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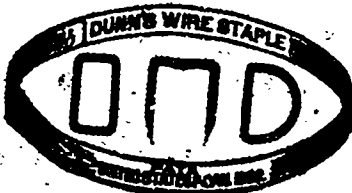
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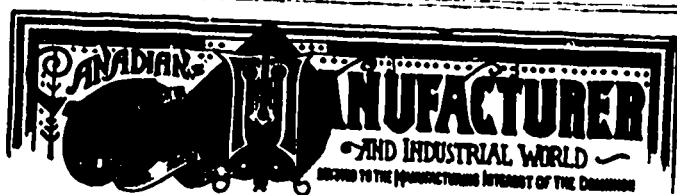


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THE TORONTO INDUSTRIAL EXHIBITION.

Considerable interest is already being shown in the approaching Great Fair of the Toronto Industrial Exhibition Association, which, as a matter of course, will eclipse any that have heretofore been held. The report of the Directors of the Association for 1893, which was made to the recent fifteenth annual meeting of the Association, shows the concern to be in most excellent condition. Regarding the Fair, which was held last September, it was feared by

many that the World's Columbian Exposition at Chicago, which was in progress from May till near the close of the year, would seriously interfere with the Toronto Fair. The time had arrived when it was imperatively necessary that a large amount of money should be expended in the erection of new stables, cattle sheds, etc., the formation of new roadways, the completion of the system of drainage, etc. With regard to the World's Fair, it was a pleasure and gratification to all concerned to observe that its effect upon the Toronto Fair was scarcely perceptible. It is true there was a slight diminution in the attendance of visitors over the previous year, which might possibly be attributed to the inducements of the Chicago attraction, but it was more probably due to the general depression in business then prevailing throughout the country. The exhibits in every department were fully up to the standard of previous years—in many they were much superior—notably in the mechanical and electrical departments. When it is remembered that most of the other large Fair Associations decided to forego the holding of their annual fairs in 1893 for fear of the detracting effects that the World's Fair might have upon them, it is a great satisfaction to know that in the face of such a remarkable competition Toronto's Great Fair was fully able to hold its own.

With regard to the improvements that were made to the buildings, grounds, etc., and the cost of them, the sum of \$150,000 which was voted by the ratepayers of Toronto in the previous year, was available for exhibition purposes only, and was only sufficient to complete the granolithic pavement for the grand stand, the erection of a large number of new cattle sheds, ticket boxes and entrance gates to the new grand stand, fitting up the large lunch rooms and the kitchens for them under the stand, the extension of the Carriage Building, etc. Other important buildings erected included twenty-one new stables, the enlargement of others, grain and forage barns, etc. All these improvements were carried to completion in time for the exhibition; and were the most important that had been made since the erection of the general buildings in 1878.

The report also states that the construction of a new floor in Machinery Hall, new foundations to the engine beds, and other repairs to that building cannot be delayed much longer, and should be done during the present year, if at all possible. The enlargement of the Main Building, and the erection of a new building for stoves are also questions which will have to be dealt with in the near future.

The profits of the Association each year are expended upon Capital Account, and are shown in the assets. These have steadily increased year by year since 1879, not one of the series having failed to produce a profit. At the end of 1879 the assets were valued at \$25,672, and in 1893, \$129,186.

The policy of the Association has always been to provide, as far as possible from the earnings, the absolutely necessary accommodation, without which the exhibition could not continue to keep ahead and up to the demands of exhibitors. So far has this been evidenced that generally the accommodation has been provided in advance, trusting to a liberal patronage on the part of visitors to make due reimbursement. Thus, while the Association gives the

country generally, as well as the City of Toronto, the advantage of a yearly exhibition, without calling upon the city for large sums annually to support it, and provide this amusement and accommodation, the money spent by the city is mostly used in the preparation of the grounds and maintenance of the same as one of the city parks.

We do not notice in the report any intimation that any further expenditures will be required to carry on or complete the plans for the agricultural features of the exhibition, and therefore we presume that all the large outlays for such purposes, and in connection with the Grand Stand, have been made; and that the attention of the management will now be directed to the necessities of exhibiting manufacturers. The report alludes to the necessity of placing a new floor, foundations, etc., in Machinery Hall. The fact is, as has been frequently shown in these pages, the building used for exhibiting iron and wood working machinery, etc., is old, dilapidated, badly arranged, and not at all suitable for the purpose, and should be abandoned and a new, large and properly constructed and arranged building substituted. The accommodations for this class of exhibits, particularly for machinery in motion, where processes of manufacture can be shown to advantage, have not kept pace with the requirements of manufacturers; and the deficiency of late years has become so accentuated that many manufacturers refrain from exhibiting who would otherwise make displays that would attract general attention. As long as the management considered that other interests were more imperative, and that the improvements herein alluded to must be the first made, and in the absence of sufficient funds wherewith to do the one and not to leave the other undone were not available; and because of a desire to make the annual Fairs of the Association grand successes, as they always have been, manufacturers contented themselves with such accommodations as were offered. But now that the requirements of about all other interests have been cared for; and in view of the fact that it is absolutely essential that some comprehensive and satisfactory accommodations be now made in the interest of the manufacturers, it is greatly to be hoped that the Association management take some of the leading manufacturers, who have or who may become exhibitors, into their confidence and councils, and agree upon and carry out some scheme that will result in exhibits at the Fair of machines and machinery that will illustrate what Canadian manufacturers are doing and can do. A conveniently located and properly built and arranged building for the display of machinery, particularly machinery in motion, would relieve the Main Building of some such exhibits which are now shown there simply because there is no other place where they can be shown to as good advantage. These remarks apply with more or less force to the buildings in which agricultural implements, stoves, etc., are usually located.

Year after year the results of the Toronto Fair have proven that the management of it is in the hands of the right men, and not only Toronto, but Ontario, and all Canada should appreciate the intelligent care and labor expended upon it, proving to the world, as it does, the high state of perfection to which all our varied industries have attained. Of course much of this success is due to

the good will and active co-operation of our manufacturers.

*IMPERIAL FEDERATION, THE PLANET SATURN,
AND MR. G. R. R. COCKBURN, M. P.*

The ninth annual meeting of the Imperial Federation League in Canada was held in Ottawa a few days ago. Mr. George R. R. Cockburn, M. P. for Centre Toronto, and other Conservative members of Parliament being numbered among the speakers. A circular from Sir John Lubbock, President of the London branch was submitted as a policy upon which the League might be reconstructed as follows:—

1. That in order to secure the permanent unity of the Empire some form of federation is essential.
2. That any scheme of Imperial Federation should combine on an equitable basis the resources of the Empire for the maintenance of common interests, and adequately provide for an organized defence of common rights.
3. That any scheme of Imperial Federation should embrace a commercial union, as necessary to its strength and permanence; and that such union should be based as nearly as practicable, upon free trade throughout the Empire.
4. That the establishment of periodical conferences of representatives of the self-governing communities of the Empire should be the first aim of the Imperial Federation League.

This occasioned considerable discussion, resulting in the amendment of clause 3 to read as follows:—

That any scheme of Imperial Federation should embrace a commercial union as necessary to its strength and permanence, that such union should be based as nearly as practicable upon freer trade throughout the Empire, and upon the imposition of a small extra duty on foreign imports, with few exceptions, to provide funds for Imperial defence.

In discussing this proposition of Sir John Lubbock, Mr. W. F. Maclean objected to the words free trade. He thought they had been inserted to accord with the views which had so often been expressed by Sir John, an avowed free trader. If these words were allowed to stand the resolution would drive Canadian protectionists out of the League who were otherwise in sympathy with the movement.

Mr. N. F. Davin's idea was to have commercial union between all the states of the Empire, but he thought that the kind of protection to be adopted in such an event, as to the rest of the world, should be a matter for future consideration between the parties.

Mr. McNeill thought that the word "free" might be misunderstood by Canadians. It might be thought that there was a weakening upon the part of Conservatives on the N. P. He was as strong an N. P. man as ever. He thought that the word "freer" should be substituted.

Col. O'Brien said that if Canadians were not prepared to offer to pay part of the expenses of the English navy they had better withdraw from the league. If Canada was not prepared to sacrifice the N. P., then her plain duty was to withdraw from the federation.

Mr. Haslam said that Canada was quite consistent in her position as a protectionist and federationist. Canada was for protection against the world outside the British Empire. As soon as all the states of the Empire adopted

the present resolution, then Canada would be prepared to throw down her barriers within the Empire and still remain protected as against foreigners.

