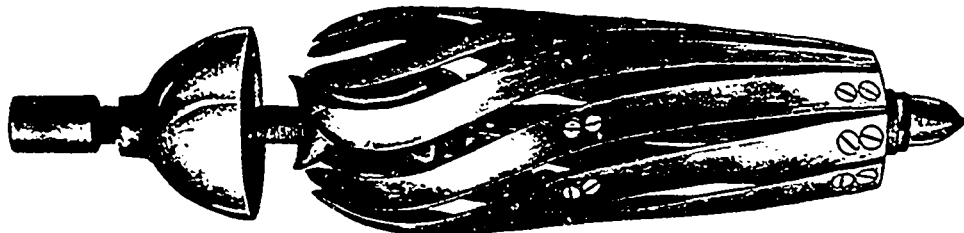
The man who discovered that a candle, if tapered at the end, would stick firmly into its socket patented the idea and afterwards founded the largest candle factory in the world. Out of the millions who own um-

rellas how many realize that these indispensable articles represent wealth untold! The frame, the cover, the materials used, all are the result of numberless experiments and patents. An umbrella years ago used to be made of whalebone and gingham. It weighed as much as a portmanteau. Alpaca was substituted for gingham, then silk for alpaca. Each change meant a fortune to the inventor who brought it about. For a long time the ribs were solid; then Samuel Fox arose, took the umbrella and cut grooves along its ribs. He designed the "patent paragon frame," and lived to see his invention used universally. At the death of Samuel Fox his heir benefited to the extent of \$900,000—the residue of a total profit of at least \$2,500,000.

ACCIDENTS IN FACTORIES

The Ontario Department of Agriculture has just published the eleventh annual reports of the provincial factory inspectors for 1898. The volume includes reports from Robert Barber, James R. Brown, and O. A. Rocque, inspectors for the western, central, and eastern districts respectively, and from Miss Margaret Carlyle, female inspector. The laws for the protection of factory employes, more especially women and children, appear to be working satisfactorily, much improvement having been made in sanitary conditions and regulations looking to the safety and comfort of the operatives during late years. The inspectors note a disposition on the part of employers generally to carry out the law fairly, and complaints as to its violation have not been so numerous. The age of children employed is a chronic difficulty, as it is frequently impossible to get information as to the subject, or prevent misrepresentation on the part of parents.

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MOST PERFECT CLEANER
OF BOILER FLUES KNOWN.
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BOILERS
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OF CANADA



Head Office,
TORONTO.

Are You
sure they
are **SAFE**
and in
Good Con-
dition?

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This specially important question with which the document deals is that of accidents to workers, concerning which some details are given which show that much remains to be done in affording protection to the lives and limbs of workers in dangerous vocations. The number of accidents in the western district during the thirteen months covered by the report was 110, eleven in the number being fatal. Of these thirty-one took place among employes engaged in the wood-working trade and twenty-six in connection with metal-working industries. The number of accidents reported in the central district was eighty-one, which includes four of a fatal character. Circular saws caused eighteen of the number. The casualties occurring in the eastern district were much fewer.

A large portion of the report of Mr. Robert Barber is given to the consideration of accidents occurring in the hazardous occupations, with some valuable suggestions as to

their prevention. It also gives full instructions for the treatment of persons who have apparently been killed by electricity, who, by timely attention, can often be revived, with illustrations showing the method of resuscitation. There is also an elaborate paper on explosions caused by commonly occurring substances, by Prof. Charles E. Monroe. The report ought to be widely circulated among foremen and engineers.

CANADIAN TOBACCO.

Advance returns of the tobacco, cigar, and cigarette trade of the Dominion for the fiscal year ending in June last show a large increase in the production of each class. The consumption of cigars reached in the twelve months a total of 128,909,992, an increase over the preceding year of 15,816,127. Of the total given, 112,353,955 are entered as foreign leaf, 1,021,650 as Canadian leaf, and 654,845 as combination.

Under the heading of foreign leaf tobacco, the returns show a total of 7,105,786 pounds, against 6,648,333 pounds the preceding year; Canadian leaf, 2,186,426 pounds, against 1,807,959 pounds, and combination leaf tobacco, 352,205 pounds.

