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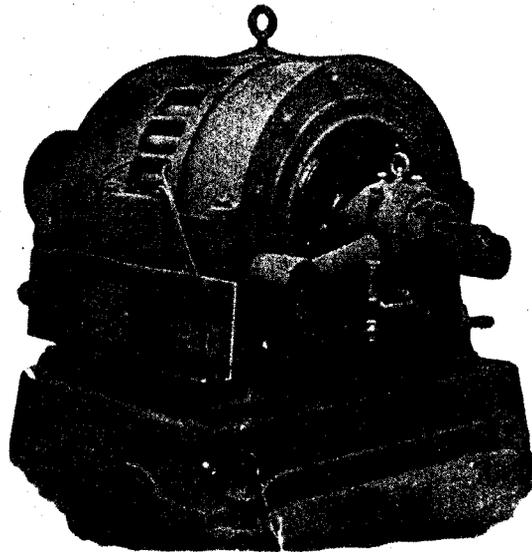
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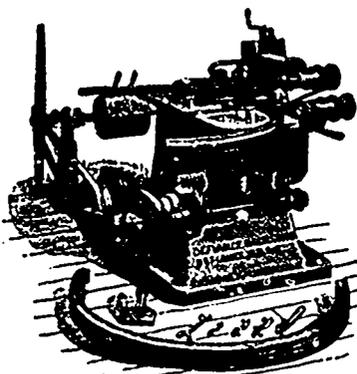
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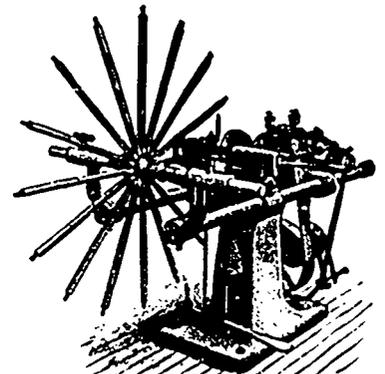
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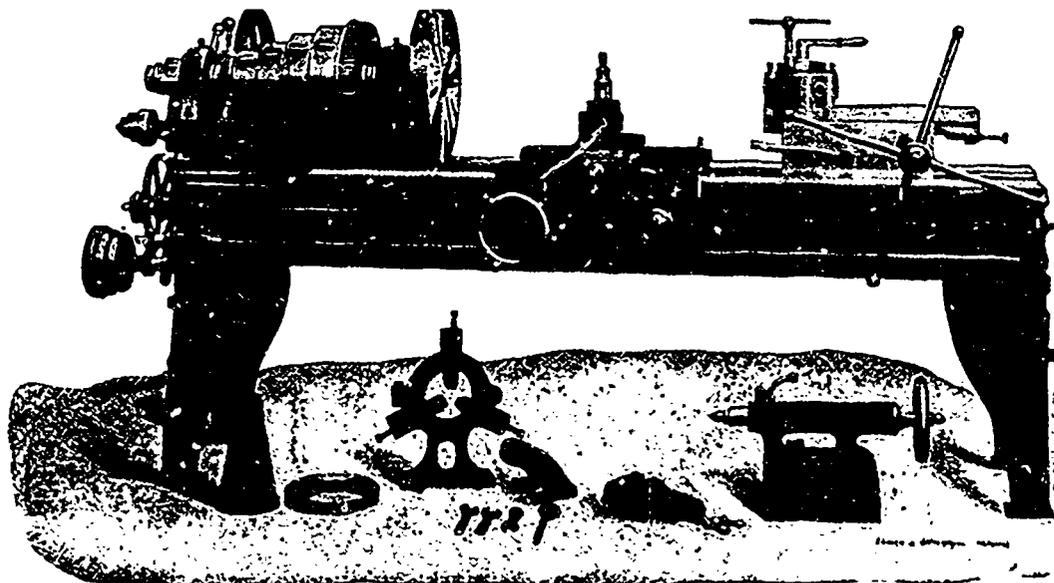
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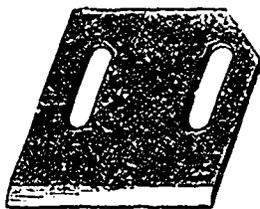
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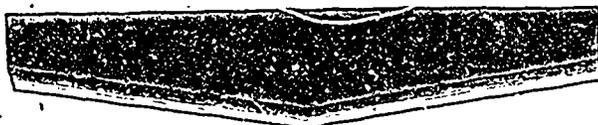
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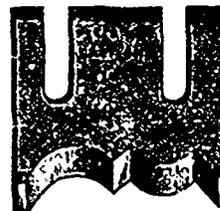
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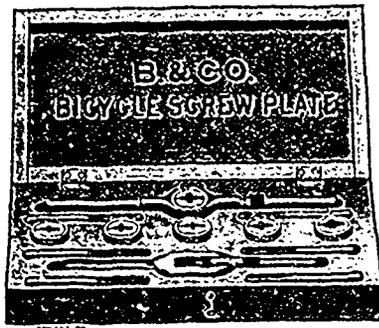
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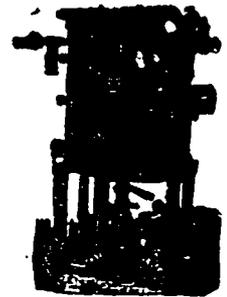
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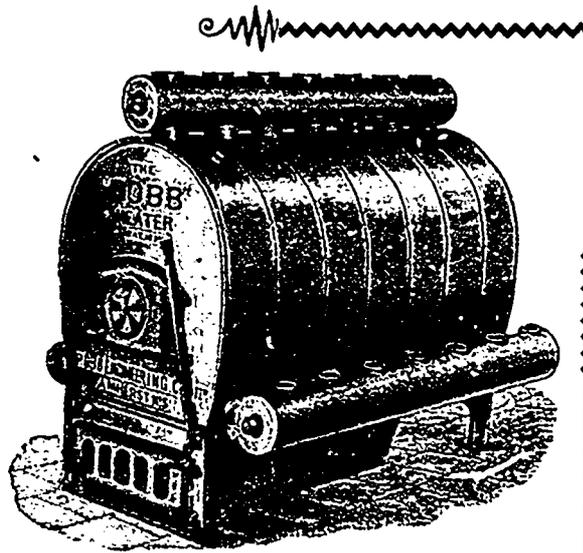
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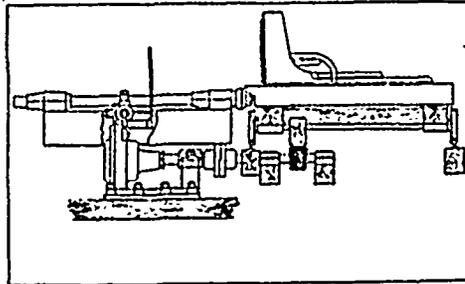
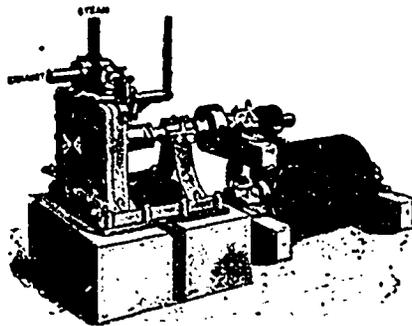
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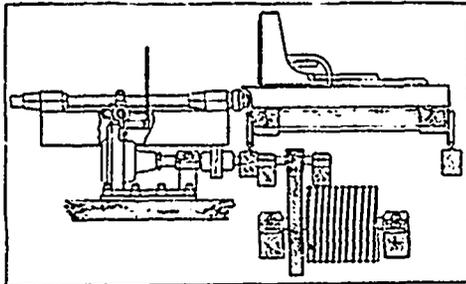
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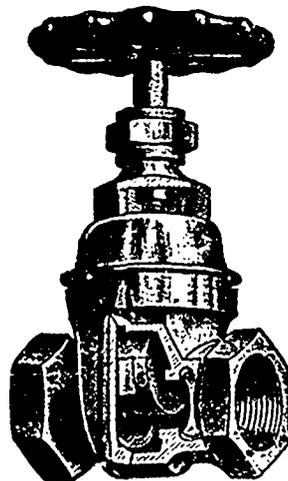
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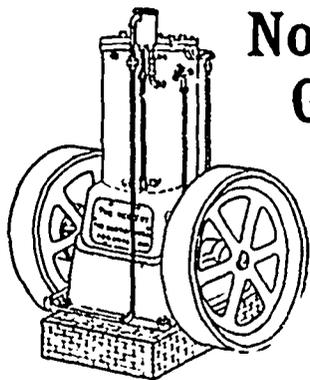
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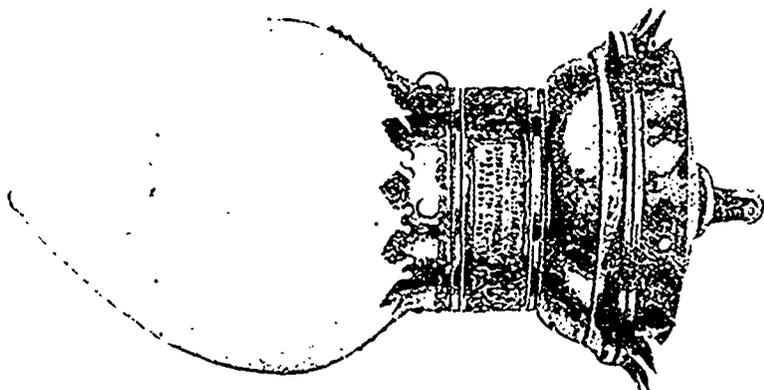
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THE CANADIAN IRON INDUSTRY.

Mr. James M. Swank, General Manager of the American Iron and Steel Association has sent us an advance copy of that portion of his annual report regarding the production of pig iron, and rolled iron and steel in 1897 in the United States, Canada and Mexico, having reference to Canada.

He tells us that the production of pig iron in the Dominion of Canada was first ascertained from the manufacturers by the American Iron and Steel Association for the year 1894, when it amounted to 41,791 gross tons. In 1895 the production amounted to 37,829 tons and in 1896 to 60,030 tons. In 1897 the production was 53,796 tons, of which a little over 8,000 tons were charcoal iron, the remainder being coke iron. The production of Bessemer pig iron in 1897 included in the figures given above, was 11,550 tons, all made by one company. The total production of pig iron in 1897 as compared with that of 1896 shows a decrease of 6,234 tons. On December 31, 1897, the unsold stocks of pig iron in Canada, which were in the hands of the manufacturers or their agents amounted to 20,265 tons, as compared with 29,320 tons on December 31, 1896, and 17,800 tons on December 31, 1895. Of the unsold iron on hand on December 31, 1897, about one-third was charcoal pig iron, the remainder being coke iron. The consumption of limestone by the Canadian furnaces in 1897 was 27,957 tons.

Canada did not produce any spiegeleisen or ferro-manganese in 1897, although it will probably produce ferro-manganese during the present year, the Mineral Products Company, of Hillsboro, New Brunswick, having leased the Bridgeville Furnace, at Bridgeville, Nova Scotia, for this purpose. The ferro-manganese will be made from briquettes of manganese ore. The annual capacity of the furnace is about 7,300 gross tons.

On December 31, 1897, there were eight completed blast furnaces in the Dominion, and of this number four were in

blast and four were out of blast on the date named. On December 31, 1896, there were also eight completed furnaces, but only two were in blast, six being idle. In the spring of 1898 the Deseronto Iron Company, Limited, began building a charcoal furnace at Deseronto, in the Province of Ontario. This furnace, which will be 60 x 10 feet, and which will produce malleable and car wheel pig iron from American, Lake Superior and local Canadian ores, is now practically completed, and the company expects to turn on the blast early in November. The annual capacity of the furnace will be about 12,000 gross tons. Since last spring the company has made several changes in its officers, who are now as follows:— President, William Gerhauser; vice president, F. A. Goodrich; secretary, treasurer, and manager, F. B. Gaylord. The company also has an office at Detroit, Michigan.

The production of crude steel and of all kinds of iron and steel rolled into finished forms in Canada in 1897 is given approximately below—full reports or careful estimates having been received by us from all the manufacturers in the Dominion. The production of basic and acid open-hearth steel ingots in 1897 was 18,400 gross tons, against 16,000 tons in 1896 and 17,000 tons in 1895. Of the total production of open-hearth steel in 1897 a little less than three-fifths was made by the acid process. The production of open-hearth steel rails in 1897 amounted to 500 tons, against 600 tons in 1896; structural shapes, 4,300 tons, against 4,540 tons in 1896; cut nails made by rolling mills and steel works having cut nail factories connected with their plants, 202,939 kegs of 100 pounds, against 196,971 kegs in 1896; plates and sheets, about 2,600 tons, against 1,820 tons in 1896; all other rolled products, excluding muck and scrap bar, blooms, billets, sheet bars, etc., 61,161 tons, against 59,290 tons in 1896. Changing the cut nail production from kegs of 100 pounds, to gross tons of 2,240 pounds, the total quantity of all kinds of iron and steel rolled into finished products in the Dominion in 1897, excluding muck and scrap bar, billets, etc., amounted to 77,021 tons, against 75,043 tons in 1896 and 66,402 tons in 1895.

The total number of rolling mills and steel works in Canada on December 31, 1897, was seventeen. Of this number at least three were idle during the whole of 1897. Our northern neighbor is doing well to develop its own iron and steel resources.

WHAT CONFRONTS OUR MANUFACTURERS.

The report comes to us from the city of Quebec that the Canadian Commissioners are determined to offer some sort of arrangement to the American Commissioners whereby a reciprocity treaty between the two countries may be agreed upon, and that enquiries are being made as to which Canadian manufacturing industries are to be sacrificed on the free trade altar.

The opinion is entertained by our manufacturers that as far as tariff concessions and reductions go, quite enough has already been accomplished in the 1897 tariff. Upon such articles as were imported largely from the United States, the duties were reduced to a ridiculously low minimum, while upon British goods a clean reduction of twenty-five per cent. was made, making it quite probable that any further concessions could but result in disaster to our home industries. But now our manufacturers are asked to enumerate the products

upon which still further tariff concessions may be made, with the view to making American competition in our market more easy. Having already reduced our tariff to the very lowest possible point where our manufacturers may retain a footing in our own home market, we find that nothing less will suit our American friends than the granting of the same preferential treatment that is accorded our dear old Mother Country.

The fact is, our Canadian Government should have imitated the United States Government in its preliminary preparations for reciprocal trade. The Americans are always open and ready for a bargain, and they prepared themselves for any such bargains that might be had by first making a McKinley-Dingley tariff from which they would be willing to recede to a certain extent—for a satisfactory consideration, while the Canadian method was to first lower the tariff duties to the very lowest possible point as a preliminary, negotiating a reciprocity treaty where all we had to concede was the remnant of the slight protection that had been left to our manufacturers. From a business point of view the Yankee method is the more desirable and sensible.

A few days ago there was a strong delegation of American lumbermen at Quebec protesting against any reduction of duties in Canadian lumber entering the United States, claiming that the existing rates should not be changed, and in their memorial they gave the following interesting table of percentage of duties upon certain articles entering their country, to prove that the lumber schedule was a light one—

	McKinley tariff. per cent.	Wilson tariff. per cent.	Dingley tariff. per cent.
Woolens.....	80	47	81
Cottons.....	55	43	54
Metals.....	57	37	46
Iron ore.....	42	22	25
Hay.....	43	21	43
Oats.....	35	20	44
Barley.....	64	30	87
Potatoes.....	51	31	34
Beans.....	40	20	52
Beef cattle.....	63	20	37
Bacon.....	26	20	31
Lumber.....	15	free	18

Without reference to the lumber question, it is clear that of the other articles enumerated it was and is impossible for Canada to export to the United States, and, being aware of the situation, and entertaining a determination to bring about reciprocity with that country, the Canadian Government should, when framing its tariff, have had regard to necessities that were to confront it, and upon such articles as it proposed to trade, have placed the duties upon them upon the basis of the McKinley Dingley tariff. Had this been done we could easily have offered a remission of twenty-five per cent. as we did to Britain, or even of fifty per cent., and yet have retained a strong feature of protection to our manufacturing industries.

As it is, Canadian manufacturers entertain a feeling of strong resentment at the idea that their home market is merely a spoil to be divided between their British and American competitors, without the least reference to them who have invested more capital in their industries than is possessed by all the banking institutions in Canada, these investments being in (a) Land and buildings, (b) Machinery and plant; (c) Wages paid yearly to employes, (d) Raw materials, and (e) The value of yearly output which exceeds

by far the total yearly export and import trade of the whole Dominion.

And this is the condition which confronts Canadian manufacturers to-day.

THE SITUATION.

Our esteemed contemporary, The Monetary Times, has been reviewing the situation at Quebec, and has arrived at some exceedingly queer conclusions. After telling that the International Commission has developed a new arena for the lobby, it says that "the appeals to the Commission are all partizan;" that "they represent only one side of the case and that not always not without exaggeration or unfair representation;" that "the business of the Commission is to mediate between the contending factions;" and that if they, the Commission, "do listen to reason, which they will scarcely hear in an unadulterated form, from the advocates who appear before them, they will run the risk of not getting their conclusions confirmed." It also tells us that "with an assured majority in Parliament, the Government could obtain confirmation of any reasonable bargain which the representatives of the two countries might make," and that what is requisite at this time is that "the two sides should abate something of their extreme pretensions." And elsewhere in its review of the situation, alluding to the fact that the "so-called" evidence taken before the last Tariff Commission was never embodied in a report, says that "the world lost nothing by the omission, for persons speaking without contradiction in favor of their own interests, the utmost stretch of charity must declare unworthy of implicit belief;" "that the arguments before the International Commission are of the same kind," "that neither side speaks for its country," and that "both speak for special interests, and not seldom in a way opposed to the general interest."

This screed and tirade is certainly one of the most remarkable that ever came under our observation. Judging from its article, The Monetary Times presupposes that, as far as the reciprocity feature of the International Convention is concerned, there was any demand whatever in Canada on the part of those most interested—the manufacturers—for reciprocity with the United States; and this position, we confidently believe, is entirely untenable, for no such demand ever existed. Canadian manufacturers never made an appeal to the Commission, but when the Commission became a fixed fact, acting as a court to decide upon a question of most vital importance to our manufacturers, it would have been an act of idiocy for them not to have entered a plea and endeavor to show how injurious any possible reciprocity would be to them. And yet, when they go before the Commission in defence of their interests, The Monetary Times accuses them of making exaggerated and unfair representations.