Mr. Cockburn said that he would like to see absolute free trade between all parts of the Empire as against the rest of the world. This was the aspiration of Canadians, but this would entail protection as against all foreign nations. Canadians would like to see a tariff against all foreign nations, and free trade within the Empire. At present the English people did not want this system, but this was what Canadians hoped for. When such a system prevailed all parts of the Empire would pay proportionately towards the defence of the Empire. No movement that the world had ever seen had grown so rapidly and shown such results. He thought that a committee should go over to England to urge upon the London league the necessity of adopting imperial commercial union as a plank of their platform.

We reproduce these remarks not because of any value they may contain, but to show how visionary the speakers are, and how mischievous they might be if they had the opportunity. We have no fault to find with Imperial Federation—in fact we think it a good thing for certain purposes. The realization of it seems to be just about as far removed from the sphere of the practical Canadian politics of today as the planet Saturn is removed from this earth. The efforts of the federationists are like effervescent champagne—very pleasant to indulge in on certain occasions, and where made in moderation, does no harm. We live in no Utopian age, utilitarianism being a strong feature of Canadian life; and although no one could possibly object to any well digested scheme of Imperial federation, only visionaries imagine that it can be brought about, particularly under such a scheme as that suggested by Sir John Lubbock.

Our object then in introducing Mr. Cockburn in this connection is to call the attention of his constituents to the fact that whereas he was elected to represent them in the Dominion House of Commons upon the National Policy platform, and upon his vehement declaration that he was in favor of tariff protection through and through, he declares in this Imperial Federation meeting that he would like to see absolute free trade between all parts of the Empire as against the rest of the world. No doubt of it. This is not the first time Mr. Cockburn has thus declared himself, and we take him at his word. But we protest against and repudiate the idea that this is the aspiration of Canadians, or rather those who believe in the National Policy. Mr. Cockburn qualifies his free trade ideas, it is true, by saying that while they include all British possessions they exclude the rest of the world. But in this he is not in accord with his constituents or with protectionists generally. What difference would it make to a man if he were kicked to death by a mule or by a jackass? The result would be the same in either case. Canadians believe that protection is necessary to the industrial and manufacturing industries of the country, and that the way to preserve them is by the imposition of a protective tariff. Of course we cannot discriminate against any country or in favor of any country in operating this tariff; and the whole fabric would totter and fall if we were to do so. If for the sake

of Imperial federation, we should allow free trade with Britain, of what benefit would that federation be to us if all our manufacturing industries were swept out of existence, as they undoubtedly would be by British competition. Of what use would a tariff be as against the rest of the world if Britain were allowed free access to our market? Mr. Cockburn knows very well that Britain at this time is as far away from the adoption of a protective policy as Saturn is from the earth; and that Imperial Federation in all its glory can not induce her to change her fiscal policy; and so no objection can be made to Mr. Cockburn getting all the fun he can out of it; but what concerns his constituents is that he has declared himself an avowed free trader.

BICYCLES AND THE TARIFF.

A most ridiculous position taken on the tariff question is that of the Toronto World re bicycles. It alludes to the large and growing demand for bicycles, and tells us that the machines sold in Canada are for the most part of foreign make. It says, very correctly, that the demand for bicycles should be supplied from our own factories, but that this is practically impossible because the duty is only 30 per cent. The machines weigh from 20 to 30 pounds, and the cost from \$100 to \$150, or about \$5 per pound. The cost of the raw materials is but a small item involved in the making of a machine, the principal item of expense being skilled labor. We are also told that there is no reason why we cannot make as good bicycles in Toronto as in Coventry, and just about as cheap, but that the 30 per cent. duty allows the industry to develop too slowly, it being the duty of the Government to impose a duty of 100 per cent., which would be an object lesson in protection that would forever quiet the free trade theorists.

It is this sort of talk from protection theorists that does the cause of protection much harm. We admit the correctness of the World's statement that the cost of the materials entering into the construction of bicycles is but a small item of the expense, the principal item being skilled labor. It is therefore evident that the duty upon the material, if it must be imported, does not prevent the establishment and expansion of the industry, and the World should know, as any well informed person should know, that we are not at all deficient in the skilled labor that would be necessary in the business. There are thousands of expert workmen in Canada to-day entirely competent to manufacture bicycles. We have, then, the cheap materials and the skilled workmen, but, as the World shows, we do not have the bicycle factories. Why is it? Bicycles are a bulky article, and consequently freight rates upon them are comparatively high; and this fact of itself would be an important element of protection to a manufacturer, not to mention the 30 per cent. duty. In fact there is no part or feature of a bicycle that cannot be made in Canada quite as well as in Coventry or Boston, and about as cheaply, and if the protection now existing is not sufficient to stimulate the industry into enlarged activity, a duty of 100 per cent. or even 500 per cent. would not do it.

The fact is, while it is well-known that some bicycles made in Canada are first-class and satisfactory in every particular, those engaged in the manufacture of them do

not seem to entertain such business ideas, particularly as to advertising, as their British and American competitors do. This is very conspicuously to be seen by reference to the trade papers and magazines of those countries. There are numbers of such publications constantly coming to our editorial table in which page after page is occupied with the advertisements of makers of bicycles, while Canadian makers seem oblivious of any knowledge of the use of printer's ink. In this connection it is interesting to notice the manner in which foreign manufacturers push their goods in the Canadian market, and how the Canadian manufacturers do not do it. While the foreign article has to pay 30 per cent. duty before it can be exposed for sale, or \$30 upon a machine costing \$100, the agent who handles the goods understands that to sell them they must be advertised, and that liberally, which means that all the good features are discussed and their excellence made known, while the Canadian maker thinks he is doing wonders if he occupies a two inch space in an obscure corner of a newspaper, his idea being that his goods should sell themselves on their merits, and this is where he gets badly left.

The duty is high enough. The industry needs no more protection. If the manufacturer hopes to succeed he must advertise and let the world know that he is not a fossil or a mummy.

WHICH "RECKLESS GOVERNMENT?"

The Empire seeking a cause of war with the Ontario Government advances a suppositious case in which it is suggested that if Canadian lumbermen owned timber limits in Michigan, and that in each year they sent over camps of Canadian lumbermen to slash down the pine and tow the logs out of the state to be sawn in Canadian mills, it would not be long before laws would be made and applied putting a stop to such operations; that the State Legislature might be depended upon to put a stop to such operations, which aimed to transfer the lumbering industry to a foreign country. Having advanced this hypothetical argument, it tells us that the Ontario Government sells its timber limits and permits the timber to be carried away to be sawn in foreign mills. It says:

If the Ontario Government did their duty there would be no need for an export duty on logs, and the lumbering industry would be in the hands of our own people instead of in the hands of foreigners. All the Government have to do is to make it a condition at the sale of each limit that the lumber shall be manufactured in the province. They have steadily refused to do this, as it might have the effect of deterring American lumbermen from bidding, and as the Government are in a state of chronic poverty, and have more concern for the money than they have for the preservation of the public domain, they will not put any restrictions upon the sale. But after they have been driven out, as they should be, the public domain will be preserved, so that the profit of it will accrue to the people, and not go to enrich foreigners.

This teaching of a supposedly great, influential and intelligent daily newspaper, is the result either of excessive ignorance of the subject, or a deliberate desire to mislead and deceive for party purposes. In the first place if Canadian lumbermen owned timber limits in Michigan they would be entirely free to dispose of their logs in any manner that they might consider to their advantage, and it

would not lie within the power of the governments of either the State of Michigan, or the United States to prevent. They might raft their logs and tow them across the lake to Canadian mills for manufacture into lumber, and no law of Michigan could prevent—the owner could dispose of his property according to his own will without let or hindrance; and no law could be made by the United States Government which could prevent, simply because, unlike Canada, the constitution forbids the imposition of any duty upon exports. Who, then, could "put a stop to such operations?" Will The Empire explain by what process the legislature of the State of Michigan might be depended upon to put a stop to them? If these assertions are not made through dense ignorance, why does The Empire deliberately deceive its readers?

Unlike the United States, Canada has a constitutional right to impose an export duty upon any product of the country going out of it; but the Ontario Government have no such right. It may have a right to stipulate when selling its timber limits that the timber shall not be taken away in the form of logs, but as sawn lumber; but such a restriction could apply only to the timber standing upon public lands, and in no event to any other timber; and it is claimed by some that even such a restriction as The Empire proposes would be unconstitutional and could be abated by the courts. On the other hand, the Dominion Government have a right to impose an export duty, and in clamoring for the restriction to be made by the Ontario Government The Empire is simply barking up the wrong tree.