The consumption of foreign leaf cigarettes totalled 100,750,828, against 79,666,317 in the previous year. The foreign raw leaf paid a tax of \$1,067,656, against \$851,786 the year before. This represents, of course, only the inland revenue duty, and does not include that paid to the customs.

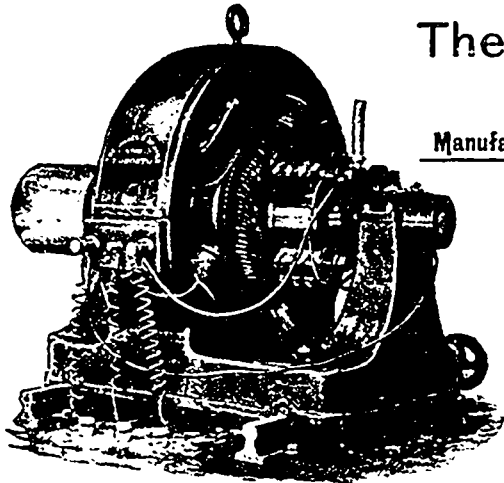
A NEW BOAT.

About a year ago mention was made in our columns of a new boat, a roller or, more properly, a revolving boat, which was being constructed by Walter Dean, of Toronto, for Mr. Shaw, of Lake Rosseau, and a syndicate interested in the development of this new idea of propulsion.

The boat has advanced to that stage when it is nearly ready for launching.

Imagine a cigar-shaped hull about thirty feet in length, supplied with proper engines, steering gear, etc., to operate the screw, which in this instance differs from the usual construction in that it consists of a cylinder about one-half the length of the boat situated in the centre of and passing entirely round the hull proper. This cylinder is supplied with fins or wings running diagonally around from one end to the other, and rotating through the water that gives motion to the hull. The keel, connected at both ends to the hull proper hangs below the revolving cylinder.

There is a principle being developed in this boat which, if a success, will cause considerable comment and attract attention from all parts of the world.



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Manufacturers and Contractors

All Work Fully Guaranteed

ELECTRIC LIGHT and
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A Few Second-Hand A 1 Machines
For Sale Cheap

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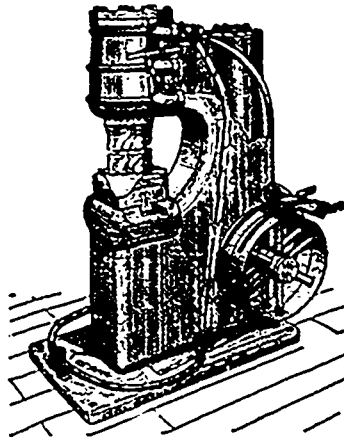
The Yeakley Vacuum Hammer.

Canadian Patent November 9, 1897.

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of the Canadian Patent:

George Brush

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\$2.40 per dozen; \$20.00 per gross.

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"IDEAL" Carbide Sub-Merging Acetylene Gas Machines,

15 to 2,000 Lights. WRITE FOR PRICES.

"IDEAL" BURNERS and MACHINES are the BEST
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Manufactured by **J. WALLACE & SON,**
GET THE "IDEAL."
HAMILTON, ONT.

T. H. & A. H. DRYDEN

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FLOUR, SPICE AND

OATMEAL MACHINERY

Grain Elevators	Portable Mills
Shafting, Hangers	All Sizes.
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MACHINES MADE TO ORDER

All kinds of Repairing Promptly Attended to

Warehouse Elevator Works Electric or
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Manufacturers of....

OIL-CLOTHS of Every
Description

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Enamelled Oil-Cloth,
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Cor. St. Catharine and Parthonsals Sts.,
MONTREAL, Que.

ONTARIO FACTORY INSPECTORS' REPORT.

The reports of the factory inspectors for Ontario for 1898 have been issued by the Department of Agriculture, and comprise some features of special interest and importance. There are three districts in the Province for factory inspection purposes, Robert Barber being in charge of the western district, James R. Brown in the central, and O. A. Rosque of the eastern, and Miss Margaret Carlyle, Female Inspector. The information embodied in their reports covers a wide range of subjects, their general tenor indicating that the law is operating satisfactorily for the removal of factory abuses and is being on the whole well enforced. There are comparatively few complaints of neglect or violation of its provisions, and most employers appear willing to carry out the enactments for securing the health and safety of their work-people. Matters are apparently on a good deal better footing in this respect than formerly, though much still remains to be done.