The business before the Commission, it tells us, is to mediate between the contending factions. What factions? Canadian manufacturers never demanded or contended for a Commission before whom to adjudicate any quarrel. They had no quarrel with any one, and all they asked was to be let alone, and not to be forced to contend against the unfair rivalry of their American competitors. A taste of such rivalry had just been forced into their mouths by a so-called British preference, and they were strongly opposed to have any such preference extended to the United States. Certainly fighting

for one's very existence cannot be stigmatized as a factious proceeding; and yet a respectable Canadian journal tells Canadian manufacturers that any arguments they might offer before the Commission would be in an adulterated form—in fact that they would be devoid of truth and candor.

It is remarkable, too, that an intelligent journal should display its ignorance of current events as to declare that the Government of Canada could obtain confirmation of any bargain it might make with the Americans through "an assured majority in Parliament." It does not seem to recognize the fact that Parliament consists of two branches, concurrence by both being necessary to the ratification of any "bargain" that the Government might offer. Modifying a recent Yankee expression, we might say "Remember the Senate."

The Monetary Times is unfortunate in its allusion to the last Tariff Commission and the evidence taken before it, and not very complimentary to the manufacturers, whom, it intimates, spoke without contradiction in favor of their own interests, and whose testimony was entirely unworthy of belief. Our generous and unbiased contemporary might recall the fact that when manufacturers appeared before that august tribunal they were questioned and cross-questioned in a most remarkable manner, and to such an extent that many of the witnesses felt compelled to decline to answer except by written statement to be seen and read only by ministers of the Government, not wishing to make known the secrets of their business. And this, The Monetary Times informs us, is the character of the arguments now being taken before the International Commission, and which, it avers, is unworthy of belief, that these manufacturers do not, most unpatriotically, speak for their country, but in a way opposed to the general interest.

TRANSIT IN BOND.

If the railway trunk lines of the United States could have their way no doubt the Canadian roads would be shut out entirely from transporting merchandise in bond from one part of the United States to another part, passing through Canada; but there are sections of the United States which are not disposed to submit to such dictation; and both interests have been before the American Commissioners to the International Convention lately in session in the city of Quebec, the American railway people endeavoring to have embodied in the proposed treaty the prohibition of Canadian roads transporting merchandise in bond unless they come under the control of the Interstate Railway Commission, while representatives from both the West and New England were endeavoring to prevent the making of any arrangement that would upset the present order of things. Among these latter was Col. Albert Clarke, secretary of the Home Market Club, of Boston, who in a newspaper interview showed that this trade had a national growth, owing, as he said, to the curving boundary line between the two countries, and to the fact that for many years the Canadian roads were dependent upon American winter ports. Hon. A. F. Walker, of the Atchison, Topeka, and Sante Fe railway, and at one time an Interstate Commerce Commissioner, advocated an article in the treaty to the effect that in case of violation of the interstate commerce law by the Canadian roads, the President should have authority to proclaim a suspension of the offending road from partici-

pation in interstate traffic, until it would obey the law, but Mr. Clarke contended that whatever other penalties should be inflicted, suspension of traffic should not be included. The public, he said, "is not concerned in trunk line quarrels, but is vastly interested in having traffic go on uninterruptedly." He did not see a necessity for any treaty upon the subject, but urged if there is to be one it should protect shippers.

Regarding reciprocity, Col. Clarke declared himself in favor of as free an interchange of goods as could be had without detriment to the industries of either country, but it should include manufactures as well as natural products. If Canada were to consent to repeal its tariff giving preference to British goods, it might be possible for the United States to agree upon a list for freer interchange.

While in Quebec Col. Clarke was told by a Conservative member of the Dominion Parliament that the preferential tariff was hurting Canadian manufacturers, seeing that the country gets nothing in return from Great Britain, and that it will lead, with other issues, to a change of control of Government.

In summing up, Col. Clarke said that he did not discover any desire for reciprocity in either political party in Canada, that there is a sentiment in favor of closer trade relations between the two countries, but there will be great difficulty in agreeing upon the particulars.

We can assure Col. Clarke that if there ever was a desire for reciprocity on the part of Canada, it has entirely disappeared.

LIKE A WOLF ON THE FOLD.

The Quebec correspondent of The Toronto Globe spoke as follows of the representatives of various interests lately in attendance upon the International Convention:—

"The Assyrian came down like a wolf on the fold," but who shall coin a phrase to describe the headlong rush to "wolf" the international commission. There was a little lobbying before adjournment, but it was nothing to the present condition of affairs at Quebec. The tourist has given place in the lobbies of the Frontenac to the men with "interest." The visitors range from great merchant princes and railway magnates of continental reputation, who talk of national affairs as if they locked them up every night in their safes when they left the office lest harm should befall, down to humble and less presumptuous folk, who are content to let their neighbors keep the axle of the universe greased so long as a little of the lubricant drops on the wheels of their particular industry. To the spectator who has no business infant to keep him awake nights the panorama is thoroughly enjoyable. In one corner of the smoking room we may see Mr. Clarke Wallace, the Canadian Manufacturers' champion, weeping tears of hoity joy on the neck of Mr. Albert Clarke of Boston, the eminent New Englander who represents the Boston Home Market Club. They both bow the knee at the altar of high protection and find the ritual to their liking. Their meeting to day was a real love feast, for both have as their ideal that well known picture of the bulldog with the motto underneath, "What we have we'll hold."

It passes the comprehension of Canadians why this International Convention should ever have been called into existence if reference is had to that feature of it that looks to the formulation of a scheme for commercial reciprocity between Canada and the United States. There was no general demand for it in this country, and it will be one of the greatest blessings that ever befell Canada if the efforts to reach an agreement proves a fizzle.

But the flippant manner of The Globe's correspondent, in which he laughs at and ridicules the efforts of Canadians to defend and protect their interests is noticeable. Who are the Assyrians who come down like the wolf on the fold? We are told that they are the great merchant princes and railway magnates of continental reputation, to wit, the Americans who are endeavoring to dictate terms by which our so called preferential trade arrangement with Great Britain is to be swept away; our railways surrendered to the tender mercies of a Yankee Intercommerce Commission; our canals made free to American commerce without any compensating advantages to Canadian shipping; our valuable fisheries made free to American fishermen, and our manufacturing industries despoiled by opening our doors to American manufacturers on better terms than we are willing to give to Great Britain, all to obtain some measure of a reciprocity that can be nothing but an intangible delusion. And this scene of a transaction that is without doubt fraught with graver results to Canada than any ever before transacted in her history, is one that was "thoroughly enjoyable" to The Globe's correspondent, seeing that he was not there in the interest of any Canadian industry, concern for which might keep him awake of nights. Nero fiddled while Rome burned, and The Globe's representative is in extacies at the panorama.

CANADA'S TARIFF CONCESSION TO JAMAICA.

Under the preferential clause of the Canadian tariff sugar, the product of any British Colony, is favored with a discount of twenty-five per cent. of the duty from the regular rate. This arrangement was made with a special view to assist the sugar industry in the British West India Islands, particularly Jamaica, and it is now proposed that Canada shall join with the Home Government in subsidizing a line of steamers to ply between that Island and Canadian ports to enable Jamaican planters to sell their sugar in Canada to better advantage than heretofore. The only benefit that Canada could possibly derive by these concessions would be through increased trade with Jamaica, but as a result of the present deficit in the revenue of that Colony, and a further falling off for the current fiscal year, the Jamaican Government has presented a new tariff measure to the Legislative Council. Among the provisions of the Bill is that of increasing the duties on spirits from 12s. 6d. the liquid gallon, to 15s. the proof gallon. The duty on butter, cheese and ham is increased from one penny to two pence per pound; articles of hardware, viz., cutlery, tools, stoves and utensils, etc., formerly paying 12½ per cent. duty are now charged twenty per cent., as also every description of wearing apparel, whether as piece goods or not. The rated articles in food stuffs are charged an increase of from thirty to fifty per cent. additional, and the free list has been much reduced.

Mr. G. E. Burke, the Canadian Commissioner at Kingston promptly protested against an increase of duties on Canadian products in the face of the Canadian tariff concessions on Jamaican sugar.

THE PAPER INDUSTRY IN GREAT BRITAIN.

The imports of foreign paper into Great Britain having grown to such vast dimensions, viz., in value to nearly three and a-half million pounds sterling per annum, the workers in British paper mills are again urging the cry to boycott those

newspapers that use foreign news. The stand taken up is utterly opposed to the principles of free trade, which so many of the workpeople support. Occasionally utterances are made by paper mill owners that all paper imported should bear the mark "Made in the United States" or "Germany" as the country of origin may be. At present the bales of foreign paper imported bear the names of the countries from where they are received only on the covers, and it is difficult to see if the paper itself were marked what advantages would be effected, as all traces of origin could, in most cases, be entirely removed in the process of cutting before the paper itself got into the hands of the public. The latter, as a matter of fact, care little whether the paper is made at home or elsewhere.

Discussing the situation, the London correspondent of The Paper Mill says that under the system of free trade Great Britain must remain an open market to the foreign paper manufacturer. There is plenty of scope for the activity of the British paper maker. How is it that that country is losing ground in the Australian and New Zealand markets? It is not because those colonies have developed the local paper manufacturing industry to any great extent. Is it because of American competition? Regular shipments are made from New York to Australia and New Zealand, and now intelligence comes to hand that a new line of steamers is projected for a direct service between New York and New Zealand, the ports of call being Auckland, Wellington, Dunedin and Lyttleton. This departure will be to the advantage of American paper exporters cultivating the Australasian markets.

The bulk of paper exported from Great Britain goes to Australasia. During the last seven months the total exports of writings, printings and envelopes were of the value of £559,186, and out of this sum £225,788 represented the trade with Australasia in the paper stated. Unfortunately the British paper maker is losing his grasp of the market. The following statistics show the extent of British exports to Australasia (including New Zealand):

WRITINGS, PRINTINGS AND ENVELOPES.		
Jan.-July, 1896.....	211,205 cwts.	£264,916
" 1897.....	206,407 "	252,452
" 1898.....	189,298 "	225,788
OTHER KINDS (NOT INCLUDING PAPER HANGINGS).		
Jan.-July, 1896.....	66,825 cwts.	£60,949
" 1897.....	64,654 "	58,006
" 1898.....	51,757 "	49,274

From the above, it will be seen that there has been a gradual falling off in the shipments of British paper to Australia during the past few years.

EDITORIAL NOTES.

At the Aurora banquet to Mr. Mulock, his colleague, Mr. Patterson, said that, under the Preferential tariff, Canadians could get their iron from Great Britain at a duty reduced by 25 per cent. True, but unfortunately the boon comes just at a time when it loses much of its value from the fact that the Americans, owing to their superior facilities, are able to produce iron at less cost than it can be produced in England. To profit by the reduced duties we must pay a higher price for iron than it can be bought for elsewhere. The 25 per cent. may force the trade in a particular direction, but, economically, that is not an advantage to Canada. When preference operates in this way it has practically the same effect as protection; but it can operate only in the case of articles which

some other country can produce cheaper than Great Britain
—Monetary Times.

The reduction of duties on iron could not materially affect Canada's trade with Great Britain in iron, for we draw our supplies of iron chiefly from the United States. But now while Canada is endeavoring to negotiate a reciprocity treaty with the United States, we find ourselves handicapped by our inability to offer a concession on a part of our duties on iron, because that concession was made before we began to negotiate. Not one dollar of benefit accrues to Great Britain as far as iron is concerned, through our so-called British preference, and we gave the Yankees all we could afford to spare before an attempt was made to obtain reciprocity.

The Manufacturer, of Philadelphia, speaks the following kind words:—

The Canadian Manufacturers' Association, which is working on somewhat the same lines as our own National Association of Manufacturers in this country, seems to be leading a very active campaign. It recently held a general meeting in Toronto, while an Industrial Exposition was in progress in that city. Among those in attendance were the Canadian Minister of Customs, the Dominion delegates to South America and the East, whose reports were recently published, and many prominent manufacturers. The Association publishes a monthly "Bulletin," the second number of which has just come to hand, and it is replete with information from consular reports and other sources, calculated to be of use in extending the markets for Canadian goods. "The more a country produces the richer it becomes," and "The nation that manufactures for itself prospers," are the mottoes of the Canadian Manufacturers' Association, and it is doing all that is in its power to keep the Dominion abreast of the United States in the movement for an expansion of trade. The development of its work will be watched with a great deal of interest on this side of the border.

The Federal Steel Company is a trust recently organized and incorporated in the United States. The combined stock and bond capitalization of the companies to be acquired by the trust is only \$105,817,000, while the capital of the new Company is \$200,000,000. The bonded indebtedness of the plant to be acquired of \$25,568,000 will, however, not be wiped out, so in reality the shares to be taken care of in the distribution of new stock will be only \$70,000,000. After providing for the demands of the acquired companies the new company will have fully \$70,000,000 in stock with which to corral one by one such other iron and steel plants as it may desire. Those that are not wanted can simply be crushed out of existence by competition. The consolidation effected by this gigantic corporation will enable the production of iron and steel at prices which small manipulators will find it impossible to compete with. It means the placing in one hand of iron mines, fleets and railways for transporting ores and articles necessary in the manufacture of iron and steel and the most modern and improved plants for the manufacture itself. Added to this there are interested in the trust the men who practically control the great railway systems which must transport the finished product to the seaboard for export trade and to all the important centres of the country for domestic consumption. This reads much like a dream, beautiful to contemplate, but difficult of realization.

A Chicago steel and iron company has just closed a contract for the delivery at Victoria, B.C., of 2,500 tons of steel

plates to be used in the construction of five British steamships. This contract was secured against the competition of some of the largest steel firms in England and Germany. Another Western steel company has just completed the delivery of 6,000 tons of steel plates at Glasgow and has also been supplying a quantity of light "T" rails to parties in Germany. A healthy child of Protection is the iron and steel industry in the United States.—American Economist.

For many years the United States has maintained a high protective tariff relating to all forms of iron under which a wonderfully large industry has been built up, which can now supply most lines at actually less cost than they can be purchased for in Great Britain. If Canada had adopted the same system twenty years ago we would now be producing iron quite as cheaply as the United States.

A correspondent of The London Times directs attention to the fact that the exports of the United States in 1897 amounted to £250,000,000 while the exports from Great Britain of British products amounted to only £234,000,000, and observes that for the first time in the records of trade the British exports for twelve months had been surpassed by those of another country. This is not a flattering memento of the Jubilee year. The writer says.—

The figures demand something more than a casual notice, for it should be borne in mind that £250,000,000 is the high-water mark of the exports of any one year from any country, with the single exception of the year 1890, when British exports ran up to £264,000,000. This was a direct consequence of the enormous loans to Argentina, Australia, etc., and was followed by the acute financial crisis of that year. It was not healthy business. The average for the last ten years of British exports has been £236,000,000.

We commend these facts to The Toronto Globe, and also to Sir Wilfred Laurier, who wants Canada to have free trade such as prevails in Great Britain. Observe:—the trade of Great Britain, under free trade, is decreasing, while the trade of the United States, under McKimleyism, is increasing and has actually surpassed that of the former country. Tariff protection has accomplished it.

Whether or not the international commissioners at Quebec will agree upon any new line of policy respecting the tariff relations of the two countries cannot be foretold. It is certain, however, that something of this kind is planned and a number of representatives of various industries, both American and Canadian, have been heard from on the subject. Lumber appears to be one of the most important items in the whole list, and it is likely that it will be hard to suit everyone regarding this article. Canada abounds in lumber, and she naturally desires to have access to our markets. The American lumbermen are not anxious that she should have this privilege, and insist that the present rates of the Dingley law should be retained. Considerable backing and filling, and attack and defence, have marked the legislation of the two countries in respect to logs and sawed lumber, for many years. The American lumber industry has no particular right to consideration at the expense of other large and important branches of trade, so far as we can see. The stripping of our hills of timber in many sections has gone on ruthlessly, with no regard to the public interest, and the general sympathy for the lumberman is not so great as it might be otherwise. If any concessions of value can be secured from Canada respecting the admission of goods in a more advanced state of manufacture, in the production of which a greater amount of labor and capital have been called into play, the lumberman ought to be advised to stand aside for a while. Lumber is one of the best cards held by this Government in

the game of reciprocity with Canada, and if the commissioners are to be frightened out of playing this one, there will probably be no treaty this time.—The Manufacturer.

Our esteemed contemporary should bear in mind that saw logs is also a good trump card to play in the game now going on, and both it and the American sawmill men should understand that as their forests have been denuded of timber over vast areas, and as Canada is the chief source of, available supply, the tariff wall that keeps Canadian lumber out of the United States must come down if Michigan lumbermen are to obtain Canadian logs. A high tariff on Canadian lumber going into the United States means an equally high barrier to logs leaving Canada. The position of Canada in this matter is unassailable.

As the views of all parties in interest become known, it becomes probable that the Joint High Commission will not be able to accomplish much in reconciling Canadian and American interests in lumber and pulp. Each side wants much more than the other will concede, and neither is likely to give in. Free Canadian pulp might not be objectionable to our paper makers, but it would be intolerable for our pulp makers, and especially to those who do not make paper. The suggestion that in return for free pulp, Canada should put on its free list some article or articles produced in the States but not in Canada, does not meet the emergency.—The Paper Mill.

The trade returns of the Dominion for the first quarter of the current fiscal year, ending September 30th, show an increase in the aggregate trade of the country of about seven million dollars over the same period last year. It must also be remembered that last year's figures were the highest on record. The aggregate trade for the quarter is \$87,655,255, compared with \$80,797,395 for the same time in 1897. There is an increase in the imports of over \$11,000,000, and a decrease in the exports of about \$4,000,000. The imports are \$44,190,170, as against \$32,990,471 for the previous year. The exports are \$43,465,085, compared with \$47,806,924 in 1897. The duty for the current year is \$6,784,944, as against \$5,127,700, an increase of \$1,657,244. The export figures for both quarters in 1898 and 1897 are as follows:—

	1897.	1898.
Produce of mine	\$ 3,644,759	\$ 3,043,146
Produce of fisheries.....	2,482,031	2,386,258
Produce of forest.....	13,808,559	12,824,711
Animals and their produce....	15,441,855	12,546,627
Agricultural products.....	9,213,527	9,354,972
Manufactures	2,874,405	2,836,387
Miscellaneous	89,623	100,138
Bullion.....	214,665	324,741
Coin.....	37,500	48,105
Exports.....	\$47,806,924	\$43,465,085
Imports	32,990,471	44,190,170
Aggregate trade.....	\$80,797,395	\$87,655,255
Duty collected	5,127,700	6,784,944
Increase in duty.....	1,657,244

INSTITUTE OF CHARTERED ACCOUNTANTS.