The Empire recognizes the necessity for an export duty upon saw logs, for it tells us that if the Ontario Government did their duty there would be no need for such a duty. But it is innocent of even an inclination to demand that the Dominion Government impose it; and this being the case it is clear that it is insincere in asking for it where there is no authority to grant, and in refraining to ask for it at the hands of the only power capable of granting it.

This is nothing more than political claptrap.

MINING MACHINERY AND THE MINING REVIEW.

In the issue of this journal of December 15 last, in an article having reference to Mining Machinery, we quoted the tariff law as it then stood and directed attention to the fact that it was ambiguous and indefinite, and that under the interpretation frequently put upon it by the Customs officers, more or less mining machinery was imported into Canada duty free, upon which, in our opinion, based upon what we considered the intention of the framers of the law, should have paid duty. We showed that the Customs officers in some districts held that the words "class or kind," included in the law, meant brand or name, instead of type or character, as was evidently intended. We also showed that the tendency of this ruling was to discourage Canadian manufacturers, and also to prevent foreign manufacturers from establishing branches of their works in Canada. We also showed that the mining associations of several of the provinces had taken active steps to obtain a positive ruling by the Customs Department in their favor. Our argument was that unless the Government could be

brought to see the injustice to the manufacturers involved in the matter, the result would be disastrous to them.

Following close upon the publication of this article, the Mining Review in its January issue, devoted four columns of editorial space to an exceedingly bitter and uncalled-for tirade of abuse, not only of the CANADIAN MANUFACTURER, but also of the Canadian manufacturers of mining machinery, in which these latter were spoken of as spoilt and petted, shortsighted and greedy; that they were manufacturers of antiquated and ill-adapted machinery for which exorbitant prices were charged; that they were feeble and rickety; that their productions were below the level of merit of the high class manufacturers of other countries, and a lot more of such stuff, and after mentioning in a disparaging manner the products of several well-known manufacturers of mining machinery, accused them and the others of shortsighted cupidity.

Of course these manufacturers did not fancy having to swallow such a drastic dose, and two of them, Messrs. F. A. Halsey and J. M. Jenckes, of Sherbrooke, wrote to the editor of the Review protesting against the false accusations contained in the article. This protest was printed in the February issue of the Review, which at the same time defended what it had previously said; and although it intimated that it might have something further to say in this matter, it never suggested that it was conscious that it had done a gross injustice to the manufacturers. Neither did it make any retraction in its March issue, nor yet in its April issue, but in the correspondence department of its May issue it published a letter, without date, signed by Messrs. S. W. Jenckes, for the Jenckes Machine Co.; E. W. Gilman, for the Ingersoll Rock Drill Co.; and F. A. Halsey, for the Canadian Rand Drill Co., all of Sherbrooke, Que.; Miller Bros. & Toms, of Montreal; H. S. Pell, for the Northey Manufacturing Co., Toronto; and John Bertram & Sons, of Dundas, Ont., in which these gentlemen allude to their inability to understand why the article in the CANADIAN MANUFACTURER should be made a pretext for a broadside attack upon them; that under the construction of the Mining Machinery Act they enjoyed no protection whatever, (as this journal had declared), and after quite a full discussion of the question, along the lines of the argument advanced in this journal, they requested the editor of the Mining Review, as patrons of his paper, to publish their remonstrance in his next issue, and with it a retraction of the reflections upon them and their products.

In our mind's eye we can see the happy smile radiating the countenance of the Mining Review in complying with this request—a smile springing from a cheerful heart and willing mind—willing to repair an injury with alacrity—cheerful in doing it without delay, and in a plain, truthful, straightforward manner. In a foot-note, in brackets, at the end of this very plainspoken demand for retraction, appears the following:

“We cheerfully give space to this letter. In justice to ourselves and in fairness to our correspondents it should be explained that during the illness of the editor, the article in question, which was intended to be published as a signed contribution from one of our mine managers, inadvertently found space among our editorial comments. As our readers are well aware, it is very far from the policy of the Review to publish anything that might be regarded as a

slur upon our Canadian manufacturers or their products, and we take pleasure in publishing this explanation together with an expression with our regrets at the unfortunate occurrence.—Editor.”

The circumstances would seem to justify the conclusion that this vigorous protest on the part of the manufacturers whose names are mentioned was written and presented soon after the publication of the Mining Review's venomous attack in January—such affairs usually receive prompt attention; and it is rather remarkable that, knowing the course the event was taking, no retraction was made in either the February, March or April issues of that journal, and not until May. The Review has resorted to some exceedingly unique tactics in attacking the CANADIAN MANUFACTURER.

INDUSTRIAL APPLICATIONS OF ELECTRICITY.

Canada has much to learn regarding the application of electric power to industrial pursuits, and many of our manufacturers will no doubt be interested in knowing of some such applications in France. Mr. C. W. Whiley, United States Consul at St. Etienne, France, in an official report to his government, says:—

St. Etienne may well be called a workingman's town. Fully three-fourths of its 133,000 inhabitants derive their support from the mine, the gun factory, the foundry and the loom. Of this large body of wage-earners by far the most intelligent are the weavers, numbering about 30,000. Of the 18,000 looms in St. Etienne, the greater number are owned by the individual weavers and worked by hand in their own homes. While it is apparent that the recent inventions for the transmission of power by electricity will shortly effect an alteration in the methods, it is not thought that it will change to any great extent, at least, the location of the work.

Until very recently the ribbon-weaver, laboring in his own home, could see no room for improvement in the mechanical execution of his work. From time immemorial the long bar had been worked by hand. Brought up to it from childhood, and inheriting the prejudices of his class, it was difficult to convince this member of an ancient guild that any advantage could be gained by the substitution of any other power for that of his own sinewy arm. Of late, however, his eyes have been open to the wonders of that subtle agent which is so rapidly transforming the mechanical work of the world, and to-day it is not a rare occurrence to find a humble weaver who can talk to you of dynamos and motors with the intelligence of a practical electrician. Already over 60 looms are being worked by electricity, the force being furnished by the Edison Electric Company. This company has for several years supplied the light to a large number of shops, hotels and saloons in the city, but more recently, with commendable enterprise, it has undertaken to furnish electric force to the numerous looms in the district. To this end it has established an elaborate electric plant on the river Loire, at the foot of a picturesque village, St. Victor-sur-Loire, situated about eight miles from St. Etienne. A waterfall of 900 horse-power sets in motion three turbines which transmit the electric force through four cables, seven millimeters in thickness, to its destination. As has been stated, over 60 looms are now

in operation, worked by electricity furnished by this company, and the director informs me that he anticipates a great increase in the number during the next six months.

Just now the ribbon business is extremely dull, but it is confidently expected that with the revival of trade every loom owner will wish to take advantage of this mechanical force. The actual expense under this system is 350 francs per loom, including dynamo, pulleys, belts, etc., all of which become the property of the weaver. An additional sum of 10 francs per month is charged for each loom. If the loom remains idle for more than a fortnight in any one month, a proportionate deduction is made by the company. A weaver who is the owner of two looms driven by electricity recently told me that by this agency he can turn out 25 per cent. more work than formerly.

The large ribbon factories of St. Etienne are, as a rule, worked by steam power. There is one factory, however, that of Messrs. Forest & Company, which is worked entirely by electricity. In this factory, which is of recent construction, there are 100 looms for the manufacture of the various styles of ribbons—silk, velvet, fancy ribbons, etc.—and a number of others for the making of plush. All these looms are worked by electricity, furnished by two powerful dynamos situated on the ground floor, and put in motion by a large steam engine. Each loom has its own accumulator, regulating the velocity according to the article manufactured, and when it is stopped the current is turned off, so that no waste of electric power is allowed. This saving of expense can be readily appreciated, as it is well known that the weaver, for one reason or another, has to stop his loom very frequently during the day.

This firm owns another factory in the country about 50 miles from St. Etienne, which is run on the same electric system, with this difference, the electric power is conveyed to the factory, a distance of eight miles, by means of overhead cables. The generators are worked by water.

So far Messrs. Forest and Company seem to be abundantly satisfied with their experiment. They claim that the advantages of the improvement are manifest, that the movement produced by electricity is more uniform and gentle than that obtained by steam, and that, while the cost of construction is not greater, there is more economy in the working and maintenance of electric machinery than under any other system.