The question of accidents to employees in the more hazardous industries receives a good deal of attention. Returns of the casualties reported to the inspectors give the number occurring in the western district during the thirteen months embraced by the report as 110, of which eleven entailed fatal results. Of these thirty-one occurred in connection with wood-working, and twenty-six in metal-working trades. In the central district there were eighty-one accidents reported, four of the number being fatal. Eighteen of the list were due to circular saws. There were not many accidents specified in the returns from the eastern district.

Mr. Robert Barber's report makes numerous recommendations in regard to the prevention of accidents, and gives details in connection with some of those occurring during the year. He calls attention to the action of the British Government for the improvement of the condition of those engaged in dangerous trades. Some years ago a special committee was appointed to make investigations on the subject, and a portion

of their report is given as an appendix. It deals specially with the management of electrical generating works and embodies a great amount of useful information as to the control of electricity and the precautions to be adopted to guard against accidents from this source. In addition it gives instructions as to the treatment of persons suffering from electric shock, who are often supposed to be dead when by prompt attention they could be revived. A couple of illustrations show the process of artificial respiration by which it is possible in such cases to restore animation. The extensive introduction of electricity for light and power purposes renders it advisable that such information should be widely disseminated among those employed where it is used. A valuable paper on "Explosions Caused by Commonly Occurring Substances," by Prof. Charles E. Munroe, also appears as an appendix to the report.

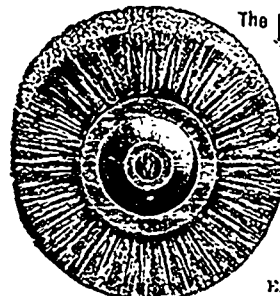
The Atlantic Washing Machine Co., Aylmer, Ont., has been incorporated with \$3,000 capital stock.

PLANING MILL MACHINERY...
SAWS, MOULDERS,
MATCHER, BOILER, ENGINE, PLANERS,
JOINTER, SHAPERS. Apply
WILKES & HENDERSON,
BRANTFORD.

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

The Dominion Leather Board Co.,
MONTREAL, QUE.

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Manufacturers of ALL KINDS OF BRUSHES.
ORDERED MACHINE BRUSHES } Specialty
Mail Orders Promptly Filled.
E. B. Sahenla, Prop., PRESTON, ONT.

CHARLES F. CLARK, President. JARED CHITTENDEN, Treasurer.
ESTABLISHED 1849.

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Capital and Surplus, \$1,500,000. Offices Throughout the Civilized World.

EXECUTIVE OFFICES, - - 346 and 348 BROADWAY, New York City, U.S.A.

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Steam and Gas Engines,
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- Mikado Mine.
- Olive Gold Mine.
- Cameron Island Mine.
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A Few Mines



WHO USE

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- Crown Point Mine.
- Knob Hill Mine.

CANADIAN RAND DRILL COMPANY, Montreal

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THE TWENTIETH CENTURY.

The nineteenth century closes with the year 1900. Immediately after midnight, therefore, of December 31, 1900, is when the twentieth century begins. In other words, it begins with the first second of the first hour of the first day of January, 1901.

The twentieth century will open on a Tuesday and close on a Sunday. It will have the greatest number of leap years possible for a century—twenty-four. The year 1904 will be the first one, then every fourth year after that to and including the year

2000. February will three times have five Sundays, in 1920, 1948 and 1976.

The twentieth century will contain 36,525 days, which lacks but one day of being exactly 5,218 weeks. The middle day of the century will be January 1st, 1951.

Several announcements are made of changes to be inaugurated with the opening of the new century. The first of importance is that Russia will adopt the Gregorian calendar. This will be done by omitting thirteen days, the amount of error that will have accumulated after the close of February, 1900. The Russians will then write January 1, 1901, instead of December 19, 1900, or rather, instead of both, according to the dual system now in vogue in that country and in Greece. The other important announcement is that it is not at all unlikely that the astronomical day, which now begins at noon of the civil day, will be in with the civil day at midnight. The present method of having the astronomical day to begin twelve hours after the beginning of the civil day is apt to be confusing. —Scientific American.

thirty-five knots. In preliminary trials the second vessel has already achieved upwards of thirty two knots.