The Council of the Institute of Chartered Accountants of Ontario have sent us their programme of papers to be read during the sessions of 1898-1899 to be held at the Canadian Institute at 5 o'clock p.m., on the following dates:—

- October 19, 1898. Paper by Mr. A. C. Neff, C.A. Subject, "Old and New Methods of Keeping Cash and Bank Accounts."
 November 16th. Paper by Mr. George Kappel, Barrister-at-Law. Subject, "Points in Mercantile Law."
 December 14th. Paper by Mr. David Hoskins, C.A. Subject, "Mercantile Arithmetic."
 January 18, 1899. Paper by Mr. Wilton C. Eddis, C.A. Subject, "Auditing."

February 15th. Paper by Mr. George Edwards, F.C.A. Subject "Books of Account."

March 15th. Paper by Mr. Harry Vigeon, F.C.A. Subject, "Profits."

April 19th. Paper by Mr. W. B. Tindall, C.A. Subject, "Cost Accounts."

May 10th. Paper by Mr. J. M. Scully, C.A. Subject, "Fire Insurance Accounts."

This Institute commends itself most strongly to manufacturers who are interested in having their books and accounts kept in the most complete and comprehensive manner possible. Benjamin Franklin said, "If you take care of the pence the pounds will take care of themselves." The suggestion is worth considering; and scientific bookkeeping is worth all it costs.

LITERARY NOTES.

The seventeenth edition of the Electrical Trades' Directory and Handbook for 1899 is now in preparation and will be published early in the coming year from the office of The Electrician, Salisbury Court, Fleet Street, London, E.C., England. This Directory will contain a carefully compiled list of British, Colonial and foreign electricians, electrical engineers, electric light engineers and contractors, electrical apparatus makers, plant and machinery builders, instrument makers, electric bell makers and fitters, electric light, telegraph and telephone companies, electric light, telegraph and telephone engineers, wire makers and drawers, and of all persons engaged in electrical pursuits throughout the world; also useful tables and data relating to electric light and traction, electric power transmission, telegraphs and telephones, electricity supply companies, home and foreign government departments, etc.

Draft Without a Chimney is the title of a small, finely illustrated pocket folder of eight pages issued by the B. F. Sturtevant Company, Boston, Mass., manufacturer of fan blowers for every conceivable purpose. The folder presents a description of an improvement of the company's works, the old boiler plant having been replaced by a new one in which mechanical draft was substituted in place of a chimney. It is pointed out that the latter feature of a boiler plant has outlived its usefulness, and in support of the statement the advantages of mechanical draft are presented in concise, compact form.

Electric Street Railway History is the title of a very interesting historical treatise on electric street railway development and the part played therein by the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. This company have issued much admirable literature of late. The book, which is called "Part One," is bound in a handsomely ornamented electric blue cover. "A Word at the Start" tells us about the rapid development of the electric street railway industry, and remarks that no name is more intimately associated with this swift and world-wide progress than that of the Westinghouse Company. The history begins by showing illustrations of the No. 1 motor, introduced early in 1890 in Allegheny, Pa. Then follow in order the No. 3 motor embodying single reduction gears, 4-pole field, slotted drum armature, machine wound armature coils, and two circuit armature winding; we are then told something about the No. 12 motor having fewer parts than the No. 3, and the armature of which was the first to have twice as many coils and commutator bars as slots, a feature which now represents universal practice. Then a word is said about "suspension," which was recommended for the No. 38-B motor; No. 50 motor embodied all the latest improvements developed during a number of years of motor manufacture, which is responsible for the remarkable record of 19,000 Westinghouse railway motors in service at the present time, with an aggregate capacity of 650,000 horse power. Following this are extensive chapters on Westinghouse railway generators and Westinghouse alternating direct current system of power transmission for railways. The illustrations in the book consist of a view of the factory and a number of views in the works, over thirty illustrations of motors and parts, a number of generators, switchboards and transformers, as well as several installations of Westinghouse apparatus. The catalogue will be sent to any one on application.

The publishers of the Canada Lumberman, Toronto, have issued an Eastern Canada and Export Edition, a copy of which has reached our desk. It consists of some forty-four pages of letter press, including illustrated descriptions of many of the large sawmills in the provinces of Quebec, New Brunswick and Nova Scotia; excellent views of the new pulp mills of the Chicoutimi Pulp Co., at Chicoutimi, Que., and portraits of representative shippers of spruce lumber. There is likewise much instructive information, as several pages are devoted to outlining the lumber requirements of foreign markets.

enter this market in 1896 they would now be beset with orders. So serious is the situation here, because of the dullness in grain markets, and so decided is the downward tendency of profits in the Empire's wheat production, that farmers are turning to fruit to eke out an existence. The General Union of Agricultural Societies has set itself the task to bring about better methods of handling fruits. Germans, as a rule, have gone in for quantity rather than quality, letting their fruit trees run to wood rather than to fruit."

DEMAND FOR DOVETAILING MACHINES IN FRANCE.

The United States Consul at Nantes, France, writes:—

"One of the leading business men of Nantes informs me that certain American woodworking machines used in dovetailing lumber for packing cases would find a market here. The gentleman was unable to give the name of the manufacturer, or the exact name of the machine; but said he saw them working in England, and that they did their work neatly and rapidly. An immense amount of lumber is constantly used here in making the cases in which small sardine boxes and packages of conserves are packed for shipment. Not only could the machine be used in Nantes in dovetailing lumber for boxes, but also at Brest, Lorient, and Concarneau, where other large sardine factories are located, and at Samur, where quantities of fine wines are packed for shipment. Thousands of cases are also used by the extensive biscuit factories of Nantes. Manufacturers wishing to place the machines on the market in this part of France, will do well by corresponding with Mr. Edward Kerr, 3 rue Gresset, Nantes."

Here is an opening for Canadian manufacturers of woodworking machines.

RIVETING PLANTS WANTED IN RUSSIA.

Messrs. Wossidlo & Company, St. Petersburg, Russia, inquires for riveting machines as follows:—

By one of our friends we were asked to give him some detailed particulars about electro-hydraulic riveting plants. He has read about this new invention in one of the technical papers (he does not recollect any more which particular one it was), and finds that the new system would perfectly answer his purpose. It is much cheaper than the old rivet installations, as the heavy and expensive pressing plant, which is necessary for hydraulic and pneumatic riveters, is quite omitted here. Instead of those in electro-hydraulic plants is attached direct to the riveter a small glycerine pump which gives the pressure to the plunger.

The sizes of riveters he wants special quotations for are the following:

Portable riveter giving a pressure of thirty tons on rivet, and fifteen tons on plate-closing arrangement; gap about thirty-two inch, maximum size of rivets, three quarter inch.

Fixed riveter giving a pressure of forty tons on rivet and twenty tons on plate-closing arrangement; gap about 88½ inches; maximum size of rivets, one inch.

Except the aforesaid, the mentioned system has the advantage of being perfectly safe against frost, which means a good deal for our country.

Perhaps you might be able to offer us such riveters. In the affirmative case we should be glad to receive from you a detailed quotation, with sketches, drawings and description of machinery.

FAULTY TRADE METHODS.

United States Consul Halstead, at Birmingham, Eng., writes of the faults of American trade methods of which Canadian manufacturers should make note. He says:—

"The jewelry and fancy goods manufacturers of Great Britain make articles on a 'forty-line scale,' an arbitrary system of measurement, the origin of which is lost somewhere in an early period of the trade. In the measures for the common metals and articles a 'line' is one-twelfth of an inch, but in the fancy trade a 'line' is one-fortieth of an inch.

"To-day, a declaration of 'returned American goods' was sworn before me, meaning, of course, a big loss to an American manufacturer, and due to his failure to make the goods in accordance with the exact specifications of the order. A Birmingham manufacturer ordered from an American manufacturer a lot of 'indestructible pearl,' giving the measurements he required in 'lines.' Not knowing what 'lines' meant to the fancy trade, the American, without making inquiry, had recourse to the metric system, and his goods are by this time on the way back to him.

"Two weeks ago \$500 worth of fountain pens were sent back to a manufacturer in an interior American city. The Birmingham purchaser said: 'They are without question better pens than I ordered, but they are not like the sample, and I am not in the business of educating the public to new things, but sell them what they want, and these goods go back.' I know the town of the manufacturer very well, but do not remember his name so assume that his factory is small and his capital limited enough for the return of goods amounting to \$500 to hurt him; but he did not obey orders.

"A few days ago I was shown sixteen letters from sixteen firms, all well known in their line in America. On twelve of these letters there was insufficient postage; most had only a two-cent stamp to carry them. This meant that the Birmingham man who wanted to buy from some of these American firms had to pay double the deficiency in postage, and his frame of mind and opinion of American business methods can be imagined. Steamer mails from the United States frequently arrive after business hours on Saturday, and if there is deficient postage, letters will not be delivered at hotels, etc., until Monday, and the travelling representative loses time waiting for home instructions much oftener than could be realized by anyone not aware how general is the failure of American firms to pay full postage. One American house tells its agent that a deficiency of postage is a guaranty that a letter will be delivered to the right party, as no one else would pay the postage penalty in order to get the letter.

"If an English or a continental house sends a telegram, a letter always follows, even to points near by, containing a copy of the telegram. Very few United States houses do this, even with cablegrams, and a failure to deliver means loss of valuable time. If a letter is sent to a foreign point, a letterpress copy follows by the next steamer as certainly as the second of exchange follows the first.

"Very few American houses are as systematic, and it is conceivable that a letter may be more valuable than a money draft.

"With bills of lading, the European house does not depend on the triplicate copy forwarded by the shipping agent, but itself sends the duplicate copy to the consignee, retaining the original. American houses are constantly neglecting this, and American goods are constantly being held up in foreign custom-houses.

"If a United States house wishes to be successful in foreign trade, it must place its business in the hands of some responsible member of the concern who will look after the details. It should not be merely an incidental part of the regular business transactions."

THE PRODUCTION OF CAMPHOR IN JAPAN.

The production of camphor in Miyazaki, Kagoshima, Oita, and Wakayama prefectures, which amounted to 4,000,000 kin (5,333,333½ pounds)* in 1894 and 1895, the price being quoted at from ninety to 100 yen (\$47.69 to \$52.99) per picul (133½ pounds), has been considerably reduced of late. This year's output so far only amounts to 1,200,000 kin (2,133,333½ pounds), quoted at from forty-one to forty-three yen (\$21.70 to \$22.75) per picul. This decline is evidently due to the growing dearth of camphor trees, while the rate of wages and the expense of manufacture in general have been greatly increased of late. Under these circumstances, most of the local manufacturers have suspended work and have abandoned the

* 1 kin = 1½ pounds avoirdupois.

field almost entirely to the Formosan product, which is the best to be found in Japan.

AMERICAN BICYCLE COMPETITION IN ENGLAND.

The following communication recently appeared in the Birmingham Daily Mail:

"I think it is about time some of our cycle manufacturers woke up from their slumbers and realized the state of the cycle trade. It is all very fine for them to go on in this old-fashioned way, and say that they don't fear American competition. But America can and does compete with them in their own markets. Many Birmingham firms to-day have expensive automatic machines standing idle, waiting for the next season to come round. Now, when the cycle season is over in America, they start these machines on such components as small screws, nuts and bolts, washers, rivets, adjustments, steps, lock washers and various screws used in the trade. Just when the season is coming in again, they pack these off to England at very low prices and start their automatic machines on the ordinary cycle parts just in time for their markets. By doing this they not only keep the best of their workmen together, but make profits while the English firms are idle. No maker in Birmingham can deny that ninety per cent. of the smaller parts come from America and Germany. English firms have plants just the same, and if they would go in for making these things in the winter, they would make a small profit, then, when the season comes in, they have not so much lost time to pull up. I should like to point out that there is a vast quantity of American hubs and pedals sold in Birmingham even at the present time."

COOLGARDIE EXPOSITION.

The following circular, relative to next year's exposition in Coolgardie, West Australia, has been issued by President Hugh Craig, of the Chamber of Commerce of San Francisco, who is also acting as special commissioner for the United States:

"It has been decided to hold an international mining and industrial exhibition in Coolgardie, the principal city of the Western Australian gold fields, and suitable buildings are being erected, ready for March 21, 1899.

"The scope of the Exhibition, which was at first intended to be entirely confined to mining, has been enlarged, and now embraces arts, industries, manufactures, implements, food products, etc., being, in fact, thoroughly comprehensive.

"This exhibition offers the opening up of a trade on what are undoubtedly the most extensive and the wealthiest gold fields of the world. It is under the patronage of the Western Australian Government, and granted the privileges of free railage to the exhibition and free bond, except where exhibits are sold. They have also placed upon the estimates sums of money for the exhibition of the country's products; and, more important still, have asked the Imperial Government to appoint a Royal Commission.

"A charge for space is made of fifty cents per square foot floor or ground space and twenty five cents per square foot wall space. By taking a full bay, which is fifteen feet by fifteen feet, exhibitors have the floor and wall space for the sum of \$125. A deposit of twenty five per cent. of space money is required with the application, the balance being payable on January 1, 1899.

"Special show cases or trophies not exceeding four feet wide may be placed in the centre of the avenues on payment of \$5 per square foot.

"United States mails for Coolgardie leave San Francisco every twenty-eight days.

"Freight by steamer from San Francisco is landed at Sydney, thence by steam to Perth, W.A., thence by free rail to Coolgardie.

"Rates of freight and through bills of lading can be had on application to John D. Spreckels & Brothers, San Francisco."

We are informed by the Department of Trade and Commerce that the Dominion Government has made no arrange-

ments for offering facilities or inducements for Canadians to exhibit at Coolgardie, nor is it at all probable that it will do so.

BUTTER IN PARAGUAY.

Appearances would indicate a promising market for butter in Paraguay. There is very little of it to be found in the country, although everyone likes it and wants it.

The scarcity may be due to the small number of dairies and factories. There are no butter factories in the country, and all of the dairies are located in the small town of San Bernardino, whose population is almost exclusively German.

During the year 1897 there were introduced about 2,500 pounds, mostly from Italy, coming in pound cans. The small importation would seem to be due to the fact that no attention is paid to the butter trade. The butter produced in the country is retailed for thirty five or forty cents gold per pound.

The duty on imported butter is fifty per cent. ad valorem, and the revenue collected from this source last year amounted to \$421 gold.

The best butter to be found comes from the German colony at San Bernardino; that which is imported from Europe is very good, but not equal to what is made by American factories. The superior quality of the American butter would insure its rapid sale.

Butter is but little seen on tables generally, and those hotels which use it charge extra for it.

Let butter manufacturers cater to the whims of the people by placing on their small cans, pictures of the President of Paraguay, or of some of the leading statesmen, which would catch the eye of the people and cause it to be talked about. This would give popularity to the brand, and ought to lead to quick and profitable sales. Nothing of this sort exists in the country.

THE TRADE OF THE AMAZON REGION.

The British Consul at Para reports that the exports of rubber from the Amazon region through the port of Para last year had a value of nearly £3,500,000, of which Great Britain took over £1,750,000, while nearly all the remainder went to the United States. The quantity was 15,226 tons, the total sent from the Amazon being 20,981 tons. That which did not pass through Para was sent almost entirely from the city of Manaus, which is about 1,000 miles up the river.

The Consul makes the statement that the rubber supply of the region is regarded by competent authorities as inexhaustible, because the tree is being continually reproduced by nature. Some areas have become exhausted, but after being abandoned for a time they recover, and many districts have never been tapped at all. The area producing Para rubber is estimated at a million square miles, and it is probable that further exploration will show this estimate to have been too small. The richest zones now worked are along the banks of the southern tributaries of the Amazon, and on the islands of the main stream.

During the thirty years that the Amazon has been open to navigation by all nations, many lines of steamers have been established to carry on river traffic. The boats of the Amazon Company, running from Para, go up the main stream 2,000 miles to Iquitos, in Peru, and even 500 miles higher when the water permits. The company operates a fleet of thirty five boats, and in addition to the line on the main stream they make branch runs for 1,600 miles up the Madeira, from 2,500 to 3,500 miles up the Purus, and from 2,000 to 3,600 miles up the Jurna.

In addition to rubber, the chief exports from the Amazon country are cocoa and Brazil nuts, although the value of these is far less than that of the exports of rubber. The region formerly produced rice of good quality, but nearly all the inhabitants now devote their time to rubber culture, and are content to live almost wholly on imported food.

BRITISH HONDURAS.

The United States Consul at Belize, British Honduras, reports the completion and opening of a new post office in Belize, a handsome two story building which has been erected at an expense of \$8,000 by an American contractor and largely by American labor. The brick, lumber, roofing, and all materials were from the United States; and the boxes, desks, and fixtures furnished by an American company, and are a good advertisement of American office furniture, which, he says, is gradually displacing the massive mahogany desks, chairs, and tables so much in use there. Another fine brick edifice there, St. Mary's School, is nearing completion, and will probably be equipped with American school furniture. This will be an innovation there, for all the schools are fitted with the old-fashioned desks and "forms," as used in the English schools. All the above enumerated materials are produced in Canada, and Canadian manufacturers would do well to investigate the Belize market.

FURNITURE IN SOUTH AFRICA.