In the neighborhood of Grenoble, in the department of the Isere, the application of electricity has had a marked effect upon its various industries. Electric bleaching of paper pulp is extensively resorted to in its paper mills. Near Grenoble at a place called Lancey, there is a paper factory worked entirely by electricity. The current, feeding a motor of 200 horse-power, is transmitted from a dynamo located five miles up the river. The largest aluminium manufactory in France, producing 200 kilograms a day, is also located near Grenoble. The Societe Electrometallurgique Francaise have in course of construction at La Praz, in the adjoining department of the Savoie, a factory which will produce 1,000 kilograms a day, and it is believed that its capacity will be increased to 10,000 kilograms. A copper refining manufactory, that of M. Grammont, has been in operation for some years in the department of Isere; these works turn out 1,500 kilograms of wire daily.

THE EXPORT DUTY ON SAW LOGS.

Mr. William Little, in a letter to the Chicago Timberman, calls attention to the fact that Mr. Wealock, Congressional Representative from Bay City, Mich., speaking in Congress as to the effect of the lumber duties on the imports from Canada said: There is brought into my state annually, for manufacture, probably 500,000,000 feet of Canadian timber. It is owned by Americans; it is lumbered by Americans; it is towed over the lakes by American tugs, manned by Americans; it is cut up by American mills." Mr. Little adds to this his own testimony when he says to the people of Michigan that "five of your principal lumbering towns, Bay City, Saginaw, Tawas, Alpena and Cheboygan, are said to be living on Canadian timber."

As a companion picture to these the Montreal Star quotes from its Ottawa telegrams summarising the complaint of a deputation from the Georgian Bay district which had been there to persuade the Government to reimpose the export duty on logs:

"They pointed out that last year five hundred million feet of logs were taken from Canada to the United States mills, and that Canadian saw-mills were, as a result, standing idle, six saw-mills in Midland alone having nothing to do."

Commenting upon which The Star says that if the Government think it expedient to foster the Canadian sawmill industry, they will reimpose the export duty on saw logs until the Americans cease to discriminate against lumber sawn in Canada. As the affair now stands, an American can buy a Canadian "limit," cut his timber, tow his logs across the lakes, saw them in the United States, and thus escape all duties. While if a Canadian saws his logs up here, he must pay a heavy lumber duty when he takes his product into the United States. This is an admirable arrangement for driving our whole saw-mill industry into the hands of the Americans.

If the Government intend to come to the rescue of this "home industry," the present is a capital time. Very soon the rafts of Canadian logs will begin to be towed past our silent saw-mills, to give work to American laborers employed by American mills. A prompt reimposition of the duty will save the whole season's output. Should the Americans meet the reimposition of the duty by offering to trade us "free lumber" for "free logs" again, it will be very easy to arrange to reimburse those who had paid the export duty, if it were thought desirable to do so.

The way things stand to-day, it is not surprising that the Americans hesitate to give us free lumber. They have nothing to gain by it, save the advantage of getting our lumber free—an advantage that their immense saw-mills interests fail to appreciate. Their mills get free raw material from us, and are protected from the product of our mills. From a saw-mill standpoint, free lumber is simply giving away that protection for nothing. But suppose we had an export duty on logs to exactly offset their import duty on lumber, then our saw mills would compete on even terms with theirs; and the mills of the Northern States would be eager to trade free lumber for free logs and thus keep down the price of their raw material. Thus our export duty on logs would assure us either free lumber or its equivalent—even competition with American mills in their

own market. The key to the whole situation is, of course, our practical monopoly of the raw material; and it must be a very stupid arrangement which prevents us—with this power in our hands—from getting at least equal access with other manufacturers to the markets of the continent.

EDITORIAL NOTES.

The military tailors are constantly complaining at the amount of clothing imported by and for the use of the officers of the Canadian militia. The latter, on the other hand, protest that they cannot have their fine work as well done in Canada as in England. They say they would rather pay the slight extra expense for the style and the fit. The English firms send their agents out every year, and they obtain the measures of the officers, and as the goods are allowed to enter free of duty, they naturally do a large trade. There is certainly something wrong. The Canadian tailor can obtain as good cloth, trimmings and fittings as the old country tailor, and if they cannot manage the "fit and style" part of the business, they need only import a good cutter from the already overcrowded English outfitters. If it could be shown that a garment can be turned out in Canada as satisfactory as the foreign article, the duty should be placed on all such goods, and only those admitted free for the use of the force that cannot be manufactured in this country.

In the opinion of *The World*, we should allow the dead National Policy to rest and take up some such project as the federation of the colonies or the deepening of the St. Lawrence canals. No one will refrain more religiously than *The Globe* from disturbing the tomb of the famous policy once it is laid to rest. But it is by no means dead yet, and we must continue our work until that consummation shall be achieved.—*Toronto Globe*.

Sure enough, the National Policy is by no means dead; and however much *The Globe* may desire to attend the funeral, though it should live to the age of Methuselah, it will never enjoy that event. The N.P. is a very live issue and will always be as long as Canadians stand true to their best interests.

A company in London, Eng., are constructing a wheel suggested by the famous Ferris wheel of the World's Fair. Engravings and a description of this wheel appear in *The Engineer*. The wheel is to be 300 feet in diameter, that is, fifty feet larger than the Ferris wheel. It is being built from designs by Lieutenant J. W. Graydon. The wheel is being erected at Earl's Court, and it is expected to have it working by the end of June. This wheel will be carried on two towers 175 feet high, which will have on top and at three intermediate stages of their height, galleries and balconies to be used for restaurants and various amusements. The towers are connected by a passage through the axle itself. The axle will be 7 feet in diameter and be built of mild steel bars and plates. The axle of the Ferris wheel, it will be remembered, was a solid steel forging 32 inches in diameter. The Ferris wheel was driven by a cast iron spur rack near the circumference, actuated by a chain driven by a steam engine. The "Gigantic"

wheel will be driven by a steel wire hawser, 1 7-8 inches in diameter. There will be one hawser on each side of the wheel, passing around grooves on the sides of the wheel where it is 195 feet in diameter, but it is proposed to use but one hawser at a time. The motive power will be from two 50 horse-power dynamos, one of which will be held in reserve. The towers stand in ground of sand and shingle, and the foundations will be of concrete 15 feet deep. Each leg will be anchored to the concrete foundation by eight steel bolts 2 1-4 inches in diameter and 12 feet long. There will be 40 cars each 25 feet long, 15 feet wide, and 10 feet high, accommodating 40 passengers. There will be eight stages from which they can be entered.

We recently took occasion to make editorial mention regarding the rapid and satisfactory growth of the tin plate industry in the United States, calling attention to the fact that tin plate manufactured entirely of American iron and steel, by the New Castle Steel and Tin Plate Company, of New Castle, Penn., had been tested in the works of the Kemp Manufacturing Company, Toronto, and proven to be the equal of any tin plate made in Wales. Our article was very flatteringly received in the United States, many of the trade and other journals there reproducing it entire; and we are in receipt of a letter from the New Castle company, who, after some gracious personalities make some statements which are of interest to Canadians. They tell us:—"We believe American mechanics can make any thing that is made anywhere in the world when they set about doing so. The only disadvantage under which we labor in making tin plates is the difference in the wages paid to labor between the United States and Wales. We are pleased to pay our workmen the wages they earn in this country under a protective tariff. It is the workmen of the country who have made the United States the leading nation of the world. We have this to say, that what has been done in the United States in the way of making tin plates can be accomplished by our Canadian cousins if they had a protective tariff that would enable them to pay the difference in wages as against those paid in Wales." We are informed that our article herein referred to has been copied in the form of a circular and sent to members of the United States Congress in the hope that it would have the effect of preventing the reduction of the tariff on tin plates as is now contemplated. Hundreds of thousands of dollars worth of tin plates are imported into Canada every year, but never a pound of the article was ever manufactured in the country, and never will be as long as no duty is imposed upon it. It may be when our iron industry is more fully developed, and when we have suitable establishments for providing fine qualities of black sheets, and the industry is brought within the protection of the National Policy, that we may make tin plates the same as our American friends are now doing, but this will certainly not be until then.