With the turbine system a cross-channel boat 270 feet long, and thirty-three feet beam, 8½ draught, and 1,000 tons displacement, could be constructed for 600 passengers with machinery developing 18,000 horsepower and thirty knots, against the nineteen and twenty-two knots of the present boats of similar size and accommodation.

Mr. Parsons then pictured a special un-armored cruiser, or a sort of magnified destroyer, 420 feet long, forty-two feet beam, with a maximum draught of fourteen feet, a displacement of 2,800 tons, and an indicated horse-power of 80,000, having eight propellers nine feet in diameter to make about 400 revolutions a minute, and produce a speed of about forty-four knots. In Atlantic liners and large cruisers the weight of the machinery would be reduced, less fuel used per horse-power developed, and consequently there would be a reduced engine-room staff. There would be no noticeable vibration at any speed.

ADDRESSES furnished ENVELOPES and CIRCULARS

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Reliable Type-written lists of names furnished at reasonable rates, from OUR OWN PUBLICATIONS, embracing all the Professions, Trades, Industries, etc., throughout the WORLD, covering every Commercial Centre, in EUROPE, ASIA, AFRICA, and AMERICA. MANY of these lists are SPECIAL; that is, can be had only from us, or through our publications; on these lists a REBATE of full amount paid, including postage, will be allowed on all envelopes returned to us post marked "Can't find."

KELLY'S DIRECTORIES, Limited 28 VICTORIA St., Toronto, ONT.

STEAM TURBINES.

The Hon Chas. A. Parsons' presidential address to the Institution of Junior Engineers in London, England, on November 6th, referred to the potentialities of steam turbines. He described the Viper and a similar vessel in course of construction of approximately the same dimensions as the present thirty-knot torpedo boat destroyers, but with boilers only twelve per cent. larger to realize the usual conditions and upwards of 10,000 horse-power, against 5,500 with the reciprocating engines, and an estimated speed astern of fifteen and a half, and ahead of

Austen Bros., of Halifax, N.S., have lately commenced handling all kinds of second-hand machinery. With the increased strain on manufactories caused by the great race for supremacy and the turning out of finished products more rapidly and at a less cost each year, it compels the replacing of machinery that was first-class a few years ago, with the latest improved machinery of to-day. This creates a new industry, the repairing, re-modelling and selling of the second-hand machines, equally important with the building of new.

The Stratford Mill Building Co.,

STRATFORD, ONTARIO.

STEEL BOILERS—all Sizes,

THE BROWN AUTOMATIC ENGINE,

FLOUR MILL MACHINERY, CORN MILL MACHINERY,

GRAIN CHOPPERS OF ALL KINDS.

Manufacturers of....

We keep a Full Stock of Chain, Leather and Cotton Belting, Sprockets, Pulleys and Iron Work of all kinds.

We have one of the Most Complete Boiler Plants in Canada.

Write for Prices.

Reduce Your Fuel Bills

Increase Your Output...

BY USING

The IMPROVED JONES UNDERFEED STOKER

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

NO ASHES. NO SMOKE. NO TROUBLE. NO MONEY REQUIRED IF GUARANTEES ARE NOT FULFILLED The first and Only Successful Underfeed Stoker.

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

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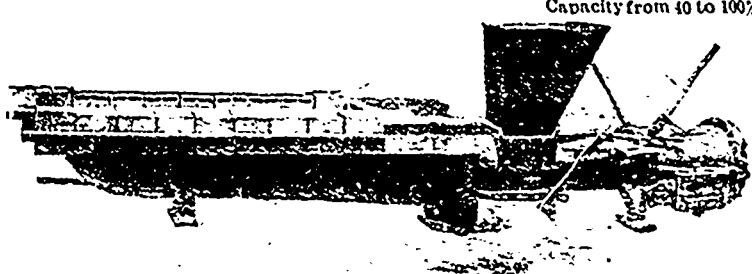
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THE RUGGLES FLUE CLEANER.

Owners of steam plants are more keen than ever to adopt measures for the economizing of fuel, and anything touching on this subject ought to be of interest to them.