The American Consul General at Cape Town, South Africa, reports as follows regarding the openings for the sale of furniture in that country, which applies with equal force to Canada:

"There is no reason why the trade in American made furniture should not materially increase in South Africa. For 1897, the value of American furniture imported into South Africa was \$251,979.90, being second only to that of the United Kingdom, Germany standing third. American manufacturers should send their furniture 'knocked down,' and so made that it can be put together here with ease, each part numbered correspondingly. The trouble is that furniture from the United States comes largely 'set up,' and what is sent knocked down has not been assembled or put together before being knocked down, or not numbered after being knocked down. The freight is, say, 20s. 6d. (\$4.98) per forty cubic feet, and when sent knocked down there is a saving of from fifty to 100 per cent. Germany and Sweden have a large trade in chairs, both in South Africa and South America, and the trade in "bent work," as it is called, is also large. The chairs are light, strong, and are shipped knocked down, occupy but little space, and are easily put together, each part being plainly numbered. They have been set up before being knocked down, and are put together, not with glue, but with bolts and screws. I venture the assertion that if American manufacturers will adopt the German methods in packing, the market is theirs.

"The same may be said in reference to all other classes and kinds of furniture. The sale of tables, bedsteads, bureaus, washstands, sideboards, etc., can be increased several hundred per cent. by shipping in small compact packages, with the furniture so made that on arrival here the parts can be assembled easily and correctly.

"There is no fault with the prices charged by American manufacturers, even with the duty added; but it is the excessive freights on account of bulk, and the difficulty of putting together, if shipped knocked down, of which the dealers complain.

"The imports for 1897 into South Africa were:

Country.	Value.
United Kingdom.....	\$1,611,649
Hongkong.....	7,631
India.....	4,419
Belgium.....	11,120
France.....	4,161
Germany.....	149,897
Holland.....	20,799
Japan.....	998
United States.....	255,321
Sweden.....	50,037
All other countries.....	24,167
'Total.....	2,140,199

TARIFF CHANGES IN THE ARGENTINE REPUBLIC.

According to a law recently passed by the Argentine Congress, in force until December 31st, customs duties are increased as follows: Ad valorem duties of five per cent. and under, doubled; those above five per cent. subject to ten per cent. additional, and ten per cent. on customs law, value of article added on all specific duties.

The following are among the articles that come under the five per cent. ad valorem classification, in the Argentine tariff: Cork, jewelry, wine, twine, tin in sheets, iron, zinc and lead in ingots or bars, sewing machines and parts, tar oils, quicksilver, machinery for installation of electric plants or waterworks (except meters and electric fixtures), fire bricks and clay, wool-clipping machines, steam motors, gold and silver watches and plate, agricultural machinery and wool yarn. Under the 2½ per cent. rate come cotton in bales, zinc in sheets, wood pulp, hops, rabbit hair, gelatin, etc. Specific duties are charged on provisions, drinks, tobacco, collars and cuffs, hats and hat felts, matches, kerosene, grain bags, playing cards, stearin, linseed oil, etc.

GERMANY'S EXPORT UNIONS.

England, France and other continental countries can not help comparing Germany's giant strides in foreign commerce with their own. An English writer in the *Bibliothèque Universelle* says the Empire owes much to her wonderfully well-directed export unions, and of these one of the very best is the Saxon Export Union, whose methods of doing business have served as a model for others. The yearly fee is twenty marks, a trifle less than \$5, for which one gets the union's publications, and a square meter of space at the union's annual exhibition in Dresden. Its agents are sent all over the world. They collect and send home samples, study goods, tastes, methods of transportation, systems of payment, credits, etc. Nor are these agents sent out without any definite aim, or simply to see what is going on. First of all, the territory is investigated. If necessary, agents will be sent to reconnoiter, so to speak. For such purposes, 380,000 marks (\$90,440) were expended between 1886 and 1895. The first trip was to Venezuela, Peru, Bolivia, and Chile; the next to eastern Europe; the third covered Mexico, Canada, the West Indies and Cuba; the fourth, Japan; the fifth, Africa.

All this is as true of other unions as it is of the Saxon. In Berlin, a number of unions work hand in hand with the Government to aid exports. Even the Central Union for Commercial Geography, a semi-scientific institution, works to aid German exports. There are export banks and export journals, and, more important still, the colonial societies, which have agents in many of the world's leading cities. There is a union for international markets that holds two meetings annually. To the work of the unions must be added that of the Government in aid of Hamburg, Bremen, Kiel, Stettin, Lubeck, etc. Hamburg alone does more business in a year, to-day, than did all the old Hanse towns in a like period of time. Only London, among European cities, surpasses Hamburg in the amount of its shipping.

The German agent is *sui generis*. If in Hamburg, he has huge houses full of samples. If a stranger comes to Hamburg he finds not only what he wants at the commission merchants, but men able to explain to him in his own tongue and with astonishing fluency. The agent himself is often master of five, six, seven or more languages. Boys born in Germany that have never been beyond the walls of Hamburg, speak English, Spanish, French, etc. To this, as much as to any other factor, this Empire owes its wonderful success in recent years.

CANNED GOODS IN DENMARK.

The crop of fruits and vegetables in Denmark in 1898 must be considered a complete failure, and there are, therefore, good prospects for the sale there of canned goods.

Large orders have been recently sent to American firms.

The largest importers and dealers in Copenhagen are Ad Trier & Goldschmidt, Styhr & Kjar, Gulbrandsen Andersen & Co., A. T. Moller & Co., Jacob Deuntzer, S. M. Salomonsens Eftfi, V. Bockelund, Ferd Andersen & Co., C. I. Caroe, and Michael Bulow.

The commercial agency of P. V. Fournais & Co., in Copenhagen, can rate these firms.

POTATO FLOUR IN AUSTRIA.

This article is used as an ingredient in many lines of bakery and confectionery work, and as corn starch is unknown in Austria, potato flour serves.

Potato flour makes a beautifully white and light cake, and is better than corn starch, in lines where this would be used, because of the absence of the peculiar taste.

Potato flour is cheaper than wheat flour. It sells in the Austrian market at eighteen to twenty florins per 100 kilograms (about \$3.50 per 100 pounds), while the price of wheat flour is twenty-eight florins per 100 kilograms (about \$5 per 100 pounds). It is also cheaper than corn starch would be if sold in that market, as the duty would make the price of the latter materially greater than it is in Canada, to say nothing of the added expense of freight.

There is no material difference between the ordinary process of extracting the starch from vegetable substances and that used in Austria in making potato flour. The potatoes, after being washed, are placed on rapidly rotating machines set with teeth, and crushed in such manner that the starch is separated from the cells which contain it. Water is freely used in this process, sweeping away the extracted starch and carrying it into vessels, to the bottom of which it settles. The starch is then put through a refining process, to remove all foreign particles and to thoroughly cleanse it. The final step is to dry the starch, usually in a special drying machine.

The analysis of potato flour is as follows, excluding water, which, of course, is a considerable element:

	Per cent.
Pure starch flour	98.98
Mineral substances	0.4
Albumen	0.28
Starch covers, etc.	0.34

100

What is left of the potatoes after the starch is extracted is fed to cattle and swine, and is said to be available also for sundry uses in distilleries, breweries, and sugar factories.

BUTTER IN JAPAN.

The imports of butter into Japan for the year 1897 amounted to 136 863 cattie, or 182,484 pounds, at a declared value of about \$37,500 gold. Of this quantity, the United States furnished 73,000 pounds, France 32,000 pounds, and Austria, Denmark, Germany, Holland, Italy, and Switzerland the rest. The larger quantity imported from the United States comes from California. The average price is about

seventy sen per pound, or some thirty-five cents gold. A small quantity is imported from Canada, and Danish and Dutch brands are quite popular.

The demand for butter is chiefly confined to the foreign population and vessels touching at Japanese ports, and is, of course, somewhat limited. Creamery butter, properly prepared for table use and put up in attractive packages in such a manner as to preserve its sweetness and keep it fresh, would speedily control the market.

There is no trouble in procuring sweet butter from October to March or April, but during the rest of the year all butter in Yokohama seems to become more or less rancid. Butter carefully wrapped in cloth and packed in tins, and seemingly sweet when first opened, becomes rancid when exposed to the air. The native output is quite limited.

DRIED APPLES IN FRANCE.

During the year 1897 upwards of 12,000 barrels of dried apples were received by the merchants of Nantes. These apples are chopped into slices just as they come from the trees, including stems, seeds, and skins. After being dried or evaporated, they are packed into barrels ready for shipment. They are used for making cider. The apples are soaked in water, to which a little sugar is added. They retail for from sixteen to eighteen centimes a kilogram, which is a little more than seven cents a pound. In nearly every grocery in Nantes, one can find these dried apples for sale. Owing to the light crop in France last year, there was no doubt a special demand for the foreign product. Dried apples from Germany are also used in making cider; but they are very inferior to the American product, which is much preferred. Shippers can make shipments in cargo lots direct to St. Nazaire and Nantes, which would place the goods on the latter market at a much lower price than by sending them to Havre and and having them reshipped thence.

OPENINGS IN SOUTH AFRICA.

The Chartered Company of Rhodesia are contemplating the formation of a bicycle corps.

East London seeks tenders for electric lighting and street-car system.

Durban desires estimates for an electric street railway.

Delagoa Bay is contemplating the lighting of the bay by electricity.

The harbor board of Cape Town talk of using movable electric cranes, consisting of engine, cranes, and locomotives.

Cape Town is discussing the advisibility of using automatic gas meters.

England has been receiving orders from South Africa for agricultural machinery, blowers, cranes, bicycles, electrical plants, engines, flour-mill machinery, pumping machinery, furniture, rifles, mining machinery, railway material, telegraph and telephone material, road rollers, tile and pipe making plants, water drills, etc.

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NEW YORK OFFICE—805 St. James Building.
ST. LOUIS OFFICE—621 Holland Building.

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There has been a considerable falling off in the value of goods shipped to Natal during the first quarter of 1898 from all the principal exporting countries.

THE EGYPTIAN MARKET.

T. S. Harrison, United States Consul-General at Cairo, Egypt, sends to the State Department a full and suggestive review of Egyptian trade conditions, with the purpose of stimulating American manufacturers to find a market there. While Egypt increases her imports from year to year, having now reached the sum of \$50,000,000, she takes from the United States only \$215,000, or less than one-half of one per cent. England gets thirty-five per cent. of the Egyptian exports, which amount to \$68,000,000, and consists of cotton, cotton seed, cane sugar, beans, wheat, onions, skins and natural wools. American imports from Egypt in 1896 reached the sum of \$4,632,000, consisting almost entirely of cotton. In the first eleven months of 1897 cotton imports into the United States from Egypt were \$4,277,618; sugar imports, \$3,034,273—trade carried on British vessels. The public is reminded that only ten years ago Egyptian cotton was introduced into the United States. The trade has increased with marvelous rapidity, the larger part of the Egyptian cotton having been consigned to Boston commission agents and sold to New England mills. In 1896 the exports from the United States were largely agricultural implements, iron, steel, machinery, oil, perfumery, distilled spirits, woods and manufactures of the same. The Consul-General says that if Americans would send back with the vessels which take out the Egyptian cotton, cargoes of such goods as are in demand in Egypt the trade would be profitable. Egypt has not only doubled her cotton exports in twenty-one years, but new sugar factories and great engineering works have been erected

there. The trade in iron, steel, tin, etc., is in the hands of Syrians and Arabs, whose stocks are brought from Belgium and England or through German commission houses. Almost all the cotton piece goods trade is in the hands of German and French firms. Mr. Harrison suggests a long list of articles, embracing bolts, door frames, carriages, boots and shoes, gas meters, confectionery, flour, sewing machines, wagons, typewriters, etc., which he thinks would be preferred in Egypt to those manufactured and sent thither from England, France and Germany. There should be a good market in Egypt for such Canadian manufactures as are above enumerated.

BICYCLES IN MEXICO.

No bicycles are manufactured in the Republic of Mexico. Several firms buy all the component parts of machines and put them together afterwards, but the complete wheel is not manufactured in Mexico. All the parts are procured from the United States, and almost all the machines manufactured in the United States are represented in Mexico. The chief importers of bicycle parts are Messrs. Howe & Co., of Monterey; Messrs. Moler & Degrees, of Mexico City; and Messrs. Pomery & Co., of Guadalajara. The prospects for increased traffic in goods of high quality are promising. The entire component parts of each wheel, however, are demanded, owing to the number of different makes in the country. The duty on parts of bicycles not nickel plated is two cents per kilogram (2.2046 pounds); on parts nickel plated, it is twenty cents per kilogram.

With reference to the future of bicycles in Mexico, it may be interesting to state that for the last four years the demand therefor has increased each successive year more than five per cent. over that of the preceding year.

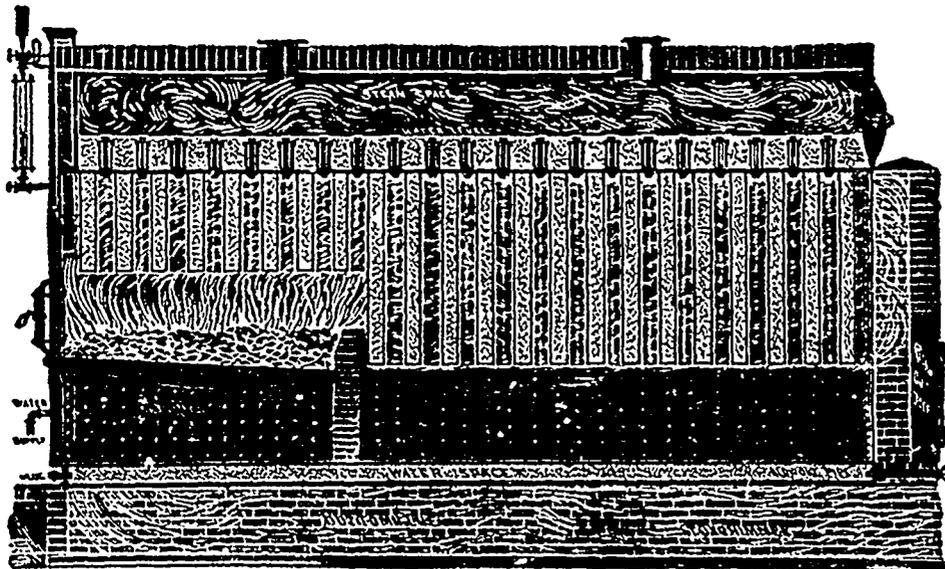
E. A. WALLBERG, C.E.,

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KINGSLEY WATER TUBE BOILERS

*Manufactured in Montreal,
Ottawa and Toronto.*



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Installations...*

*The Most Economical Boiler,
and the Cheapest, when
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Capacity.*

Can be installed in any Basement,
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GUARANTEED: A Saving in Fuel of 30 per cent. over Return Tubular Boilers.
A Saving in Fuel of 50 per cent. over any Cast Iron Heater.

...Catalogue Free.

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, boring, 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 Morris, Field, Rogers Company received recently a cablegram placing an order for seven cars of piano parts for the European trade. The export department of the factory is being kept fully busy and it takes the present staff all its time to keep abreast of the orders. The goods which this company have placed in the European market have been received with much favor and wherever introduced orders have been frequently duplicated.

The Department of Trade and Commerce has been advised that the British sailing ship Arcadia is now loading a cargo at Quebec for South Africa. A portion of the cargo will consist of Canadian exhibits for the South African exhibition, which is to be opened at Grahamston, the end of December.

A heavy judgment was given last week by Chancellor Boyd in the High Court of Justice, Toronto, in an action in which the Toronto Railway Company was the plaintiff. They sued the Siemens & Halske Electric Company, of Chicago, for the recovery of \$20,326.27, the amount paid for a large electric generator for their power-house. The company got the machine in 1896, and found after using it a time that it was not up to the guarantee given, and cost them a large amount to keep it in repair. They, therefore, concluded it was useless to them and sought to recover the amount paid for it. No defence was offered, and the evidence of a couple of the company's officials was sufficient to cause the Chancellor to give judgment for the full amount with costs.

The R. Tanner Co., Picton, N.S., has been incorporated to manufacture boots and shoes.

An electric light plant has been installed in Messrs. Fould & Shaw's flour mill at Thorold, Ont.

Dominion Dairy Commissioner Robertson is developing another scheme to make the farmers rich, says the Vancouver, B.C. World. It is the exportation of Canadian butter in tins. The butter is to be wrapped in wax paper and placed in hermetically sealed tins. It is claimed that when packed in this way butter will keep good in any climate, and Dr. Robertson believes that a large trade may be developed with China, Japan and other Oriental countries. Professor Robertson has a number of tins made in Montreal for this purpose, and a shipment of butter in tins has already been made from the dairy station at Calgary to the Yukon district. This method of packing butter is not a mere experiment. It has already been tried with very great success in France, and Prof. Robertson states that the tins made in Montreal are fully equal to those made in France. Accustomed as the public is to the idea of packing fruit, vegetables and meat in tins, it seems strange that some one did not long ago think of packing Canadian butter in tins for export.

St. John, N.B., is making a contract with George Cushing, one of the largest lumber operators of this district, to supply him with water at a very low price on condition of his erecting a large pulp mill in connection with his lumber establishment. It is this enterprise for which ex-Mayor Robertson has procured the offer of 65,000 pounds sterling of capital by one of the most prominent paper makers in England. The balance of

the stock is offered here. Some part of it to be taken by Cushing's firm and the remainder by the public. The prospectus issued through the press offers substantial profits, but at last accounts there remained a large part of the desired capital to be subscribed for. Meanwhile the Manchester investor is sending a representative, or coming himself, to make further enquiry into the situation. Seven or eight miles from the city, in an easterly direction, at Mispec, a pulp mill is now well on towards completion. The Messrs. Mooney are putting up the plant, but the investment is made by English capitalists, who are satisfied of the prospects of a good return. This mill is intended to produce mechanical pulp, whilst the Cushing mill is to be a sulphite establishment.

S. Des Brisay is building a new flour mill at Petit Rocher, N.B.

Messrs. Miller & Merkley are building an addition to their flour mill at Winchester, Ont.

A bonus of \$5,000 has been granted to La Rogue & Renaud to enable them to rebuild their mill, which was recently destroyed by fire at St. Gabriel de Brandon, Que.

The Electric Light and Power Co., city of Quebec, is building a large power house at St. Gabriel Falls, Que.

Joseph Gosselin's carpenter shop and wood-yard, G. & E. Contures' flour storage barn, and the furniture store of M. Vachon at Levis, Que., was destroyed by fire Oct. 7th. Loss about \$50,000.