A number of the piers of the fine new bridge at Omaha, Neb., rest on piles which were sunk by the water jet process. The piles were 70 feet long and from 16 to 24 inches in diameter. They were first lifted into a vertical position, directly over the place where they were to be sunk, by means of a square framework, 80 feet high, resting on the

ice. In a shed at the base of this scaffolding was a wind-
ing engine, boiler and pumps, the latter made especially
for this work. After a pile had been lifted as mentioned,
a 2½-inch iron pipe was placed on each side of it, and con-
nected at the top with the pump by means of hose. These
pipes curved under the lower end of the pile and were low-
ered with it. The material to be penetrated consisted of
50 feet of sand, silt and pockets of gravel and clay. When
the pile was lowered the pipes sank with it, and as water
was constantly being pumped out of their lower ends a
hole was washed in the earth in this manner, into which
the pile settled easily as a rule, but few light blows of the
hammer on its top being required. Where stiff material
was encountered the pile was drawn up several feet, the
pump running all the time, and then lowered again. Two
or three repetitions of this operation generally penetrated
the hardest material. The best results were obtained by
pulling up the pile, giving the water full pressure and not
allowing the pile to sink too fast. When no hard materi-
al was encountered, the 50 feet would be penetrated in
from four to six minutes, and when the pile had to be
pulled up eight minutes was the average time. After it
was in position, the iron pipes were pulled up and the
scaffolding moved along to the next point where a pile
was needed, the weight of the entire apparatus moved
being about 60,000 pounds.

Following the capture of the Dunkirk, N. Y., fishing
tug Grace, the news that two small American steamers had
been seized near Kelly's Island, Lake Erie, by the Cana-
dian patrol vessel Petrel because their crews and passen-
gers were fishing for black bass, gave daily papers a
chance to exhibit some flaring patriotism and indulge in a
warfare craze on paper. The ripple having subsided, it is
but just to state that the seizures were made in waters
wholly under the jurisdiction of Canada for violation of the
Canadian fishing law. By the treaty of Ghent, the middle
of Lake Erie was declared to be the boundary line between
United States and British possessions, and exclusive
jurisdiction over the waters south of the dividing line was
given to this country and over the waters north of the line
to Canada. Therefore, it is clear that the Canadian gov-
ernment has full authority to make laws governing fishing
in that territory. The estimated value of the two boats is
\$35,000, and they are subject to confiscation, though it is
to be hoped that a nominal fine will satisfy all demands
pressed by the Dominion authorities.—Cleveland, O.,
Marine Record.

A telegram from Philadelphia says that the railway
companies there are exercised over the inroads which the
various electric lines are making. The Reading, which is
threatened with competition on one of its most important
suburban branches, has arranged to quicken its train serv-
ice and to improve it in other ways.

If anything were needed to impress workingmen with
the injurious effects of a strike, not upon the capitalists,
but upon themselves, they would find it in the conditions
which has been the outcome of the coal miners' strike in
the States. When the miners quit work, there were sup-
plies of coal on hand to meet immediate wants, but as the
strike was continued, negotiations for a settlement having

failed, the supplies ran short, and in consequence steamers
on the lakes and railways suffered severely. Many steam-
ers are tied up at lake ports for lack of fuel, and the rail-
ways have been compelled to cancel trains, throwing great
numbers of men out of employment. This is the reason
given for the dismissal of a great many hands from the
Grand Trunk at Montreal and elsewhere. In the mean-
time the mine owners live at their ease, and such dealers as
have large supplies on hand are reaping a harvest. The
only ones who suffer are workingmen. It was the same
war in England during the great mining strike there last
year, and the American miners should have derived a les-
son from that event. The labor organizations should
make an effort to settle the difficulty, even if the miners
have to resume at the old wages. There is no prospect
of their success in the struggle, and if it be prolonged,
thousands of workingmen throughout the country must
suffer. A more unpromising season for a strike could not
have been chosen. At any time a strike is unwise, and
more injurious to the strikers than any one else, but a
strike now, when the whole republic is struggling under a
financial depression, the most disastrous in its history,
seems particularly shortsighted and foolish.—The Empire.

The late George William Curtis once said that an engine
of one horsepower running all the time was more effective
than one of forty horsepower standing idle.

Says Col. Robert Ingersoll, "I want to see this country
so that if a deluge sweeps every other nation from the face
of the globe we would have all we want made right here
by our own factories, by American brain and hand."

One of the latest developments of foreign competition
in Birmingham is the importation of French and German
rolled metal. Foreign made brass and copper wire is no
novelty in the English market, but it is only very recently
that French and German metal rollers have attempted to
compete with us in this country in sheets.—Ironmonger.

Great Britain has her foreign rivals for the bicycle trade.
The other day the first consignment of finished bicycles,
from Nuremberg, Bavaria, was received in Birmingham.
They were of the safety type, with pneumatic tires, and all
the latest improvements, and sold at a price which, con-
sidering the quality and finish of the articles, no maker in
Coventry or Birmingham could compete with. The low
rate of skilled labor in Bavaria, says the Birmingham
Journal, as compared with that ruling in Great Britain, is
the explanation, but the fact is ominous notwithstanding.
By which it will be seen that the British workman, who
enjoys (?) all the benefits of free trade, is being crowded
out of his job.

The establishment of the manufacture of binder twine
in the Central Prison by the Ontario Government is the
one sin that the protectionist newspapers will not pardon.
Its other acts are merely theoretical, but in manufactur-
ing twine the Government aimed a direct blow at the com-
bine's pockets, and its newspapers have accordingly been
particularly savage in regard thereto. Mr. Clancy may
not have known it, but he was playing the game of the
cordage combine during the greater part of last session.
The closing up of the Central Prison industry would be
worth thousands of dollars to it.—Toronto Globe.

In the elegant language of The Globe, the consumers of
binder twine pay through the nose for the so-called cheap
article produced at Central Prison. This prison industry

cannot be a success when, even with prison labor that cost comparatively nothing, during last season it showed a deficit of thousands of dollars, which the tax payers, including the farmers, will have to make good.

We know the cost of our Provincial Governments, but can only guess at the cost of the Dominion Government. The taxation levied on us by the encouraged industry owners is not entered in any official record. On the one item of binder twine they taxed the farmers of Ontario 25 per cent. until a Liberal agitation secured a reduction of the rate to 12½ per cent.—Toronto Globe.

A "Liberal agitation" secured a reduction of duty on binder twine and thereby delivered a fatal blow to that part of the flax industry dependent upon the binder twine industry. The intimation that the farmers were wholly dependent upon the Consumers' Cordage Company for their supplies of binder twine is false and misleading, for hundreds of tons of such twine were made in Canada from Canadian grown flax, the production of which gave remunerative employment to large numbers of Canadians who are now out of that employment. A "Liberal agitation" also led to the establishment of a binder twine factory within the walls of Central Prison, and though it is a most dismal financial failure, it deprives large numbers of free Canadians of the means they formerly enjoyed of earning their living.

The Textile Mercury, published in Manchester, England, has never shown any special leaning towards protection, but it keenly appreciates the fact that protection in other countries, and the home fiscal policy that requires all revenue to be raised by local taxation have become entirely too burdensome for some of the manufacturers in Great Britain to bear. In a recent issue it announced as follows:—

The failure was announced yesterday of the firm of Kinmond, Luke & Co., jute spinners and manufacturers, Pleasance Works, Dundee, and Ericht Linen Works, Blairgowrie. The liabilities, it is feared, will be large. About 800 workers are employed by the firm in Dundee, and about 300 in Blairgowrie. This is the largest failure of a manufacturing firm that has taken place in the trade for many years. A principal partner is Lord Dean, of Guild Luke, a much-respected gentleman, for whom the greatest sympathy is expressed on all hands.

Regarding which it says:

Yet the textile industries of the country are to be harassed by additional legislation, and burdened by increased taxation. By the above stoppage it is not improbable that at least 2,500 people will be deprived of the means of subsistence, and many more will be adversely affected. The savings, if there are any, will soon be eaten up, and Dundee, a leading centre of the textile industries, will of course be called upon to contribute largely to its support, the millowners, as the largest ratepayers, paying most heavily, while their circumstances are in many cases only one remove above those which have led to this stoppage. We would ask Sir Isaac Holden whether this will be a case of local taxation of the poor more heavily than of the rich? It looks very much other wise to us.

It is understood that the Metropolitan Telegraph and Telephone Co. of New York, are about to introduce a new system of telephone tolls, somewhat similar to that which has been in use at Buffalo, and which is in Europe, we be-

lieve, known generally as the Swiss system. The company proposes to maintain the present rate of \$240 per annum for unlimited service with the best apparatus, but it annexes to this flat rate service, a toll scheme which will certainly be more equitable to small users and give everybody who needs the telephone a chance to install it. This second scale includes instruments at \$150 a year, and the subscribers can have 1,000 talks for that amount. If he exceeds that number the first 100 will cost him \$12, and so on. Besides this, if two men go on one line, the rate on the second scale will only be \$100 each for nearly the same amount of service, or 700 messages. Such is the broad plan, to take immediate effect on all new contracts and it will be very interesting to see how it works out. There seems no reason to apprehend anything but success. Probably the public appreciation of the toll stations has had a good deal to do with the adoption of this plan, which it should not conflict with but supplement. We expect to see, in reality, a further rapid extension of the pay station service.—Electrical Engineer.