In seeking to reduce the cost of fuel consumed by their boilers in generating steam, attention is paid among other things to the draught; manner of firing; quality of fuel, etc.; but only too often the flues of the boilers are neglected. The proper care of these will aid most materially in reducing the fuel bills. Only the clean polished iron of the flues should be offered to the heat if the full benefit of the latter is to be attained. A coating of such non-conductors of heat as soot, carbon, rust or scale upon the fire surface of the flues means a waste of fuel and time in generating steam.

Many kinds of devices have been invented for the purpose of cleaning flues. The idea embodied in the construction of all of them has been that of circular, sharp-edged discs, the intention of which is to push or



The Ruggles Flue Cleaner.

scrape off the offending incrustation. This idea of construction applied in different ways

in all the tools limited their usefulness to such an extent that, although some do fairly good work, yet none have ever thoroughly cleaned a flue. Often there are irregularities, such as thimbles, welds or deviations of diameter to be found in flues. In such cases most of the cleaners have been found to stick fast in the flue and when diminished in size, so as to run through the same, cease entirely in front and beyond the obstruction to do the work for which they were intended. Some of them attain a limited degree of flexibility through the use of spiral springs, which, however, soon lose their temper and become rigid.

In connection with this subject it is interesting to note the appearance of a new flue cleaner called the Ruggles Flue Auger, which has been on the market for about a year or more in the United States. It comes highly recommended for its efficiency by some of the largest plants having it in constant use. Its construction, which differs entirely from all other tools used for the purpose, would seem to give assurance that it meets all the requirements needed for cleaning flues. The principle of the tool is not to push or scrape but to cut like a knife. It consists of a set of knives or blades, curved and set diagonally across a central shaft, and made of the finest

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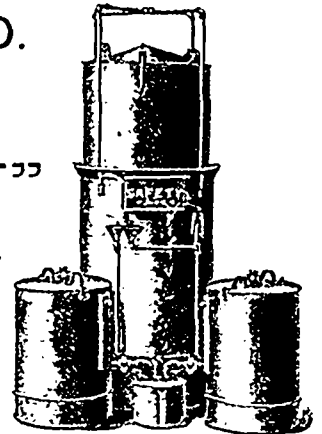
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Toronto Office. {PHONE} MANUFACTURERS GENERAL MACHINERY...
42 York Street. {293} OF

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

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

All correspondence relating to the following Tools will be promptly answered, viz:

- LATHES—Engine, Gap, Break, Turret, Fox, Spinning, Etc.
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tempored spring steel, guaranteed to hold temper in hottest flues, and ground on the underside to give them a cutting edge. With the aid of a thumb-nut, as shown in cut, the knives can be drawn inwardly and outwardly. The knives when tool is shoved through flue will cut or shave off all incrustations down to the metal in a perfect and thorough manner. Their great flexibility and spring enable them to override any uneven structure in a flue, and they will come back immediately into position after passing it and continue on with their cutting. The various parts of the tool can be replaced being interchangeable and brass meets with iron in every part of the tool so as to prevent rust and corrosion. It can readily be seen that with a conscientious use of this tool there should be no dirty flues, and it must in consequence save money and time for its owner.

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One of the most complete, interesting and instructive catalogues that we have had the pleasure of receiving in some time comes from the old firm of The B. Greening Wire Company, of Hamilton, Ont., which was established in 1859, and always well and favorably known throughout Canada. The year 1900 brings continued increase of business, as can be seen from the list of sixty-four special lines of screens, riddles, wire clothes, brushes, office fixtures and other goods also made by this company. The catalogue contains directions concerning the use and care of wire ropes, etc., lists of crucible cast steel pliable hoisting ropes, giving prices, sizes, strains, proper

goods, etc., wiring from 1/4 to 2 1/2-inch diameter, semi-pliable hoisting and running ropes, transmission and staunting ropes, best plough steel ropes in same sizes and for same special uses, Swedish charcoal iron ropes, also same variety of sizes.

They make special mention of the "Lang's lay" rope, a specially prepared style and sold at the price of ordinary wire rope.

Galvanized steel ropes also have attention, and ships' cables, teller ropes, sash cord, switch ropes, Greening's rope grave splices, etc., each have a place and a description.