The warehouse of Brackman & Ker, at New Westminster, B.C., was destroyed by fire a few days ago.

As a result of explorations carried on by Professor Miller in the corundum regions of Eastern Ontario, the Government has withdrawn from sale or lease the mineral rights upon a large number of lots in the counties of Peterborough, Haliburton, Hastings and Renfrew, and has placed them under the provisions of an order-in-council of July 4th, except as to the time limit fixed in number eight of the regulations. The clause in question fixes September 15th as the period by which offers will be received for the corundum lands named thereon. The date for tenders for the additional area brought under regulation still remains to be fixed.

Robert Ferguson, M.P.P., W. E. Gundy, and associates, Ridgetown, Ont., will apply for a charter of incorporation to build an electric railway to run between Thamesville, Ridgetown, Morpeth and Rondeau park, Ont.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET Air Compressors

STRAIGHT LINE
 DUPLEX and
 COMPOUND.

FOR ALL DUTIES.

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

The use of electricity in plowing is reported to have been tried with some success. This very strange proceeding is based upon a system not greatly different from that for steam plowing, which has been tried, though it may not be said to be in extensive use. In the case of steam plowing a gang of plows is drawn across the field by means of a cable operated by a portable engine, whereas in the electric system, the motor is mounted on the plow and travels with it. The motor acts upon a chain fastened at each end to travelling anchorages at the boundaries of the field, and the chain passes over a sprocket wheel geared to the motor of the plow. After a furrow has been plowed the anchorages are moved forward, and the plow returns, making a new furrow. The current is supplied to the motor by two wires carried across the field on either side of the plow in contact with trolley wheels. A system of poles described as "simple" extends around the boundaries of the farm and supplies the current from a central powerhouse, and anchor-cars are provided with reels of wire so that the machinery can be employed in any field.

Mr. Morley will rebuild the roller flour mill at St. Ann, Ont., which was recently destroyed by fire.

The Canadian Pacific Railroad has just equipped one of its trans-continental trains with an experimental lighting equipment consisting of a generator on each car driven by the wheels and a storage battery for maintaining the lights when the train is at a standstill, with suitable automatic cut-out and regulating mechanism. If successful all of its through trains will be similarly equipped.

A method of so treating leather as to make it transparent has recently been patented in Germany. In order to secure this result the skin is first heated in oil vasoline or fat, without previous tannage. The skin, thus treated, assumes a horny structure, to which a glassy appearance can be given by polishing. The skin becomes thicker during the heating process, the length of time depending upon its structure and resistance. After being thus treated the skin is pressed, dried and polished. It is translucent and almost transparent, and any degree of toughness can be imparted to it. It can be shaped into any desired form and treated in any convenient manner to produce articles of commercial value. It is said to be almost incombustible and can be used in place of celluloid, horn and wire. It can also be employed in electrical work to replace hard rubber, being cheaper and more durable. If this process is demonstrated to be a success, it offers unlimited possibilities to leather goods manufacturers, as a diversity of beautiful and profitable novelties can be worked up in such lines as stationery and toilet goods, as well as many articles of ladies' wear in leather.

Some of the many steamers which ply the waters of the St. Lawrence have an interesting history. The Magnet, now the Hamilton, was built in 1847. The Passport was built in the same year and is now the Caspian. The Kingston was next built. She was burned at Chippewa Point, was rebuilt and came out as the Bavarian. She was burned a second time at Whitby, on the lake, where Captain Carmichael and all the passengers were lost, but part of the crew saved. She was then rebuilt and put into

service as the Algerian. The Grecian was lost in Split Rock Rapids and her hull now lies there. The Columbian has been ashore on Cedar Island. All but one are now running on the river. Perhaps if travellers were aware of the antecedents of some of the steamers now employed in passenger traffic in some of our popular routes they would prefer to go by some other boat.

The Page-Hersey Iron and Tube Co., of St. Henry, Que., has been incorporated with capital stock of \$50,000 to manufacture tubes, etc.

The Brandon Machine Works Co., Brandon, Man., have been incorporated with a capital stock of \$40,000 to manufacture boilers, engines, elevator and mill machinery, etc.

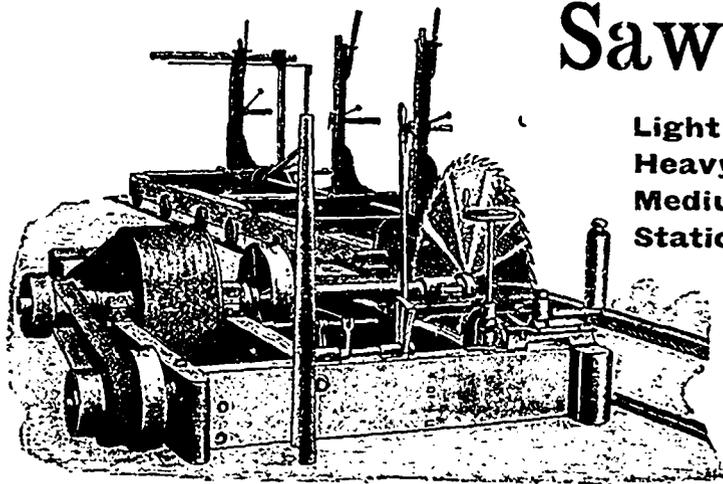
The Tudhope Carriage Co., Orilla, Ont., have made an addition to their factory, 120x50 feet. They will employ about fifty additional hands.

The Montreal Spring and Axle Works, Montreal, were destroyed by fire October 5th. Loss about \$15,000.

The Northrop Loom Co., Valleyfield, Que., are erecting a factory 260x80 feet, and will employ 100 men.

The new cotton mill being erected at Valleyfield, Que., is nearing completion. The main building is 450 feet square, five storeys high, while the wing is 180x80 feet, of the same height. A warehouse 220x80 feet, four storeys high, is also being erected. They will employ one thousand hands.

The Federal Press Co., of Ottawa, Ont., has been incorporated with a capital stock of \$20,000 to carry on business as engravers, lithographers, printers, etc.



Saw Mill Machinery.

Light Portable Mills for the Klondike
Heavy Portable Mills for British Columbia
Medium Portable Mills for the East
Stationary Mills of all sizes

LATHE MACHINES. EDGERS' TRIMMERS.

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"FLORA" Knife Polish
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Ground, Washed & Flour

WHEELS of highest
quality for general
& special purposes.

Grinding Machinery.



Messrs. Whitman Bros' steam sawmill at Harmony, N.S., was destroyed by fire recently. Loss about \$6,000.

The Ott tannery, of Brantford, Ont., was destroyed by fire recently. Loss about \$4,000.

A by-law will be submitted to the rate-payers of Barrie, Ont., on November 14th, empowering the Town Council to sell debentures for the purpose of securing \$100,000, to be used in purchasing the waterworks system, which arbitrators have declared worth \$77,000, the rest to be spent in paying arbitration expenses and extending the mains west to Allandale, east to the East Ward and other parts of the town.

It is stated that the Northern Pacific Steamship Company is arranging to put under the American flag six British steamers which it is operating to China and Japan from Tacoma, Wash. These steamers include the transport Arizona, which was sold to the United States Government last July; the Tacoma, Olympia, Columbia and Argyle. It is believed that the Arizona will be transferred back to the Northern Pacific at Hong Kong when the Government no longer needs her.

It is said that the cotton mills at Kingston, Ont., are to be equipped with 800 Northrop looms, by which the output will be largely increased. These looms will be supplied from the Northrop Loom works at Valleyfield, Que., now nearing completion.

A Rosslund, B.C., telegram says that a new ten-drill electrical air compressor is to be placed in Iron Mask mine at once. Shipments will be carried on at the rate of about 250 tons per week as soon as this is done. The compressor will be built just west of the present hoist, and the total cost of improvements will be between \$6,000 and \$7,000.

The New Brunswick Anchor Wire Fence Co., Moncton, N.B., has been incorporated with a capital stock of \$4,000 to manufacture fences, gates, etc.

D. Miller, Esq., will erect a sawmill and stave factory at Washago, Ont.

C. T. White will rebuild his mill at Apple River, N.S., which was destroyed by fire last spring.

Messrs. Blenkhorn & Sons' axe factory at Canning, N.S., was recently destroyed by fire.

The Canadian Plate Glass Co., Montreal, has been incorporated with a capital stock of \$10,000.

The Wm. Hamilton Manufacturing Co., Peterborough, Ont., have asked that town for a bonus of \$40,000 to enable them to extend their works.

Messrs. Galbraith, Tara, Ont., will erect a new sawmill at Parry Sound, Ont.

Merritt & Co., St. John, N.B., are having six match-making machines built by the Victoria Foundry Co., Ottawa, Ont.

Grindley Bros. are erecting a sawmill on Otter Lake, near Parry Sound, Ont.

The Robb Engineering Co., Amherst, N.S., has received an order from the Maritime Sulphite Fibre Co., Chatham, N.B., for a 500 h.p. cross compound condensing engine.

Erick Sedvall is asking for a bonus of \$15,000 to erect a match factory at Winnipeg, Man.

The Edwardsburg Starch Co., Cardinal, Ont., have increased their capital stock from \$200,000 to \$300,000.

The Metropolitan Electrical Co., of Ottawa, Ont., have applied for incorporation with a capital stock of \$500,000 to produce electricity for light, heat, power, etc.

The William Gray & Sons Company, Chatham, Ont., has been incorporated with a capital stock of \$150,000 to manufacture carriages, wagons, sleighs, etc.

The Marlatt and Armstrong Co., Oakville, Ont., have applied for incorporation with a capital stock of \$150,000 to carry on a business of tanning, etc.

J. F. Pennycuik, F. W. Barrett, J. O. Buchanan, E. W. Cox and Frederick Wyld of Toronto, have been granted incorporation as The Pennycuik Glass and Light Corporation of Toronto, to carry on business in prismatic glass, etc.

The Sandford Ear-drum Company of Toronto has been incorporated with a capital stock of \$20,000. Among the promoters are Dr. H. H. Oldright and Mr. J. H. Chowett.

Prico Bros., of St. Stanislas, Que., will erect a sawmill at Batsican, Que.

Parsonsboro, N.S., has granted a bonus of \$10,000 towards establishing a pulp mill at that place.

The Penman Manufacturing Co., Paris, Ont., will make a large addition to their factory, and will give employment to 150 additional hands. They manufacture knitted underwear.

A consignment of clover seed, billed at \$2,800, for Germany, and one of \$2,500 for France, were shipped by a local firm from Toronto recently.

The Fire, Water and Light Committee of the City Council of Guelph, Ont., has decided to submit a by-law for the erection of a new fire hall to cost \$5,000.

The Quebec Central Railway Company has awarded the contract for building new machine shops at Newington, Ont., to Messrs. D. G. Loomis & Sons, the cost of the building being in the neighborhood of \$20,000. The shop will have modern appliances with movable cranes, and the motive power will be electricity. Another feature in the shops will be the heating apparatus, which will be carried out under the direction of Mr. Wallberg, C.E., of Montreal. Altogether the shops and appliances will be of a most convenient kind, and the city may be congratulated upon having secured a continuation of the occupancy of this property by the Quebec Central Railway Company.—Snerbrooke, Que., Record.

THE CANADIAN RAND DRILL CO. have moved their General Sales Office, controlling Canadian Territory, to 18 Victoria Square, Montreal, in order to facilitate their business, which has been rapidly increasing during the last two years. They have established an office at 88 York St., Toronto, one in Halifax, one in Rat Portage in charge of Mr. George J. Ross, and one in Rosslund in charge of Mr. Mendenhall. They are as usual manufacturing largely along the lines of duplex construction which they have advocated from the first. A duplex compressor costs a little more in the first place than a straight line machine, but the difference in economy of the two offsets the difference in price. Their Toronto office has lately contracted with the Canadian Copper Co., the largest nickel producers of Canada, for a very large mining plant. The Canadian Gold Fields of Marmora, they have also just equipped with a large Corliss Compressor.

Through the Halifax office the Intercolonial Coal Mining Co., of Westville, are also installing one of their high class machines for pumping. Duplex construction permits of an economical arrangement of cylinders in proper ratio to the steam pressure at hand, and to the air pressure required.

The Rat Portage office last year installed from start to finish a large plant at the Sultana mine, a large plant at the Foley mine, and also a large plant at the Mikado. They are now putting in machinery at the Cameron Islands mine, and also a large plant for the Boulder Gold Mining Co., which is controlled by Mr. Leclair and other American capitalists.

The Rosslund branch has rather the advantage of the others in that it has a large warehouse at its back and is able to fill orders from stock. They have lately contracted with the Knob Hill mine for a large power plant and two mining plants, the object being for the second mining plant being supplied with power from the one Compressor located at Knob Hill.



B. GREENING WIRE CO.
(LIMITED)
WIRE MANUFACTURERS
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**HAMILTON
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Wire Screens for Every Class of Material.

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

Special Attention given to Miner's Requirements.

The work of construction upon the Mispec pulp mill, near St. John, N.B., is being pushed very rapidly, 150 men being employed. It is expected that the mill will be completed and all the buildings covered before the close of the present month, and that it will be ready to open about the middle of January or the first of February.

The Maritime Sulphite Fibre Company, of Chatham, N.B., has ordered a 500 horse power cross compound condensing engine from the Robb Engineering Co., of Amherst, N.S., to replace its 250 horse power simplex engine and to provide for contemplated enlargement of plant.

J. S. Powley, W. D. Jewett, W. P. Bull, and Zebt Gallagher of Toronto have been granted letters of incorporation under the title of The Ozone Company of Toronto, to

manufacture and sell patent medicines and table waters.

The Renfrow Ont., Farmers' Hedge and Wire Fence Company has been incorporated with a capital stock of \$22,000.

James Miller, of St. John, N.B., and D. A. Huntley, of Parrsboro, N.S., are erecting a sawmill at Lake Temiscouata, Que.

Rossland, B.C., is likely within the next few days to experience the first direct benefit from the Crow's Nest Railway. The completion of the line now makes it possible to ship Crow's Nest coal and coke right into the camp. It is understood that contracts have already been let for the supply of fifty tons of coke per day to the Trail smelter. Cheap coal and coke will be much appreciated by the householders as well as by the mining companies of Rossland camp. It is under-

stood also that the Nelson smelter has contracted for fifty tons of coke per day from the same source.

The woolen mills of this town are soon to be lighted by electricity. They will operate a dynamo exclusively for illuminating the mills, salesroom and office. The company had acetylene gas under consideration for some time, but decided in favor of the safer, and more easily handled and reliable electric illumination.—Oxford, N.S., Journal.

A considerable falling off in the Canadian "Soo" canal traffic is shown by the returns for the season of navigation to the end of September, as compared with a similar period last year. Up to Sept. 30, 1898, 3,048 vessels passed through the canal. The vessel tonnage was 2,211,899 and the freight tonnage 2,302,093. During the season of 1897, 3,469 vessels passed through; the vessel tonnage was 3,057,418 and the freight tonnage 3,819,790. For Sept., 1898, the figures are:—Vessels, 387; vessel tonnage, 283,552; freight tonnage, 202,129. During September, 1897, the number of vessels that passed through was 659; vessel tonnage, 606,259; freight tonnage, 765,719.

Krug Bros. & Co., Chesley, Ont., have ordered an 80 h.p. boiler and engine from the Robb Engineering Co., of Amherst, N.S.



WATER WHEELS

For Heads of 3 Feet to 2000 Feet.

ADAPTED TO MILLING AND ALL POWER PURPOSES.

Recent tests at Holyoke enable us to guarantee:

The Largest Power ever obtained from a wheel of the same diameter. The highest speed ever obtained for the same power. The highest mean efficiency ever obtained when running from half to full gate. We guarantee also a runner of the greatest possible strength. A gate unequalled in quickness and ease of opening and closing.

Write for pamphlet, stating your Head.

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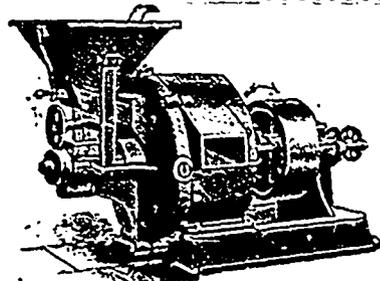
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LARGE POWER FOR THE DIAMETER.

SUPERIOR STRENGTH AND DURABILITY.

GREAT EFFICIENCY AT ALL DEGREES OF GATE OPENING.

Designs prepared for complete plants and the best development of power possible under the peculiar circumstances of head, etc., in any locality.

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5-inch Crocker Wheel Plant at the works of the Boston Rubber Co., St. Jerome, Que.

The JENCKES MACHINE CO.,

42 LANSDOWNE STREET
SHERBROOKE, QUE.

Messrs. F. E. Atteaux & Co., one of the largest manufacturing and importing concerns in the United States, whose head offices are in Boston, have established a branch at 221 Front street east, Toronto, for the greater convenience of their Ontario and Western trade, their specialties being alizarine and anilino colors, dyewood extracts, chemicals, etc.

A contract for a new steamer on the Prince Edward Island route has been awarded to Messrs. Gourlay Bros., of Dundee, Scotland. The vessel is to be a steel steamer, classed 100 A1 at Lloyds. Its dimensions are 225 feet in length, breadth moulded 32 feet 6 inches. Its depth, moulded, amidships, will be 20 feet 6 inches. The steamer will have triple expansion engines, and will be built on an improved model.

Mr. J. F. Barnett, representing the Macon Shear Co., manufacturers of Bailey's improved shears, Memphis, Mo., was in Toronto last week investigating the opportunities for his company establishing works in Canada for the manufacture of shears for all purposes. Mr. Barnett was attracted to Canada by the many notices published in THE CANADIAN MANUFACTURER showing the advantages of this country for manufacturing industries. What is claimed for this new shear is a stud going direct through both blades, giving to each blade a solid bearing with a chambered milled-edge nut to receive a corrugated metallic spring, making the

shear adjustable at will; at the same time there is a screw set in the end of this stud to prevent the nut being turned off at will. It cannot be turned off without the use of a screw-driver, though it has, at all times, a flexible joint. This device is covered by the Ford patent, owned and controlled by this company, and commends itself to tailors, garment cutters, cloak makers and others. The proposed new works would give employment to a large number of skilled employes, as every part of the work of manufacture would be done in Canada. We are informed that no such establishment now exists in this country.