The Gould family are about to leave New York to escape the personalty tax. When any line of business becomes unpopular, as that of the importer, the liquor dealer and the pedlar, it becomes an easy prey for the levier of taxes. And owing to the unpopularity of the late Jay Gould, New York City is enforcing the personalty tax against the family, a thing never done toward any other wealthy family. Like the income tax, the personalty tax is often evaded by concealment or by a change of residence. The Gould family will adopt the latter expedient.—Toronto Globe.

And yet the Globe wants Canada to abandon the protective system, by which revenues are raised chiefly upon imports of foreign merchandise, and adopt the free trade system, by which revenues are raised by personalty tax.

A large jute factory, fitted with the best English-made machinery, will be opened at Orizaba in the course of a few months, writes the British Consul at Vera Cruz. Attempts to grow jute in the country have so far not been successful, and the use of other fibre in its place is still an experiment. Thus the raw material from India will have to be used, and jute goods will be manufactured at a greater cost than for which they could be imported. These conditions debar competition, but it is to be feared that recourse will be had to protection, and that heavy duties will be imposed on importations of jute goods.—Manchester, Eng., Textile Mercury.

And thus the free trade British manufacturer weeps at seeing another market slipping away from him through the operation of protection. But if the Mexicans prefer to build up the industry in their own country, even by manufacturing jute goods at a greater cost than what they could be imported for, it is their own business, and they are to be commended for what they are doing.

In Germany the number of steam engines employed for driving dynamos in 1891 was 794, of a total power of 39,610 horse power. In 1892 this number had increased to 944 engines, of 52,292 horse power; and in 1893 to 1,218 engines, of 66,528 horse power. Of this total 48,692 horse power was used for operating dynamos for the production of current for lighting purposes; 1,286 horse power for the transmission of power, the remainder being employed for a variety of purposes.

A Russian scientist advances the theory that natural gas is the product of salt water, which is found in that locality from 1,200 to 1,500 ft. below the surface of the earth, coming in contact with the molten carbides in the earth's interior. It is reported that he has partially proved the correctness of this theory by subjecting the salt water to the conditions and producing a gas which could not be distinguished from the natural article. If this theory is true the supply of natural gas is not likely to become exhausted soon.

Judge Thomas M. Cooley, one of the ablest constitutional lawyers in the United States, delivered an address before the University students at Ann Arbor, Mich., a few days ago, selecting as his subject "Free Institutions," in which he discussed the Coxe movement from a constitutional standpoint. In the course of his remarks Judge Cooley said: "Our Government is representative and not a true democracy, because it is, first, on too large a scale to be a pure democracy, and secondly, because from the foundation of our Government people have depended on their representatives. From the earliest day the chief duty of the citizen was to vote for some representative, and when this was done he ceased, almost entirely, to be a unit in political power. If a large class of people became dissatisfied with the manner of conducting the government, what then? Suppose 10,000 in every State, making an army of 440,000, should arise to appeal to Congress, and should march on to Washington to demand a fixed rate of wages, or eight hours as a day's work, and that the unemployed should be employed by the Government in improving the common roads of the country. They start out voicing their demands in the name of the people, while they constitute a very small fraction of the whole people. When we examine our form of government to see what gives them the right to make these demands we find that the authority of the citizen is limited to the election of representatives. The army, so called, has no power to coerce one single representative at the seat of government, and so far as constitutional power is concerned the representative may determine alone how he shall act. The petitioner cannot go to Congress with his petition. The petition must be presented by the representatives themselves. Among the enumerated powers there is not one that covers this subject. When they ask the Federal Government to make roads they ask something beyond the pale of Federal authority. It is the State that makes the roads. In every case where Federal authority has been called in for like purposes, some claim was put forward claiming that what was proposed was to carry some Federal authority. Suppose what was demanded was purely national, like the coining of money, even then this demand from without would have no binding force. When there is an attempt to compel the exercise of Government power otherwise than as provided in the constitution, it is a direct attack on liberty itself. The people could not make the laws even if the legislative authorities would attempt to turn over legislative machinery to the people. To attempt to subvert the recognized authorities and their power is a step toward the overthrow of our Government, and one step toward revolution. What is taking place now may

be forced, but it seems to me that it may end in civil war."

An earnest protectionist disciple and editor has in his zeal been searching the Scriptures for arguments in favor of the principles he advocates, and has gleaned support in chapter seventeen, Gospel of Matthew, which, commencing at verse 24, reads:

And when they were come to Capernaum, they that received tribute money came unto Peter and said, Doth not your Master pay tribute?

He saith, Yes. And when he was come into the house, Jesus prevented him, saying, What thinkest thou, Simon? of whom do the kings of the earth take custom or tribute? of their own children or of strangers?

Peter saith unto him, Of strangers.

Jesus saith unto him, Then are the children free.

The Empire closes an article on the depletion of our forests to feed American mills with this statement:

"The duty of the Ottawa Government is plain. The lumbering industry should be protected, and the export duty on logs should be restored."

Now, The Empire is not recklessly fond of trying to lead the Ottawa Government; but, in this case, the complaint of the saw-mill industry is so loud that even the echo cries out before its principal has spoken. The Government must certainly have an invincible defence ready, if—with all its Protection—it declines to protect the Canadian saw mill.—*Montreal Star*.

If our Montreal contemporary can induce The Empire to express an opinion as to whether the Dominion Government should impose an export duty upon saw logs, it will achieve wonders. That is, until it has been instructed to do so. At present it is making its fight against the Ontario Government, well knowing that only the Dominion Government can impose such a duty.

An American wood-working industry of no inconsiderable importance is the manufacture of wooden skewers, such as are used for binding meats together. This manufacture in the United States represents a total value of \$2,000,000 annually. The home trade consumes \$500,000 worth a year, and the foreign takes the remaining \$1,500,000. The manufacturers of skewers have given the world an example of a complete, systematic, flawless and impregnable "trust," or combination. They have pooled their business plants, bought up all the important complex machines for making skewers, turned out a good line of wares, sold them at fair prices, abolished competition, made money, and held their ground against all outside men and firms. Not only have they got hold of the home trade, but they have also sent abroad such excellent skewers that foreigners have not been able to compete with them. Several months ago some English capitalists came to the United States to study the American skewer machines, and they were frightened out of the field by the complexity of the machines, acknowledging that they could not use them, even if permitted to do so by the owners of the patents covering them.

The makers now dry their skewers in order to prevent moulding. The American combination has used up the supply of hickory wood in Ohio, Indiana and other States, and now they propose to locate their main factory in West

Virginia, where they can secure large supplies of hickory, which is the only wood that is perfectly satisfactory in this article. The principal foreign customers of the combination are France, Germany and Italy.

The great cheapness of woven leather belts is what will boom them when ready for the market. The yarn is made from old shoes, etc. After soaking a day or two the old shoe pulp is put into a tank of a machine which reduces it to a thread. In it is the principle of the ordinary spinning mule in practice. There is a wheel around which runs a belt which is turned by a cylinder, the latter revolving about 400 times per minute, and turning the spindle about 4,200 times a minute. There is a tank containing the leather pulp. An automatic faucet governs the supply of pulp which runs slowly in between rollers where it is rubbed and compressed and then goes forward between the guide rollers then out on to the bobbin. The revolutions of the spindle twist the strand firmly, then wind it around the bobbin just as is done in the spinning of common cotton or woolen yarns. The yarns spun and then comes weaving. Carpet looms are used and hence this may open up a new avenue for the use of carpet looms. A three-ply weave is employed.—London Invention.

Discussing the value of the home market, the Social Economist, of New York, which argues that it is easier to expand the home market by improving the workman's purchasing power and developing his wants, than to secure an equal gain by competition abroad, says:

There appears to be a growing tendency among public speakers and writers to assume that industrial expansion must all be sought in the acquisition of foreign markets. This struggle for the capture of foreign markets consists, not so much in creating new markets, or even expanding existing markets, as in capturing them from others. Those markets are the most susceptible of expansion and actual increase where the existing standard of living is highest, because the diversification of social tastes, and demand for entirely new classes of products are greatest. All such increased demand is a net gain to the actual market of the world, and hence their acquisition for development does not dispossess other producers. The greatest opportunities in the world, therefore, for larger markets lie in the expansion of our home-demands, and not in the capturing of the more meagre markets of other countries. A ten per cent. increased purchasing-power of the American people could be more easily accomplished than any like increase of markets by the barbaric method of capturing them from others. Moreover, every advance so accomplished involves an actual improvement in the social life of the masses, commensurate with the expansion of industrial opportunities for the capitalist classes.