Valuable tables showing relative effect of various sized sheaves or drums, on the life of wire ropes, clamps, thimbles, hooks, sheaves, wheels, splices and a very excellent treatise on use, etc., makes this catalogue a reliable reference book for factories of any kind to have in their offices.

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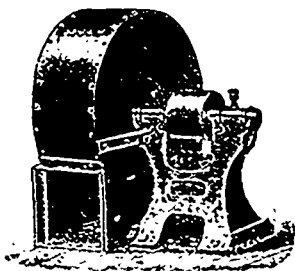
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THE CAVIARE INDUSTRY.

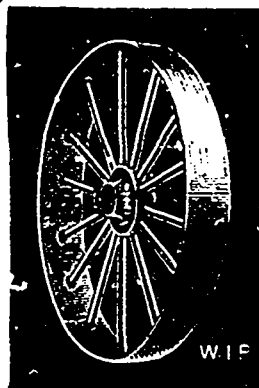
From one of our exchanges it appears that a new source of wealth is to be added to Canada's list of food products suitable for export. We quote as follows:—A number of Toronto capitalists are interested in the establishment of a caviare factory some where in Northern Ontario. Beginning at Georgian Bay and taking the inland lakes as far north as Lake of the Woods, the waters teem with fish and particularly with sturgeon, many of them of the costly caviare variety. The sturgeon, unlike other fish, have no regular time for spawning and so may be caught with advantage all the year around. At present the fishing is not carried on systematically, but is in the hands of a lot of potfishers, who work at it intermittently and send their sturgeon roe to New York for preparation. They get 75 cents a pound for it and a good sturgeon sometime yields as much as 25 lbs. of roe. The New York people furnish the fishermen with a special grade of salt with which to drench the roes and they do the rest. The possibilities in sturgeon fishing may be estimated from the fact that two Niagara fishermen who go up to Georgian Bay for three months every fall—and Georgian Bay is not the best sturgeon water in Canada—clear \$500 each season. They fish in the most persistent way, with a long line strung with baited hooks, but the sturgeon are so eager that all the fishermen have to do is to take them off the hooks. Of course they are not all caviare sturgeon, but even then the meat is worth six cents a pound on the market and yields a fair profit. The caviare factory is a possibility of the early spring and the company may go in not only for making the caviare, but also for catching the sturgeon.

The Canada Nickel Co., a corporation formed to operate near Sudbury, Ont., are reported to be getting out timber for their smelter and want to be in operation by June or July next. New York and London firms will take their entire output of metal which is expected to reach at least 200 tons per day.



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The accompanying illustration is of the Hubbell Tapping Machine, manufactured by Harvey Hubbell, Bridgeport, Conn.

This machine is designed for light, rapid tapping.

The spindle is driven by two 1 1/2 belts, running in reverse directions, giving a speed of 1,200 to 1,500 revolutions per minute.

The reversing of the tap is accomplished by releasing the foot pressure from treadle, which, through means of the lever, actuates the friction cone.

The machine is fitted with a flat sliding plate and a revolving spindle which in turn may be fitted with a holder suitable to retain the work.

If from any cause a tap becomes caught, it may be instantly released and the spindle

allowed to revolve with work attached without danger of breaking the tap, as it is wholly under the control of the operator.

The machine is also provided with an automatic stop, enabling the operator to tap to any required depth.

It carries a 3/4 inch tap and under, and is capable of tapping from twenty to thirty thousand holes per day.

Cones are marked with arrow points, showing direction in which they should revolve.