Mr. Beaumont Jarvis, architect and engineer, Toronto, is kept busy superintending the erection of an elegant residence in Sherbourne Street for Major Pellatt, one in Rosedale for Mr. J. E. Ellis, and one in Chatham, Ont., for Mr. McKeough. The changes and improvements he has in hand for the chapel and school rooms at Loretta Abbey imply an expenditure of some \$70,000.

The management of the Grand Trunk Railway announce that the new elevators at Midland and Goderich, Ont., are about ready for business, and cargoes are now en route for them. The one at Midland will take in corn from Chicago, and the Goderich one Manitoba wheat, both being intended for home consumption. The first named has a capacity of one million bushels, and the latter half a million bushels. The oat clipping plant being constructed for the

Grand Trunk in Chicago, which will enable the road to participate in that business, is fast nearing completion, and it is expected to be in running order in a week or so.

The Sarnia, Ont., Salt Company, Limited, have applied for permission to increase its capital stock from \$20,000 to \$100,000. The works of the company have been lying idle for some time, but it is intended to resume operations on a large scale immediately. It is said that many will be surprised at the scale on which the operations will be carried on. This development of the Canadian salt wells is not improbably connected with the prohibition of the export of Canadian logs to Michigan. The Michigan salt wells use the refuse from the lumber mills as fuel, and when that is cut off the cost of operating them will be greatly increased, thus affording a material advantage to the Canadian wells.

Mr. Frank A. Mitchell, of Norwich, Conn., was in Belleville, Ont., a few days ago in connection with a transaction by means of which the Abbott Iron Works of Montreal will be removed to the city of Belleville. He has made an agreement with Belleville, according to which, in consideration of his establishing rolling mills at that place, he will receive a bonus of \$50,000. He is understood to have closed a bargain with the Abbotts to remove their rolling mills to Belleville. The Abbotts employ 100 men, and Mr. Mitchell's own concern will be operated by about fifty men.

The Swansea Forging Co.

Successors to ONTARIO BOLT CO.

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and
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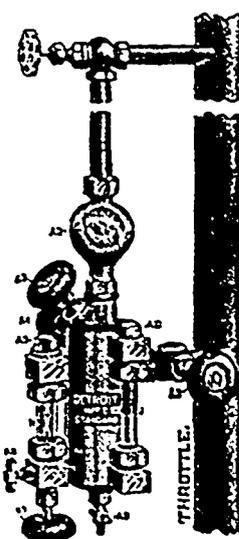
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ALL USE

The **Detroit**
Sight-Feed
Lubricators

This is equally true of Canadian as of American engine builders. They know that the valve friction must be overcome if their engines are to work at their best. They know from experience that the Detroit Lubricators do this, and where so much is at stake they want only the best. It should be the same with all engine owners. The saving our Lubricators effect will pay for themselves very soon.

Send for Catalogue and Prices.

Detroit Lubricator Co.,
DETROIT, MICH.

Mr. Z. Obaleki, Inspector of Mines for the Province of Quebec, reports that mining operations throughout Quebec are extensive, and on the whole satisfactory. The copper and chrome mines in the Eastern Townships district, he says, are being operated successfully. Mr. Obaleki showed a reporter a nugget worth about \$20, which was found in the placers near the Chaudiere river, in Beauce county, Que. The gold is fairly abundant, apparently, and is of a coarse quality. A small company has been organized, and is working in the district. The company has taken out \$4,000 worth of gold this summer. The gold is found about ten or twelve feet below the surface, on the bed rock. Refer-

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Cottonades, Tickings, Denims,
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Flannelettes, Gingham,
Zephyrs, Skirtings,
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Cotton Blankets,
Angolas, Yarns, etc.

Only Wholesale Trade Supplied.

D. MORRICE, SONS & CO.
AGENTS
MONTREAL and TORONTO.

ring to the find of molybdenite on Calumet Island recently, Mr. Obaleki says the demand for the mineral is strong, and that if found in large quantities the mine will be worth working.

The city of Toronto wants tenders by Wednesday, November 9th, for the construction of a complete electric lighting plant or for the various portions of the work, viz., engine equipment, countershaft and pulleys, belting, boilers, feed pump and condensers, water and steam piping, economizers, dynamos and station electrical apparatus, arc lamps, mast arms and lamp attachments, poles and overhead circuits, conduits and cables.

The Fairbanks Company, of Montreal, are putting on the market two specialties of unusual merit—the National drill chuck, which they inform us is the simplest and most effective tool of that kind on the market. It is entirely new in principle, low in price, and can be supplied either finished or unfinished. It can be furnished in all sizes from $\frac{1}{4}$ inch to 2 inches—Nos. 1 to 7. All the parts can be easily taken out to be cleaned, and they are all exposed to view so that any irregularity or derangement can be seen at a glance. The National pipe wrench is another specialty of equal merit, and is having a large sale in the United States. Circulars and prices regarding these tools, can be had on application to The Fairbanks Company, 749 Craig street, Montreal.

The Deseronto, Ont., Car Works have secured a contract from the Dominion Government for the construction of fifty box cars for the Intercolonial Railway.

The Massey-Harris Company's works at Brantford Ont., have resumed operations with about 400 hands, after being partially shut down for some weeks for repairs, etc. In three weeks or a month it is expected that there will be 500 or 550 men regularly employed. A few days ago fifteen carloads of farm machinery were shipped from these works to Australia.

Felts for Pulp Mills

20 years in the business—the first to make Felts in Canada; capacity 1,000 lbs. per day. All our Felts are woven endless, without a splice. Our Felts will last longer and make dryer Pulp. All up-to-date mills use our Felts. New mills, when in need, write for samples and prices.

HAMELIN & AYERS, Lachute Mills, P.Q.

ELECTRIC REPAIR & CONTRACTING CO.

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ELECTRIC APPARATUS OF ALL KINDS REPAIRED ON THE SHORTEST NOTICE.

Armatures Rewound for all Systems. Commutators Re-filled
Write us, our Prices are reasonable and work good.



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Machine & Tool Co.
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Manufacturers of
Machine Screws
OF EVERY DESCRIPTION.

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Manufacturers of ...

OIL-CLOTHS of Every Description

Floor Oil-Cloth, Table Oil-Cloth,
Carriage Oil-Cloth,
Enamelled Oil-Cloth,
Stair Oil-Cloth, etc.

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WOOLEN MACHINERY

...FOR SALE...

24 Hutchison & Hollingworth Dob-
cross Looms.

20 Harness. 3 Box. 9.4.

9 Leeming's, of Bradford, England,
"Dandy" Looms.

6 Harness. 1 Box. 10.4.

1 Hand Loom, Complete, with
Shuttles, etc.

32 Harness. 4 Box.

1 Waste Shaker.

2 ft. 8 in. wide, 21 in. diameter.

1 Iron Doffer.

36 in. diam., 60 in. wide, with
2 1/2 in. shaft.

1 Knowles Pump—Steam.

4 1/2 in. x 3 1/2 in. Water Cylinder.

1 Horizontal Engine.

Six Horse Power.

All of the above can be seen run-
ning at the Factory, ST. GABRIEL
LOCKS, MONTREAL.

We are prepared to entertain any
reasonable offer for above.

Further Particulars on application.

Montreal Woolen Mill Co.
MONTREAL.

Manufacturers of iron working tools are anticipating a much better demand in the near future from owners of machine shops. In many shops, particularly in the West, the pressure for work has grown so great that forces are being employed at night. This kind of work is always more expensive in machine shops and decidedly less effective than day work. It is estimated by competent authorities that when machinists are employed at night they are able to turn out only two-thirds as much work as when employed in the day time, while the cost is 50 per cent. greater. It only requires a limited experience on the part of a machine shop owner in running at night to convince him that it would be wise to purchase more tools and do all his work in the day time.—The Iron Age.

Edward S. Jenison, a Chicago engineer, has large plans for supplying Port Arthur and Fort William with power for manufacturing purposes. In 1897 he got a special act passed by the Ontario Legislature enabling him to expropriate lands and rights for developing power from Kakabeka Falls on the Kaministiquia River, not far from the twin towns. The falls themselves had been secured by a Mr. Douglas and certain associates, Mr. Douglas being a Philadelphia capitalist with large interests in the Sault Ste. Marie Pulp Company. There was considerable litigation in respect to the conflicting Jenison and Douglas claim, but it was finally decided this summer that Mr. Jenison had specific rights for developing power from the Kaministiquia through lands lying beside the falls. He now proposes to build a water power canal from above the Ecarte Falls on the Kaministiquia to Port Arthur,

where there will be a large reservoir. For the power there will be 300 feet of head. Electric power for manufacturing and motive purposes is to be furnished, and electricity for lighting. If the towns are ready to enter into contracts he promises to have power delivered to them by next autumn. The immediate expenditure would be \$1,000,000.

The Sault Ste. Marie, Ont., Board of Trade held a meeting a few days ago to discuss the proposed new arrangement with the Lake Superior Power Company. As proposed by the company, that arrangement would call for a bonus of \$260,000. As decided by the board, however, \$50,000 is the amount that should be granted as bonus. A committee appointed to wait on Mr. Clerque, the president of the company, obtained the answer that he would lay the proposition before his colleagues, though he did not hold out much hope that it would be agreeable to them. The Algoma Pioneer, of that town, advises the town not to be too hasty in coming to terms, but to await the issue of the Quebec Conference. If a reciprocity agreement is not reached by the joint commission it is possible that the Government will put an export duty on nickel matte and ore. In that case, argues The Pioneer, the company would require no inducement in the form of a municipal bonus to incline them to build the works on the Canadian side, instead of on the American side of the St. Mary river, as they are now debating. They would have to do their refining in Canada if an export duty were imposed.

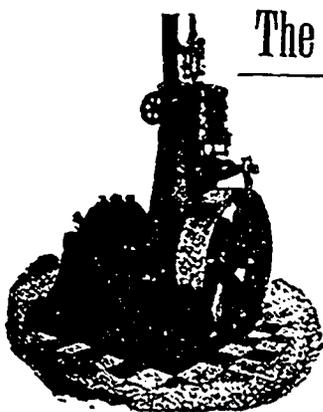
The Ottawa and Georgian Bay Canal project is still kept before the attention of the Dominion Government, and, as it has had

some encouragement from the Premier and is extremely popular with the eastern Ontario and western Quebec people, it has good prospects of obtaining the assistance asked from the Government. That assistance is desired in the form of a guarantee of 2 per cent per annum for twenty years on \$17,000,000, the value of the bonds to be floated. The company would agree to construct and equip the canal from Georgian Bay to Ottawa with locks of fourteen feet depth, and to wait for one year after completion before the guarantee shall commence to be paid. McLeod Stewart, ex-Mayor of Ottawa, who is the promoter of the enterprise, declares that the canal would pay from the start, and that no advances of interest from the Government would be necessary, at least for more than a short time. The revenues yielded by the water powers on the route will, he considers, far exceed the outlay. E. Pearson & Son, Limited, Victoria street, London, are understood to be willing to accept the contract of constructing the canal upon the Government undertaking the guarantee as above.

The T. Eaton Co., Toronto, has ordered a 50 h.p. automatic engine for direct connection to dynamo, from the Robb Engineering Co., of Amherst, N.S.

A committee of the St. Stephen, N.B., board of trade is considering a proposition from a Portland, Maine, company to establish a factory in the border town for the manufacture of wrappers and other garments.—Maritime Merchant.

The W. S. Nutting Company, of Minneapolis, Minn., manufacturers of hand grenades and fire extinguishers, will erect a branch factory in Toronto.



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SIMPLICITY, COMPACTNESS,
PERFECT REGULATION,
ECONOMY,
AUTOMATIC LUBRICATION.

For Electric Lighting Mills, Factories,
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close regulation and enduring service
is required.

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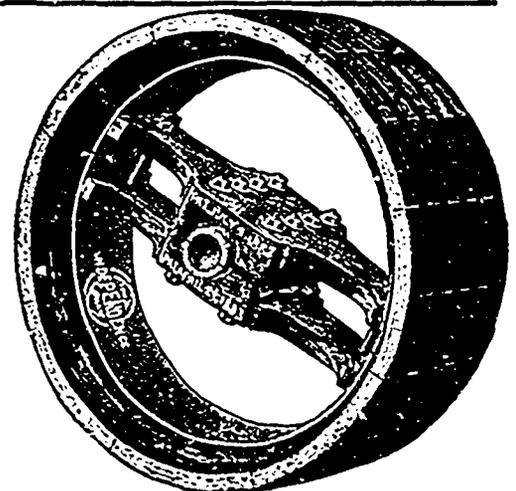
We will tell you all about Pulleys—then you may decide for yourselves.

WE ARE HEADQUARTERS IN THIS COUNTRY FOR PULLEYS

We make from 100 to 200 every day. Are we making yours?

DODGE MANUFACTURING CO., OF TORONTO, Limited,

74 York Street, Toronto, Ont.



A NEW ELECTRIC FAN.

The Blackman Ventilating Company, 63 Fore street, E.C., London, Eng., have sent us an illustrated circular descriptive of the electric Blackman fan and motor combined, manufactured by them. These fans are self-starting and noiseless, and are specially adapted for ventilating public and industrial buildings, steamers, hotels, clubs, smoking and dining rooms, kitchens, etc., and are made in sizes to suit.

The company informs us that there are now \$35,000 of those Blackman fans in successful use, and that hundreds of textile factories—dusty carding rooms and weaving

sheds, hot sizing and spinning rooms are being supplied with clean fresh air by the use of them; that the steamy interior of dye-houses, boiling-rooms, soap works, and steam laundries are being cleared and cooled; and the processes of grinding, carding, carpet-beating, and other similar establishments are being freed from floating dust by them; that paper mills, potteries, and many other works are being cleared of steam, dust and other floating nuisance; and heated or foul air is being removed from engine rooms and workshops in nearly every trade, being at the same time replaced by pure fresh air, with great benefit to workpeople and often to the plant.

During the last few years this company have given special attention to the subject of warming, not the producing of stagnant warmth inside a building, taking note only of the temperature, but the warming of air in large quantities in motion, which is a very different and much more difficult task, and the results obtained have been very satisfactory. A feature necessarily common to all cases is that the warming is combined with the ventilation, and in hundreds of drying rooms in numerous trades the work of drying is now being done with the help of the Blackman fan, at a far lower temperature than formerly, with great advantage to the material as well as to the workpeople.

F. E. ATTEAUX & CO.

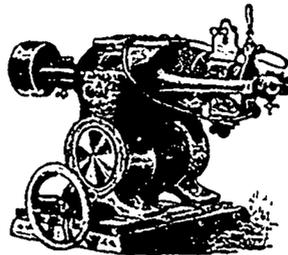
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Aniline Colors,
Dyestuffs and
Chemicals.**

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...AND...
POWER PLANTS**

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25 to 100 K. W.**

16-light Arc Plant for sale cheap. Good as New.

22 Adelaide Street West, - Toronto.

THE PULP AND PAPER PROTEST.

A few days ago while the International Commission were in session in Quebec, a strong delegation of representatives of Canadian pulp and paper makers visited that city to confer with Hon. N. Clarke Wallace, representing the Canadian Manufacturers' Association, the result being that the following representation was read and handed to Sir Richard Cartwright, one of the Canadian Commissioners:

"It is earnestly desired that an export duty be immediately placed upon all pulp wood exported from Canada (no matter in what shape or size) which would be equivalent to the present import duty on Canadian pulp entering the United States, unless the United States admit all Canadian pulp, both chemical and mechanical, free of all import duty; and, further, that Sir Wilfrid Laurier, as chairman of the Canadian Commissioners at the Quebec Conference, be immediately memorialized to this effect. As the matter

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FELT DRESSING.**



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Guaranteed to keep any Belt from slipping the moment it is applied; also to keep Belts from cracking.

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HESPELER, ONT.

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Rotary Fulling Mills, Kicker 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 Drosser Spools,
Patent Double-Acting Glg Dyeing Machines.



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VALVES**

PERFECT
Material and
Workmanship
For Hot Water
and Steam.

When requiring or specifying Valves, insist on getting an article that will not need continual attention and frequent repairs.

THE BEST IS NONE TOO GOOD FOR YOU.

The J. M. T. series has an established record, and are known by this trade mark on every Valve.



Manufactured only by.....

THE JAMES MORRISON BRASS MFG. CO
LIMITED.
TORONTO.

involved is of the very gravest importance to our trade and to the general welfare of this country, it is trusted that this request will receive your earnest consideration, and that the welfare and existence of our trade will be defended by the Canadian Commissioners."

The memorial was signed by Acadia Pulp and Paper Mills Company, Halifax, N.S.; Wm. Barber & Bros., Georgetown, Ont.; Buckingham Manufacturing Company, Buckingham, Que.; Canada Paper Company, Montreal; Chicoutimi Pulp Company, Chicoutimi, Que.; James Davy, Merriton, Ont.; Dominion Paper Company, Montreal; Dominion Pulp Company, Montreal; Fraser-ville Company, Fraserville, Que.; J. Ford & Company, Portneuf, Que.; Hamlin & Ayres, Lachute, Que.; Maskinonge Company, Maskinonge, Que.; Maritime Sulphite Fibre Company, Chatham, N.B.; Sault Ste. Marie Pulp and Paper Company, Sault Ste. Marie, Ont.; St. Raymond Company, St. Raymond, Que.; F. Loucey, Cold Lake Road, Que.; Thomson Paper Company, Newburg, Ont.; J. C. Wilson & Company, Montreal; Rior-dan Paper Mills, Merriton, Ont.

Messrs. E. B. Eddy, of the E. B. Eddy Company, Hull, Que., John Forman and John MacFarlane were not entirely satisfied with the memorial, and Mr. Eddy made a statement on his own account. He demanded an unconditional export duty of \$4 per cord, irrespective of what concessions

the United States might make on Canadian pulp.

THE WOOD PULP INDUSTRY IN ONTARIO.