The chief reason the masses of mankind get so little is because they require and demand so little. The first requisite for fitting them to be better consumers of goods is to stimulate their desire for more up to the point where it shall become lively enough to push them into an active movement to get more. What we need, then, as the first condition of increasing our markets satisfactorily, is that the least and lesser consuming portions of our population should be stimulated to enlarge the circle of their wants. This is the first step toward rendering them valuable as purchasers. All influence which produces the effect of widening the horizon of desires and wants tends to benefit unspeakable. No foreign trade whatever can equal the consumption and resources of a home-market fostered

and extended as this might be. This is the national high-road to general and continuous prosperity. It is the road which must be taken because there is no other.

The Minister of Finance has lately been sitting at the feet of W.F. Maclean, M.P., the High Priest of Protection, imbibing wisdom; hence the latest revision. Mr. Maclean expressed his gratification at the aptness of his pupil in these terms in a speech in Parliament:

"I contend, and protectionists contend, that the manufacturer is a much superior citizen to the importer, and that it is necessary in the interest of the manufacturer to have a specific duty, as against an ad valorem duty, in favor of the importer. Protectionists generally, and especially a protectionist Government as we have in this country, are bound to maintain the specific duties. When the Government goes back to the country it will be a source of satisfaction to the protectionists to know that specific duties are to be maintained, and that there is not likely to be any departure therefrom."

Query: Why do the importers, a large proportion of whom are Liberals, stand this kind of treatment? Why do they not join the Liberals, who believe in fair play to manufacturer, importer and consumer alike?—Montreal Herald.

This appeal is exceedingly pathetic, but those to whom it is addressed know that it won't do to monkey with the tariff. Hands off.

A protective tariff protects me against foreign competition, but if I am smart I will be careful not to get the protection so high that it will shut out one foreign competitor and bring into existence three competitors at my own door. If I get the tariff away up, I will have big times—while my home competitors are getting under way. But when I have forced into existence three sets of machinery to do the work of one, it will take but little figuring to find out how soon the next panic will strike.—Wade's Fibre and Fabric.

"Nothing is ever settled that is not settled rightly." Now is the time for the Liberals to make a grand assault on the tariff with a view to settling it.—Toronto Globe.

Here's another: "Nothing succeeds like success." The tariff is a success, judging by the way it has succeeded; and it certainly must be settled, and that rightly, judging by the failure of the Liberals, as The Globe calls the free traders, for so these many years to unsettle it. The "grand assault" has been going on for a long time, and yet no toppling over of the walls of protection has occurred. Let the procession proceed.

What is safe to pay for the clip of 1894 is a question which at the present moment is not only a difficult one for the wool trade in this country to decide, but is equally puzzling to the Canadian dealers. The Dominion woolen manufacturers are in some respects confronted with conditions almost resembling those which surround our own mills, in that confidence in the future is greatly disturbed because of the contemplated changes in the tariff from compound to a purely ad valorem basis and because of a proposed general reduction in duties on textile fabrics all along the line. With this intended change Canadian manufacturers fear their inability to compete with the shoddy products of Huddersfield and Dewsbury unless the duty is removed from machinery and from coal, and other articles now taxed and used as raw materials. This alar E

is having a very depressing effect on wools and woolens and has resulted in forcing the sale of flannels, blankets and some lines of underwear at prices below the actual cost of production. The Canadian wool trade now see no way whereby they are going to derive any substantial benefit from free wool in the United States because our own wools are to-day as low, if not lower, than Canadian wools; in fact they are being imported into Canada in considerable quantities and are taking the place of Canada clothing and down wools which are now unsalable at the prices paid last season. However, in anticipation of free wool and a demand from the United States, the Canadian clip of 1893 was bro. ht up and is still largely held by country buyers and dealers who will doubtless realize before long, if they have not already, that they have speculated out of pocket.—Am. Wool and Cotton Reporter.

Godey's Magazine for June is beautiful in illustration and brilliant in contents. The Baroness Althea Salvador, lady in waiting upon the Queen of Holland, contributes a most interesting article on the Paris Salon of 1894 with many illustrations of the artists and their works. The serial is a story of Munich life called Chance, by Leon Mead, and Frederick W. Seward continues the recollections of his father in Seward's West India Cruise. All these are profusely illustrated. The short stories are by John Habberton, Rose Hawthorne Lathrop, Edgar Fawcett, Albert Hardy, Julia Magruder and William A. Ayres. S. Parks Cadman has an essay, Harry Edward Miller a sketch, and the poems are by Frank Dempster Sherman, Martha McCulloch Williams, Arthur Chamberlain, Edward Stratton, Emma J. Gompf, Norma Muir and Coggeshall Macy. All the departments are excellent, the famous Godey fashions appearing this month under the taking title of the Passing Show.

The Canadian Magazine in its June issue presents a most palatable bill of fare. J. W. Tyrrell, the discoverer of countless herds of deer in the Barren lands, contributes an excellent illustrated article, "Three years among the Eskimos." Wm. Ogilvie, F. R. G. S., continues his interesting narrative of exploration "In North-Western Wilds," and Otto J. Klutz, adds to the geographical interest of the number, an article, likewise illustrated, on "Photo-topography on the Alaskan Frontier." "The Safest Ships Afloat," is a beautifully illustrated article by Henry Fry, dealing with ocean steamships in general, and the C. P. R. Pacific steamers in particular. C. M. Sinclair furnishes a well-written and illustrated contribution, "On St. Clair's Broad Bosom." Amongst other contributions are "The Machine in Honest Hands," by Herbert B. Ames; "A Japanese View of Japan," by K. T. Takahashi; "Foot Distortion in China," by Dr. G. Archie Stockwell; "How to Beautify a Home," by Mary Temple Bayard; "The St. Lawrence Canal Route," by Allan Ross Davis, C. E.; "W. R. Meredith at Home," by Thomas E. Champion; "The Ottawa Conference," by J. Lambert Payne; "The Siller Wedding," by W. Robertson; and "Little Maid Mariani," by Allan Douglas Brodie. Published by the Ontario Publishing Co., Toronto, \$2.50 per annum.

The Dairy Industry.

The Dominion Government have done and are doing much to advance the interests of Canadian farmers, particularly as regards dairying, as will be seen by the following extracts from an address made by Prof. Robertson, Dominion Dairy Commissioner in Winnipeg a few days ago:

Prof. Robertson said that since 1890 traveling inspectors had been sent through the province to instruct farmers and farmers' wives, more with a view of stirring up interest than giving information that would be of permanent service. All over the province they had found ill-concealed indifference, small audiences, and almost no encouragement, until the conclusion was reached two years ago, to put the work into Quebec until the wheat fever here should wear off. Accordingly last year he was instructed to confine the work in Manitoba to the instruction of cheese makers. The plan this year is to have two traveling dairies spend their whole time in Manitoba and the North-west Territories from now till harvest time. It is hoped to cover fifty-five or sixty places. The object is to give people who must make butter on their farms practical instruction how to do it in the best way; also to make a more detailed report on the pasturage conditions, fodder-growing qualities of the soil, and water privileges, so as to know where it would be best to establish cheese factories. Joined to this work it was intended to start dairy stations. In 1891 the farmers of Prince Edward Island, who had been growing no corn, were induced to plant samples, the government giving one worth five cents to every farmer to plant a quarter of an acre. This year 5,000 acres of corn were grown. A number of farmers were with difficulty induced to put up a small building for a cheese factory, the government putting in a press in each, and charging 2½¢ per pound for doing the business, and giving back the proceeds from the sale of the cheese. Thousands of farmers visited the factory in one summer. Half of the cheese was sent to England and sold at the same price as the best Ontario cheese. Last season eleven companies of farmers built cheese factories, paid for them and equipped them themselves, and asked the department to run them, which was

done for 1¼ cents a pound. The revenue was \$48,000 for the sales of cheese. This season there are seventeen factories, having a revenue of about \$100,000; nearly all had paid their own way this year. This had been done in three years. Farmers in Manitoba were not very flush of money; he knew the government would not put money in buildings, so he had talked the matter over with Mr. Van Horne, the latter agreed to put in the money, and factories are going up at a good many points. Companies are being formed to rent the creameries from the C.P.R. at a barely nominal rent, and afterwards the department was prepared to run the creameries for them, make butter in the best way, sell it in the best markets, and give back the proceeds until the people could run themselves. A creamery thoroughly well equipped would cost \$3,000, that is \$60 per farm for fifty farmers. It would pay farmers to do without extra machinery or sell it to get this extra equipment. By having centrifugal separators in use, farmers would get one-fifth more butter and higher prices. By giving a little better care to cattle through the winter, building sod stables and growing a few more oats, they would get far more milk. By keeping swine they could find an outlet for their barley and inferior wheat. It never can pay to carry live cattle to England to be slaughtered there for beef. The best thing is to have them killed in Canada, and save the shrinkage and cost of transportation. The lecturer suggested the consideration of whether a good packing house could not be had in Winnipeg; also a packing house for bacon. Either Brandon or Winnipeg, he said, would be a capital point. The department had consented to spend the most of the time, for the next three years, on the maritime provinces and the North-West. He hoped to stay and see creameries started, the stock business developed, and abattoirs and packing houses established. The more stock kept, the more grain of good quality could be raised.