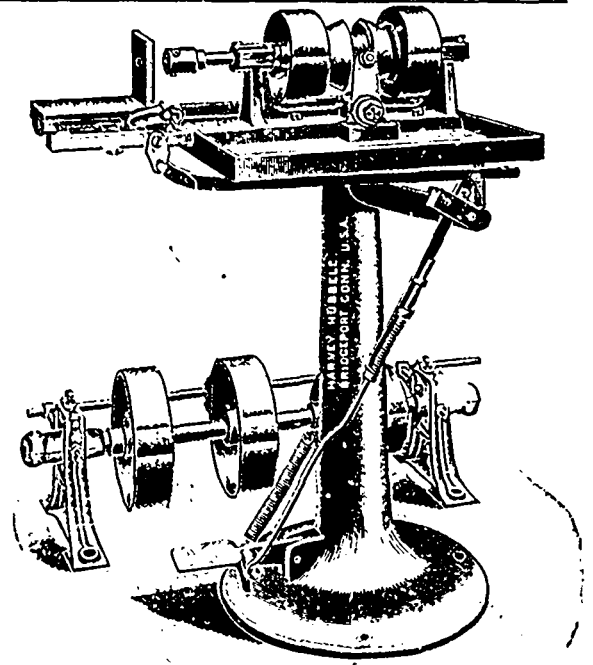
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Weight of machine and countershaft complete, 260 pounds.

Height over all, thirty-eight inches.

Floor space, 28 x 24 inches.

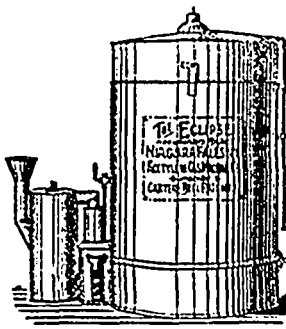
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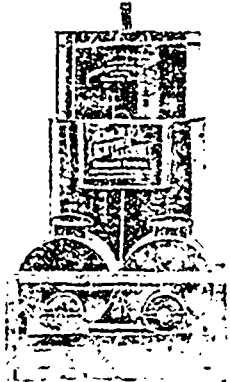
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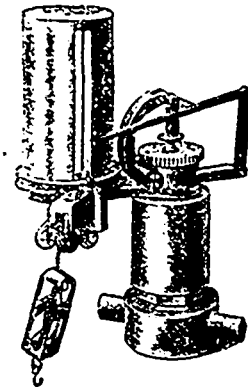
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PAPER DRIVING ROPES.

An interesting article on this subject appears in a recent issue of the Engineer, and we give the following extracts from it. Cotton has long held the leading position for the manufacture of driving ropes. In certain classes of work it has had nothing to compete with it. Now, however, we find paper entering into competition, and the prospects of the new material would seem to be good. At first hearing one is inclined to doubt whether paper could fulfil the conditions necessary for the production of a serviceable driving rope. Its strength and its ability to stand constant bending would seem open to question. As a fact, however, paper seems to possess qualities which permit of its being easily made into rope which compares favorably for driving purposes with ropes made from other and more usual materials.

Some tests were recently made with some paper ropes manufactured by Ironmongers' Rope Works, Limited, at Wolverhampton, England, and ropes of the same substance which have been at work for varying lengths of time. The rope, when new, is of a light fawn color, and is fairly smooth to the touch, though not so soft as a cotton rope, than which it is slightly lighter. It is wonderfully pliant, even in sizes up to 1 1/2 inch in diameter. It is manufactured with three main strands, the makers maintaining that this is preferable to having four strands. The main strands are, as in the case of cotton or of hemp ropes, made up of a number of subsidiary strands, composed of continuous strips of pulp paper to which a definite twist has been given, thus forming them into twine of wonderfully regular diameter. There is, we understand, no difference in the actual manufacture of these ropes and of other kinds of rope. A serving, largely consisting of boiled oil, is employed, which renders the paper practically waterproof. There is no intention, however, at all events at present, to use the ropes for marine work or anywhere where tensile strength forms a necessary factor. The actual tensile strength is probably not nearly as great as manila rope, but for "driving" purposes, the rope is never used anywhere near its breaking strain.

Three ropes were doing various kinds of work. Two of these were running at Ironmongers' Rope Works, Limited, and the other at the bolt and nut manufactory of William Miller & Sons, in Wolverhampton. The first inspected was an inch rope which had been running constantly for some eighteen months. At the present time it is driving machinery some thirty yards from a main shaft, and is travelling at the rate of about 700 feet a minute. In its course it runs over and under guide pulleys, which, owing to circumstances, are of necessity not in a straight line, and it also laps round several grooved pulleys, which are not more than a foot in diameter. This rope, on examination, showed practically no signs of wear. It had an appearance as though it had been compressed and polished, the surface being quite shiny. Moreover, the inner surfaces, where the strands come against one another, are also polished and smooth, and show no signs of abrasion or wear. It is wonderfully supple, and this seems largely due to the fact that the strands, instead of catching against and wearing each other, possess a certain amount of sliding play.