Alluding to the large grant of timber lands in Ontario by the Provincial Government, heretofore alluded to in these pages, the Toronto correspondent of The Paper Mill has this to say:—

"Though there are immense tracts of spruce standing on the Crown land of the province, scarcely any of it has been put on the market since spruce came into utility as material for paper. Spruce limits in Ontario have been bought and sold in recent years, but they were properties acquired from the Government years ago, possibly for the pine, which has since been cleared off, or possibly for the land. Now overgrown with spruce, such properties have attained a value not foreseen at the time the patent was taken out for them. To these cases are to be added a very few more in which concessions were obtained by syndicates, such concessions being given along the north shore of Lake Huron or Lake Superior.

"A few days ago, the Government made a grant of seventy-five square miles of spruce lands to a number of English capitalists associated together under the name of the Occidental Syndicate. At the head of this syndicate is Ernest A. Bremner, of London,

England. Mr. Bremner is not unacquainted with Canada, however, having lived here about fifteen years at a former period. The limits in question are on Sturgeon river, a stream that flows into that great reservoir in the northern part of settled Ontario, namely, Lake Nipissing. On that stream, and also on the main line of the Canadian Pacific Railway which crosses it, is the town of Sturgeon Falls.

"It was at this place a few years ago a company tried its fortune in a pulp manufacturing enterprise, but it started too soon, was financially wanting, and it had to stop. It had carried its building operations pretty far, and had got some machinery on the ground when means failed. Sheriffs were pouncing on the rusting movables when Mr. Bremner looked into the situation. He was not long getting a syndicate together—as a matter of fact he had one together for other investing purposes—and acquiring the property. Building operations were continued, new machinery ordered, and soon the pulp mill was equipped for business. It was formally opened on the 1st inst. It is not a large one, but it is to be the nucleus of a big pulp and paper manufacturing industry, that is, if the big programme of its promoters is carried out fully.

"But while the mill was building, negotiations were going on for the securing of a suitable supply of timber. These negotiations have been pending since spring. The

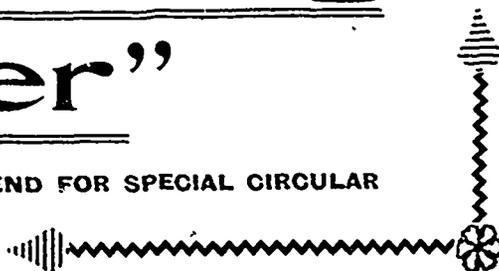
THE WM. HAMILTON MNFG. CO., LIMITED,

Engineers and Builders

MODERN MINING and MILLING MACHINERY

"Gyrating Vanner"

SHAKES LIKE A PAN—SEND FOR SPECIAL CIRCULAR



Contractors for the Design and Construction of Complete Stamp Mills, Concentration, Chlorination, Cyanide, and Smelter Equipments....



Department "E"

PETERBOROUGH, ONT., or VANCOUVER, B.C.

NEW DYESTUFFS.

Benzo Dark Green B. (Patented)—is a new green dyestuff belonging to the Benzidine family, and which will, undoubtedly, be a welcome addition to this group of colors. Benzo Dark Green B. is a homogeneous product, equally well adapted for cotton dyeing or printing. Owing to its exceptionally good covering power it should receive attention, not only as a self color but in combination with other Benzidine colors, for the production of dark greens, olives, etc. It is also suited for dyeing half silk, where it is desired to dye both fibres uniformly.

Benzo Fast Black (Patented). This is not a new color but considerable improvement has recently been made in the method of its manufacture. Benzo Fast Black is one of those colors which, dyed direct as well as diazotized, is unusually fast to light. Diazotized and developed with Developer "H," it produces an intense black, fast to alkalis, acids, hot ironing and rubbing. Fastness to light may be still further increased by the after treatment with copper sulphate, which is carried out in the running bath, and therefore does not necessitate extra labor.

Alizarine Fast Grey (paste), patented. Alizarine Blue Black B. and Alizarine Cyanine Black G. are the only two black dyestuffs which are true derivatives of Alizarine. The former is very much in demand on account of its extreme level dyeing properties and exceptional fastness, especially for the dyeing of fast Slates and Drabs. The Farbenfabriken Co., of Elberfeld, having discovered a new true Alizarine, have placed it upon the market under the name of Alizarine Fast Grey in paste. The new Grey color, which closely resembles Alizarine Blue Black in its properties, and may be considered as an addition to the same class, since it produces deeper and blacker shades than the latter. On account of its extreme level dyeing properties, it is more particularly suited for dyeing light shades fast to milling and light. It produces shades very fast to light, milling and stoving, and as is the case with Alizarines generally, it is further unaffected by acids and alkalis, and therefore not changed by carbonizing.

Direct Deep Black R.W. (Patented)—A violet black of great tinctorial power in its properties; it closely resembles the older brands—Direct Deep Black G. and E., from which it differs mainly in its shade and strength. It dissolves very easily. Direct Deep Black R.W. is adapted for dyeing loose cotton or hank, as well as piece goods. On linen and jute good black shades are also obtainable. To obtain a jet black, it can be combined with Direct Deep Black E. or Benzo Olive. Direct Deep Black can also be recommended, tipped with Aniline salts, a dye process in use with Benzo Chrome Black Blue, when it produces shades very fast to soaping and light, which are very full and cheap blacks.

Benzo Nitrol Colors. The Benzo Nitrol colors, which have been placed upon the market up to the present time, when compared to the ordinary Benzidine products, have the advantage over the latter that, after development with Benzo Nitrol Developer, they produce extremely full shades, which were hitherto quite unobtainable, with

ordinary substantive dyestuffs. For dyeing velveteen, these products are of importance, and therefore the Farbenfabriken have produced a pattern card No. 686—1898—Benzidine colors on velveteen—which should be of interest to dyers of velveteen.

Alizarine Sapphirole B. (Patented). The Farbenfabriken of Elberfeld, recognizing the fact that a level dyeing Blue Alizarine color, bright in shade and fast to light, was much needed by wool dyers, used every effort to produce a color answering these requirements.

Alizarine Sapphirole B. has just been discovered by the above firm, and in its fastness to light, Alizarine Sapphirole is unequalled by any acid blue wool dyeing color in existence. The only other color which at all approaches it in this respect is Brilliant Alizarine Cyanine, 3 G., which is much faster in shade. It is further, fast to stoving and stands washing well. In one respect it is markedly distinguished from almost all other blue wool colors. Owing to its un-

usual fastness to rubbing, even in dark navy blues, it is practically free from rubbing off. On a chrome mordant it produces a much greener shade than when dyed with acid, and is equally as fast to milling as Brilliant Alizarine Cyanine 3.G. For combination colors, Fast Yellow extra, Azo Fuchsin and Orange, 2.B., and other colors known for their fastness to light, are recommended.

Diazo Violet R. (Patented). The above is a new Diazotizable Benzidine dyestuff, which, although of little value as a direct color, when diazotized and developed with Developer "A," or Beta Naphthol, produces a violet, fast to washing. The shade of this color when diazotized and developed closely resembles the direct shade of Congo Corinth B. and is very suitable for combinations, giving with Primuline and bordeaux and clarets and reddish blue with Diazo Navy Blue, 3.B. When developed the color is fairly fast to light, and in this respect closely resembles the above named products, but is slightly inferior in its fastness to washing.

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"Capitol"

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STANDARD GRADE

"Renown" "Atlantic"

ENGINE RED OIL

NO BETTER OILS MADE

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SAMUEL ROGERS, PRESIDENT



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although it meets the usual requirements. The fastness to light is considerably increased by passing the goods, after development, through a bath of copper sulphate.

For further particulars regarding the properties and methods of application of any of the new products and samples, pattern cards, etc., write to The Dominion Dyewood and Chemical Co., Toronto, sole agents in Canada for the Farbenfabriken vorm Friedr. Bayer & Co., Elberfeld, Germany.

THE METALLIFEROUS WEALTH OF ONTARIO.

Mr. Archibald Blue, Director of the Ontario Bureau of Mines, in his Seventh Annual Report, gives statistics of the Metalliferous mines and works of the Province of Ontario for the six months ending with June 30, 1898, together with the statistics of 1897. Following is a summary by values:

	1898. 6 mos.	1897. 12 mos.
Gold	\$133,744	\$190,244
Silver	10,632
Nickel	225,763	359,651
Copper	141,744	200,067
Iron ore.....	23,845	4,689
Pig iron.....	305,083	288,128
Totals.....	\$840,811	\$1,042,779

CANADIAN FURNITURE IN AUSTRALIA.

The Sydney, N.S.W., Australian Ironmonger, has the following to say regarding a well-known Canadian manufacturing concern:—

The North American Bent Chair Co., a leading Canadian manufacturing concern, situated at Owen Sound, Canada, has recently opened a branch business at 447 Kent street, Sydney, and has already demonstrated the fact that Canada can produce chairs to successfully meet the competition of German or Austrian manufacturers. One of their chief advantages lies in the fact that Owen Sound is in the very centre of the very best Canadian timber district, and that they operate a very extensive sawmill plant, cutting several million feet of timber annually. The advantage thus derived is very apparent. The chairs which seem to be most popular resemble the regular Austrian chair somewhat in point of construction, some lines being almost identical with the designs of Austrian chairs which have been so long deservedly popular in Australia. Other designs, distinctly American, have not yet been placed so successfully, but the demand seems to be increasing.

WATER POWER IN QUEBEC.

The magnificent water powers of the Province of Quebec have recently attracted great attention from capitalists owing to improvements in transmission of power by electricity, and are gradually being bought up and utilized. The latest acquisition for the purpose is the fall on Jacques Cartier River at the outlet of Lake St. Joseph, about twenty miles from the city of Quebec. A company, composed chiefly of New York capitalists, has been formed, with a capital of \$500,000, to develop the power and conduct it to the city. The contract was

awarded a couple of days ago to Messrs. Barry, Ross & McRae of Niagara Falls, for the construction of dams, canals, etc., the whole to be ready by the 15th of March next. About 100 men were at once placed at work, and the number will soon be increased to 250 in order that the work may be finished as soon as possible. The company will enter the city in the same way that the Lachine Rapids Company entered Montreal. In both cities existing companies thought that they had monopolies, but some years ago the Standard Electric Company was incorporated by the Legislature with most extraordinary powers. One of them was that it could supply electricity to any plant in the province, and make the constructions necessary for such purposes. The Standard charter was absorbed by the Lachine Company, which was thus enabled to defy opposition and enter Montreal. The Lachine Company, or rather the Standard Company, has now sold a similar privilege to the Jacques Cartier Company, for the sum of \$8,000, and it will be able to enter Quebec. The company also intends to utilize part of its power in the manufacture of pulp and paper, and to erect factories on the same scale as those erected by the Laurentide Pulp Company, at Grandmere, on the St. Maurice River. Messrs. Barry, Ross & McRae are the same contractors who have been awarded the contract for building canals, power houses, etc., at Shawingan Falls for the development of about 30,000 horse power, which will be larger than any single development in existence to-day. As already stated, it is the intention of the Shawingan Company to sell its power to manufacturers either at the falls or at the City of Three Rivers, seventeen miles away.

CANADA IRON FURNACE CO., LIMITED
Montreal, Radnor and Three Rivers

Manufacturers of the well-known

"C.I.F." Three Rivers Chareoal Pig Iron

Suitable for Car Wheels, Cylinders and Fine Castlugs, where the utmost strength is required.

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN OR AMERICAN CHARCOAL IRON.

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CANADA CHEMICAL MANUFACTURING CO.

— MANUFACTURERS OF —

Sulphuric, Nitric, and Muriatic Acids.—Commercial and Chemically Pure.

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Liquid Ammonia, Glauber Salts, Copperas, Muriate Tin, Tin Crystals, Acetic Acid, Nitrate Iron, Bisulphite Soda, Acid Phosphate for Baking Powders and General Chemicals, Fertilizers, etc.

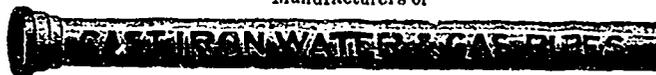
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SUPPLIES

W. A. FLEMING

THE INTERNATIONAL TROLLEY CROSSING AT NIAGARA FALLS.

The Niagara Falls Park & River Railway has the honor of operating the first international electric railroad between the United States and the Dominion of Canada. This notable line is run across the greatest steel arch bridge in the world, which spans the Niagara Gorge at Niagara Falls very close to the great cataract. The line has a double track, and the cars that are operated on the bridge connect at the Canadian end with the cars of the road running between Chippewa and Queenston, along the top of the high bank on the Canadian side of the river. On the bridge the centre pole system is employed and the cars speed across the structure every few minutes. Under the present arrangement the bridge tickets purchased by strangers allow them the use of the trolley cars; that is, they ride free if they so elect. Residents of Niagara Falls who pay ten cents for crossing the bridge are forced to pay an additional five cents to ride in the cars, making the price for crossing the bridge in the cars fifteen cents for both strangers and residents. The power for operating the cars on the bridge is supplied from the railway company's power station in Queen Victoria Free Park. This crossing of the steel arch by the cars of the Niagara Falls Park & River Railway places it in close business touch with the crowds of people in both of the great free parks at Niagara—the New York State reservation on the one side and the Queen Victoria Niagara Falls Free Park on the Canadian side. It is reasonable to suppose that all the people who go to Niagara sightseeing go to these beautiful parks, and therefore the advantages of the road for catching travel are extremely good. Then again, the New York State end of the line is right at Prospect Park, and its cars afford rapid transit between the free parks. The cars now run right up to the Riverway, a street within the limits of the New York State reservation. In time it is expected that connection will be made between the Niagara Falls Park & River Railway and some line on the New York State side, either the Niagara Falls & Suspension Bridge Railway Company or the Buffalo & Niagara Falls Railway, which could be accomplished by the construction of a few hundred feet of track up to Niagara street and across the Riverway to the tracks of the Niagara Falls Park & River Railway Company. The position of the New York State Reservation Commissioners has been always to oppose the construction of one foot of track on the reservation lands, but it seems likely that the present composition of the board might not oppose the granting of the right to cross straight over the Riverway, providing the Legislature didn't object.

This new steel arch is of more than passing interest, says O. E. Dunlop in The Electrical Engineer. The cliffs where it stands are 1,268 feet apart, and it is this space the arch occupies. The length of the main arch is 868 feet, and it is connected to the banks by two shore spans, one of which is 210 feet long, the other 190 feet. It is a single-deck bridge, having a width of forty-nine feet, twenty-three feet of the centre being given up to the trolley car tracks. On each side of the railway tracks are carriageways and walks, the latter slightly elevated above the floor of the bridge. The floor of the bridge is 192 feet above the surface of the water. The arch rests on

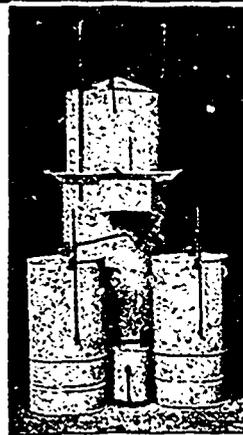
four abutments, two of which stand at the water's edge on both sides of the river and are sixty-seven feet apart. The Pencoyd Iron Works, of Philadelphia, built the bridge, which is the fourth structure erected on the site. The first bridge on the spot where the arch bridge now stands was built in 1868. It was of wood, and in 1887 '88 it was rebuilt in steel and made wider. On the night of January 9-10, 1889, this bridge was wrecked by wind. It was immediately rebuilt, and it is this latter structure that gave way to the new arch, which, as stated, is the largest in the world of its class.

ONTARIO CORUNDUM LANDS.

Explorations being carried on by Prof. Miller, in eastern part of the Province of Ontario, have shown that the corundum belt is considerably wider and longer than appeared from the explorations of last year. Two areas have been carefully examined this year, a small one in the townships of Bury and Methuan in the county of Peterboro, and another extending from Haliburton across Hastings into the county of Renfrew. The Government has decided to bring the whole belt under the provisions

of the regulations adopted in July last for the development of corundum lands, and accordingly the mineral rights on considerable additional tracts of land have been withdrawn from sale and placed under the provisions of these regulations.

Under these regulations the Lieutenant-Governor in Council has power to fix and determine the maximum price at which corundum taken from lands leased may be sold for use in the Dominion. There is also power to require that all corundum mined from lands leased under the terms and conditions of the regulations shall undergo certain processes of treatment or milling at works to be erected in the province to prepare it for market, and further to require that works be established in the province for the manufacture of all useful or commercial products for which the mineral or ore is economically adapted. Where tenders of a suitable character are made for the erection of works, preference in the selection of mineral lands may be given to the parties who will undertake to conduct mining and treating operations on the largest and completest scale, and who can furnish satisfactory assurance that they possess the requisite capital for the proposed operations.



The "SAFETY" ACETYLENE GAS MACHINE

THE MOST SIMPLE AND THE SAFEST MACHINE MADE. It does what other machines cannot do. It generates Gas Cool. It washes and purifies the Gas twice. Automatically removes the Ash from the Carbide. Leaves the Ash perfectly dry and thoroughly exhausted.

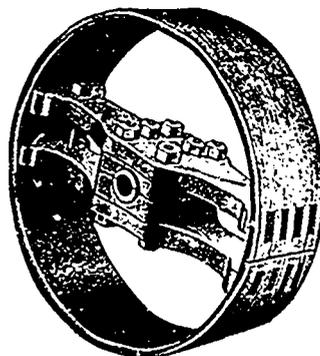
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Having recently sold our patterns and plant to the A. R. Williams Co., of Toronto, retaining only such machines as are useful in our business, we beg to say that we are rapidly putting in New Machinery, from new and improved designs, and are now in 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.
PLANERS—Standard, Crank, Plato, Etc.
DRILLS—Standard, Sensitive, Multiple, Radial, Etc.
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HAMMERS—Steam, Sandage Drop, Stiles Drop.
BULL-DOZERS for all purposes.
PUNCHES AND SHEARS for Plato, Angles, Channels, Gauges, Etc.
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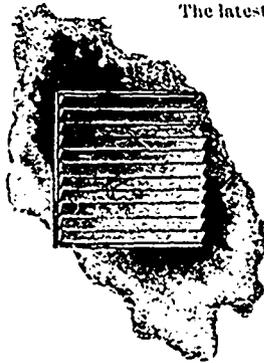
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and Specialties for Calico
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The latest device for

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dark rooms and
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By Daylight

For catalogue
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write to

**Luxfer Prism
Co'y, Limited.**

58 Yonge Street, - TORONTO.

THE ISOLATION OF THE FARM.

Statistics go to show that a large proportion of the insanity in this country is due to the isolation of farm life, just as no small portion is ascribed to the isolation of servants engaged in domestic employ, sitting in their lonely, bare kitchens. The farmer, however, is emerging from his loneliness and may presently be longing for it again. The trolley and the telephone have found him out, or rather, have found him at home. He is becoming a new creature. The future is the farmer's. He has hitched his wagon to a star and his ear to the thunder, and what he now misses of the world's movements is not worth having. It is sometimes argued that so far electricity has done nothing in the domain of agriculture, whereas the truth is that even at this early period of development it has affected few branches of industry more profoundly.

Anyhow, the telephone now hangs in every farmer's hall, and like the horn of the hunter, can be heard on every rural hill. We printed last week a characteristic statement from one of our readers who has lately been engaged in converting part of Ohio into a whispering gallery. He is not alone, however, in this enterprise. Reports of the same nature come from all over the land. Michigan is a typical example, and since one of the farmers near Grand Rapids put in an instrument and got first quotations from market his compeers all through the State have been inspired with a noble rage to patronize this improvement. We opine that their wives and daughters care less for quotations than for gossip and other humanities, and that these telephones meet many wants that are not filled by the price of bread alone. Hereafter solitary confinement on a farm ceases to be the penalty of rural life, and thus is presented another reason for expecting to see the redundant city roll back upon the country its myriads of workers, whose chief object in coming to town has been to get society.—Electrical Engineer.

THE MANUFACTURE OF ROLLER SKATES.

"The revival of roller skating," a leading manufacturer says, "was very apparent winter before last, and decidedly so last year, when I manufactured and sold more skates (shipping them to all parts of the country) than I had done for several years, and although it may seem quite early to make any estimates on business for the coming season, indications up to the present time are that there will be a more extensive demand for roller skates, greater activity in this trade, and a larger number of successful and profitable rinks running next winter than any time since 1883 and 1884. Many old rinks are being refitted and restocked with skates, and a number of new rinks are being built in different parts of the country. The Farwell Rink, in Milwaukee, has placed an order for 400 pairs of skates, to be fitted with ball-bearing wheels, and it is expected that 1,000 pairs of skates will be used in this rink before the season ends. It had quite a successful run last winter, and the expectations for the coming season are the very best. The manufacture and sale of roller skates is and will be quite large, and the amusement of roller skating is rapidly reviving, and promises again to become one of the most popular pastimes in the country."

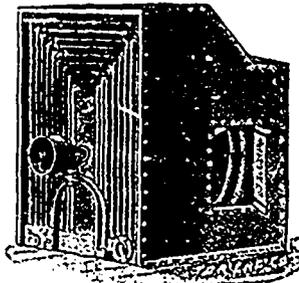
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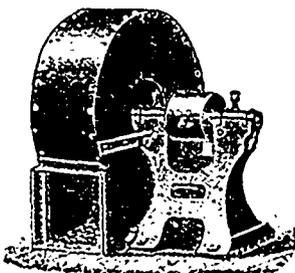


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Ventilating Fans for removal of Dust, Foul Air, etc.

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Fan.

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EFFECTIVELY LIGHTING A TEXTILE FACTORY.

It need hardly be pointed out that the question of effectively lighting a textile factory is a very important one, and for some years manufacturers have been going through a process of experimenting in order to ascertain what is the best form of artificial illuminant at present extant. It is desirable, where textile industries are carried on, that artificial illuminants should permit the true discernment of colors, and, moreover, should not be injurious to the eye or vitiate the atmosphere. Gas totally fails to fulfil any one of these requirements, and even the incandescent burner has done very little more to popularize gas lighting in factories. At the same time, notwithstanding the many defects of gas, electricity in mills and factories has not proved to be quite so satisfactory as one expected. It is true that arc lighting does not falsify colors and does not vitiate the atmosphere; but what has proved a distinct disadvantage in the arc lamp is the uneven distribution of light, and the necessity of frequently examining the lamp and changing the carbons. Inverted arc lamps have, to some extent, prevented the casting of heavy shadows, but such a system always demands a very white ceiling, which is not always obtainable. Recent experiments with the enclosed type of arc lamp tend to demonstrate that it possesses none of the drawbacks of the ordinary arc lamp, and it is probably the most effective means of lighting that can be at present used in textile factories. One of its chief advantages is that there is a better diffusion of light than is obtained with the ordinary type of arc; but what is of very great importance is that

it is not necessary to recarbon the lamps under 150 to 200 hours, and under many conditions, where artificial illumination is not used much during the summer months, it would only be necessary to recarbon the lamps once or twice a year. Experience with this type of lamp in the textile industry in America has proved to be very satisfactory in mill rooms where spooling, skeining, sorting, and other delicate work is carried on. Another advantage of the enclosed arc lamp not often dwelt upon is that there is no possibility of red hot pieces of carbon falling from the lamp on to work below, for the carbons are completely enclosed in a special form of globe, which not only gives the lamp its most distinctive features, but effectually prevents sparks fall-outside.—Power and Transmission.

HOW TACKS ARE MADE.

One of the first processes in the manufacture of tacks is that of pickling the Bessemer steel or best quality iron sheets. These sheets are about sixteen inches by thirty-six inches, or twenty inches by thirty-six inches in size, and quite thin. The pickling solution is of blue vitriol, which removes all foreign substances and renders the metal more pliable to work. A bath of hot lime thoroughly dries the sheets, which are next taken to the cutter, where carefully arranged steel knives cut them into any width desired, ranging from one-quarter inch to two inches. Each strip retains its original length. The strips now have jagged edges, but after going through a powerful machine the rough edges are removed, leaving a very smooth surface. The strips are now ready for the tack machine, the knives of which cut the strips

**The Pulsometer
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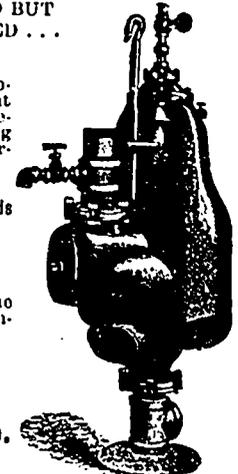
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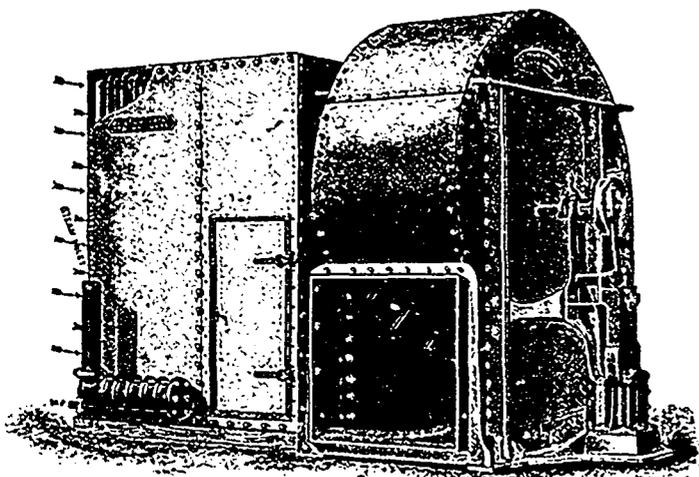
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into the thickness required. Each little piece of metal as it leaves the knives is forced into a two-sided groove that closes tightly and gives to the tack the point and corrugations which lend to its holding qualities. At the same time a hammer strikes the broad end of the tack, putting a head on it, and it then drops into a receptacle beneath. The tack is now complete, save placing it in a revolving barrel, or tumbler, which gives it a bright finish. Blued tacks are colored by heat, and tinned tacks, after being dipped in the metal, having been previously pickled, are riddled and sieved together in a circular drum to prevent their sticking together.

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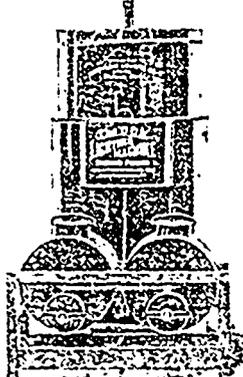


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Write for Catalogue.

THE
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LONDON, ONTARIO.

A NEW USE FOR WOOD PULP.

A composition is made by Brandon & Sons which is intended to take the place of both leather and India rubber. This is as it may be, but the process may be described in the meantime. While one set of workmen is mixing ordinary "India rubber solution," preferably containing a little sulphur, with dry powdered chalk, another set is drying and breaking up ordinary sulphate pulp. The pulp is then mixed with the India rubber mixture. The whole mass is then made into a sheet and exposed to a temperature of from ninety-three to 107 deg. C. The object of the chalk is to enable this heating to be made moderate. If chalk is not used a higher temperature must be employed to make the India rubber combine firmly with the pulp, and this higher temperature much diminishes the durability of the India rubber, and causes the resulting composition, although answering as well at first as that made with chalk, to rapidly disintegrate when exposed to the weather, and especially to the sun.

The volatile matters present having been evaporated, the leaf is passed between rollers to compact it, as it is left in a somewhat porous and spongy state. A little soot or lampblack should be added to the

chalk before incorporating that with the other ingredients.

The following are the recipes used:—

A. for India rubber: Lbs.

Dry sulphate pulp.....	100
India rubber solution.....	50
Chalk.....	50
Lampblack.....	5
Sulphur.....	5

B. For leather:

Dry sulphate pulp.....	120
India rubber solution.....	40
Chalk.....	30
Lampblack.....	5
Sulphur.....	5

—Invention.

PIANOS FOR SOUTH AFRICA.

There are two Morris pianos in the factory warehouses here which will be shipped to Grahamstown, South Africa. They are placed in special watertight cases to preserve them during the long sea voyage and are intended in the first place for exhibition at Grahamstown, and will afterwards be handled in the trade. The piano trade of South Africa has been largely confined to the smaller makes of instruments manufactured

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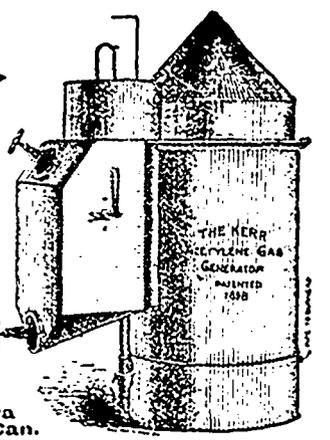
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The only perfect apparatus for the generation of Acetylene Gas from Calcium Carbide. Neat, Compact and Durable.

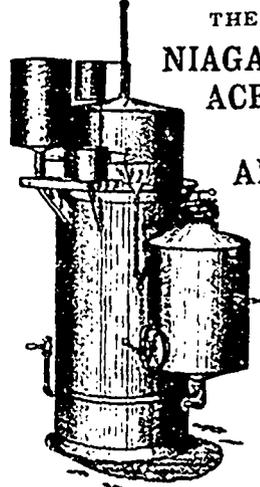
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No Valves or complicated Mechanism to mystify and confuse. No Copper, Brass, or other dangerous element used in its entire construction. Write us your requirements and obtain prices.

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300 in Use in the Dominion of Canada.
Address Communications to

Hamilton Acetylene Gas Machine Co., Limited,
71 York Street, HAMILTON.

in Europe. In all respects however, the pianos manufactured by the Morris, Field, Rogers Co., of Listowel, Ont., will be much more desirable instruments; in fact, it may be safely said, that the Morris company are not afraid to compete with any piano manufactured, either as to handsome appearance, musical quality, durability, or any other feature of a first-class piano. The favor with which these instruments are being received in all sections of Canada have encouraged the management to give these goods wider distribution. The capacity of the present staff is being taxed to keep up with the demand.

While the present shipment to South Africa is necessarily more or less in the way of experiment, it has been made after careful study of the conditions existing there, and with the assurance of opening up a successful trade.

The merits of the Listowel pianos are being more generally recognized in the trade than our citizens realize. The musical trade papers in the United States and Canada have of late contained many hearty complimentary notices of the "Morris," notices that have been earned purely and simply by the merits of the goods. The determination of the management to bend all their energies from the start, in placing on the market an article that in every regard is simply unsurpassed, and to have these goods sold at the closest price consistent with the quality aimed at, has been amply justified both by the large and increasing trade secured and by the position which the company has won for itself among the critical musical public.—Listowel, Ont., Banner.

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REFERENCES—The Union Bank of Australia, Limited, Wellington.

SOUTH AFRICAN EXHIBITION

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In order to avoid over-production in acetylene generators, in which the pressure of the gas lowers the water from the carbide, from moisture remaining after production should be stopped, it has been proposed in a communication to the French Society to steep the calcium carbide in hot concentrated solution of glucose. In the subsequent production of acetylene a sucrate of lime is formed by the action of the glucose, the calcium and the oxygen, which stops the generation almost immediately on the cessation of the water supply.

A strong company is being formed to manufacture pulp and carry on other industrial enterprises at Grand Falls, N.B., 220 miles above St. John city. The river St. John has at that place a sheer fall of some seventy feet, and the total fall, including the rapids below is over 100 feet. It is proposed to dig a big canal from the basin of the river above the falls, following what is supposed to be an old channel of the stream and reach the river again a short distance below the rapids. There will be an enormous water power, and the company, with which Senator Proctor, of the United States, is one of the principal stock holders, expect to carry on a large pulp making business. Other directors are James Manchester, formerly of the firm of Manchester, Robertson & Allison, who is devoting a large part of his capital in various industries, and George F. Baird, who in times past made a good deal of money out of shipping.

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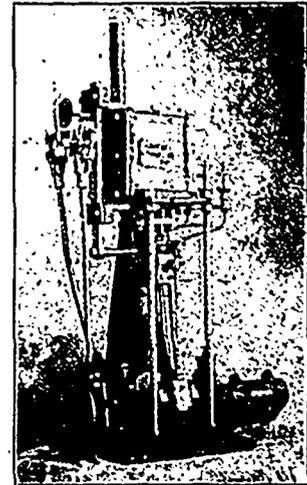
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Canadian Patent No. 53178, relating to apparatus for rapidly discharging cargo from vessels, whereby the necessity of shoveling grain, coal, etc., in small quantities is avoided. Apply to

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J. ALEX. CULVERWELL,

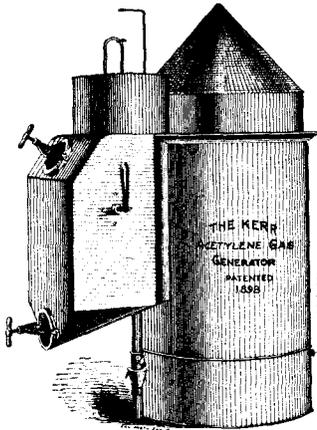
Electrical and Mechanical

BROKER,

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THE KERR ACETYLENE GAS GENERATOR.

The accompanying illustrations are of the Kerr acetylene gas generator, manufactured by the Kerr Acetylene Gas Generator Co.,



Niagara Falls, Ont., and of the burner used in giving the light.

By reference to the illustration it will be observed that the generator has two openings, one near the top for the reception of the carbide, the other near the bottom for the removal of the hydrated ash. The latter operation can readily be accomplished with the aid of an ordinary scuttle, the ash being removed in a dry condition without soiling the hands or clothing. The openings are easily opened and closed by hand, and made perfectly air-tight without the use of wrench or other tool. The reservoir for containing the supply of water is large and conveniently located on top of the generator.

The makers claim that their device for regulating and sprinkling water on the carbide is the acme of perfection, there being no stop cock, valve or other mechanical arrangement requiring power to operate, and liable to rust and stick; and in the construction of the entire machine absolutely no copper or copper alloy is used, as such is considered a dangerous element, strongly objected to by fire insurance underwriters.

Other advantages claimed for this machine are:—

Under no circumstances can the gas from the holder escape while the generator is opened for replenishing or cleaning.

The pressure of the gas, which is 1½ ounces per square inch, never varies.

The gas is delivered to the burners cold and in a perfectly dry condition, and therefore there is no condensation in the pipes and no clogging of the burners, as is the case when the gas enters the pipes while hot.

The apparatus is automatic in its operation, generating gas only as it is consumed. Gas beyond the capacity of the machine cannot be generated,

as the admission of water to the carbide is not dependent upon the pressure of the gas.

The Kerr generator is designed for use in private houses, offices, stores, churches, factories, and in all places where artificial light is required.

Every machine when shipped is in complete working order, and requires no setting up other than placing in position and making connections with the safety overflow and burner pipes, filling the holder with water and the generator with carbide. Where ordinary gas pipes and fixtures are already in use the only change in them necessary is to substitute the acetylene burners, shown in the illustration.

For stereopticon and photographic purposes the company manufacture a small portable generator, that can be readily carried about and set in operation; and rubber tubing can be used to connect it with movable fixtures. For photographic use, acetylene, it is claimed, is superior to electric or other artificial light.

Further information can be had by applying to the company.

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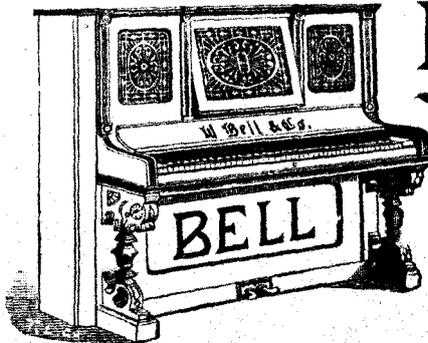
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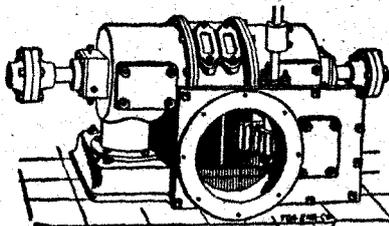
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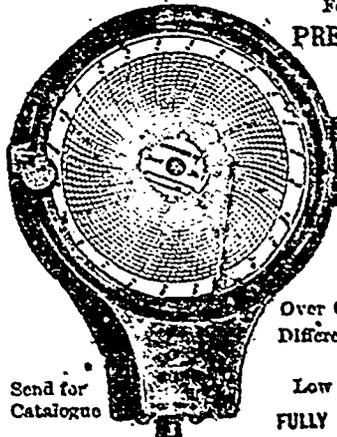
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