The second rope was of a larger size. It transmits the whole power of an engine—some six horse-power—and is 1 1/2 inches in diameter running 700 feet a minute. The same remarks can also be applied to this rope, which has been running since the first week in February of this year. It practically shows no sign whatever that it is worn at all. It is eighty feet long. For a part of its course it goes through a room which is fre-

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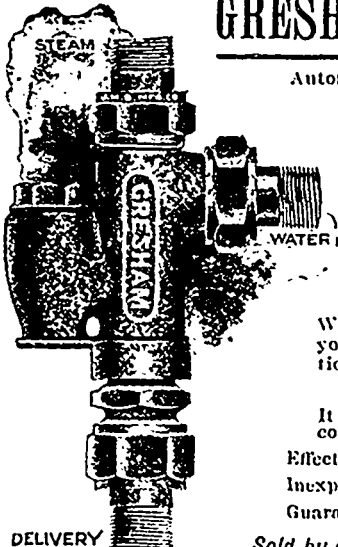
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quently filled with condensed steam, but this does not appear to affect it in the least. As a comparison to this there is a cotton rope of the same original size and doing practically the same work, as it drives a countershaft, which only in its turn drives the paper rope. The cotton rope, therefore, only has to overcome the friction of the countershaft which is very small compared to the total resistance—in addition to the work done by the paper rope. It is however, badly frayed and considerably nearer the end of its life than is the paper rope.

The third rope in actual work—that at the bolt and nut mill—had been in position but five or six weeks. It, however, looked as though it had only done as many hours' work, being scarcely marked and in no way worn. It forms one of five ropes transmitting the power of the engine to main shafting, which drives all kinds of bolt and nut-making machinery, etc. Its length is some sixty-nine feet, the driving flywheel is ten feet in diameter, the grooved pulley on the shafting is five feet in diameter, the horsepower transmitted is estimated at twenty, and the rope travels at about 2,000 feet per minute. A greater stretch than has actually occurred was looked for, and the rope is therefore tighter than the remaining five, which are of cotton, and has consequently done more than its fair share of work. In all cases the cotton ropes with which the comparison were made were of Ironmongers' make, so that all element of desire to decry other makers' productions was absent.

The paper rope can be spliced in the same way as an ordinary rope, the splices being, however, of rather greater length than in the case of cotton ropes. The makers are just introducing a metal coupling for the ropes, which is intended to do away with splicing. They have one of these couplings at work, and we are informed that it is giving satisfaction.

NEW USE FOR WOOD PULP.

Frederick T. Gordon, a hospital steward at the League Island Navy Yard, has been for some time conducting experiments on the use of wood pulp in surgery, and he gives the results of his experiments in a recent number of The Medical Record. Wood pulp is obtained in its crude form from the manufacturers. It is cheap, easily obtained, and possesses valuable properties. When macerated in water, it swells up and absorbs from four to five times its weight of liquid, retaining it for a long time. As the pulp becomes soft, a poultice of any desired consistency can be made by varying the quantity of the water. By using hot water the resulting poultice will retain its heat and moisture much longer than a similar poultice made of bread or flaxseed.

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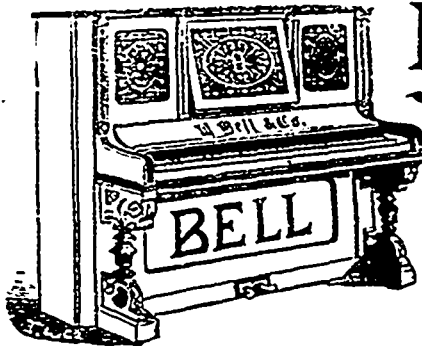
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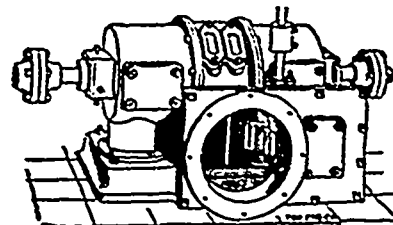
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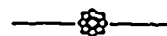
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