Nova Scotia Mining.

The report made by Edwin Gilpin, Jr., inspector of mines, on the mining industry of Nova Scotia, for the nine months ending September 30, 1893, states that in that time the coal production was 1,682,713 tons of 2,240 pounds each. In the same time 56,612 tons of coke were made. During the year 1892 the coal output was 1,942,780 tons, and the coke production aggregated 55,000 tons. In an account of the different workings it is stated that the Joggins raised 70,138 tons and Springhill 333,009 tons. At the Springhill collieries work has continued as usual, and the preliminary work has opened up a large extent of coal. The system of transportation from Parrsboro' to St. John and other ports at the mouth of the Bay of Fundy by barges has been in operation successfully during the summer. The Canada Coals and Railway Company, has acquired the Joggins, Milner, Patrick and other leases, and will operate on an extended scale. A new opening is being made on the Joggins seam, houses built, etc. The district lying east of the Oxford seam as far as Wentworth Station has been the scene of some prospecting. Three seams have been found at Thompson, and the results have been considered encouraging. It has been stated that near Greenville Station the outcrop of a 5-foot seam of coal has been found. A number of areas were taken up at Apple river, supposed to be on the southern outcrop of the basin.

In Pictou county the sales to September 30th were 339,163. The production of the Acadia Company was 205,193 tons; that of the Intercolonial Coal Company, 169,832 tons. No attempts have yet been made to re-open the Ford pit workings.

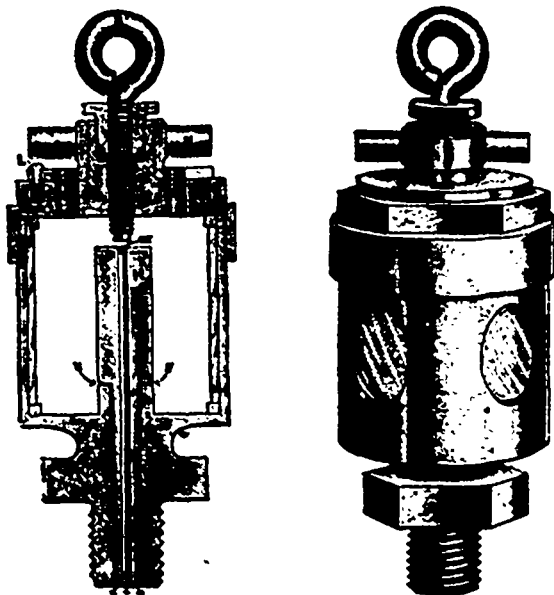
Since the last report was issued, negotiations have been concluded by which the Dominion Coal Company has acquired the properties known as the Gowrie, Ontario, Caledonia, Reserve, International, Glace Bay, Sword and Gardner collieries, embracing an area of about 49 square miles. This leaves the Sydney mines and Victoria as the only independent collieries working in Cape Breton county. The collieries of the new company have been connected with Sydney Harbor by extensions of the International railway, and the railway is being extended to Louisburg with the intention of utilizing the harbor as a winter port. This extensive change of ownership naturally caused much interest to be taken in coal and an immense number of licenses to search were applied for in this country. On a few some prospecting has been done. In the county of Inverness much interest was aroused, and a large number of licenses applied for at Broad Cove, Chimney Corner and Port Hood. Little work has, however, been performed. Some borings are being made at Broad Cove. The Boston and Nova Scotia Coal Company has surveyed a route from Orangedale, on the Cape Breton railroad to Broad Cove, and have acquired some areas at that point. It is understood that it contemplates the immediate building of the road and a development of a coal mine at Broad Cove. At Mabou the Mabou Coal and Gypsum Company has continued working and developing during the season. At the Coalmine Cove 2½ miles east of Mabou Harbor, an extension of 260 feet has been made to the coal wharf, and a double track laid to the mine. The seams standing at a nearly vertical slope are entered by tunnels in the face of the cliff at water level by slopes driven every 25 feet along the level, etc. In the 7-foot 6-inch seam there are 2,100 feet of levels and 1,750 feet of slopes. In the 13-foot seam, opened in August, there are 546 feet of levels and 46 feet of slopes. This property embraces an area of 2½ square miles, in which, according to Professor Hynd, there are 4,000,000 tons above water level, and 12,000,000 below. In Richmond county some prospecting has been done by the Eastern Development Company on areas owned by them at Little river, but the results have not yet been communicated to the department.

Safety Crank Pin Oiler.

There has always been a demand among engineers and engine builders for a crank pin oil cup, which would give a steady flow of oil in just the right quantity to keep the crank pin from heating, while not allowing sufficient oil to pass so as to cause waste. Many schemes have been devised for effecting this result, but the Penberthy Injector Co. claim that up to the time they placed their safety crank pin oiler on the market about two years ago, there was nothing devised of this character that was entirely satisfactory. Cups have been made which would insure a steady flow of oil, but many of them were so constructed that when in use the oil would be thrown out of the top of the cup; and others were very easily clogged by dirt. The Penberthy safety cup met with a very rapid sale, owing to its simplicity of construction, and its very satisfactory operation. The Penberthy Co., however, are noted for never being satisfied until the articles which it manufactures are as perfect as skill and ingenuity can make them. Recognizing the fact that their cup as originally made had one or two weak points they set to work to remedy the defects and have recently produced their improved double-feed crank pin oiler which we illustrate herewith. The improvements have lessened the number of parts of which the cover is composed, and have also simplified the construction of the cup, while at the same time allowing of a very fine regulation. A careful reading of the following description will show the superior points of this cup.

H is the plunger, which rises and falls with the motion of the engine, forcing part of the desired amount of oil to the crank pin, while at the same time the oil is flashed on top of the plunger and passes down through its hollow centre, thus giving two distinct and separate feeds, so that in using this cup there are two chances against its feed becoming clogged. K is the cover of the cup, containing two passages P, P. One of these is to allow the oil to enter the cup and the other is the vent hole by which the air in the cup passes out. On top of the cover is an escutcheon S operated by means of a handle N passing through it. When the cup is in operation, this handle is turned hard to the right, bringing the holes in the escutcheon out of line with the holes in the cover of the cup, and the escutcheon being threaded and turning on a corresponding thread on the cup cover, allows of an absolutely tight seat being made between the escutcheon and the cover, so that it is impossible for the oil to spill out while the cup is working. To fill the cup, the handle N is turned to the left until the holes in the escutcheon and the cover are in line, when the oil can be quickly poured in from a spring bottom can; and as the air is allowed free vent through the vent hole there is no spilling of oil possible with ordinary care. In this manner the cup is filled without changing the regulation in the least. The screw L passing through the escutcheon allows it to turn to the left just a sufficient distance to bring the holes in line. The feed is regulated by the regulating screw R which admits of a regulation as fine as 1-1000 of an inch or less. This regulating screw passes through the stuffing nut M, and through the packing I in the same manner that the stem of a globe valve passes through its stuffing nut, and the tension on the regulating screw is altered by turning this stuffing nut M same as the packing is tightened or loosened on a globe valve.

As will be seen the cut is simplicity itself, and it is impossible to get it out of order. The plunger H having a square shoulder against



the bottom of the cup, the oil stops feeding as soon as the engine stops running, and there is therefore no waste. Owing to its fine regulation it can be set to feed just the desired amount of oil, and with the proper size cup it can be so regulated as to run for a half day or a full day as desired, so that the engine need never be stopped to refill the cup; the only attention required from the engineer being to fill it at the proper times as it does its work automatically. This

cup has been adopted by several of the largest manufacturers of threshing engines in the United States, and also by several large engine builders, and wherever it is introduced it is meeting with rapid sale.

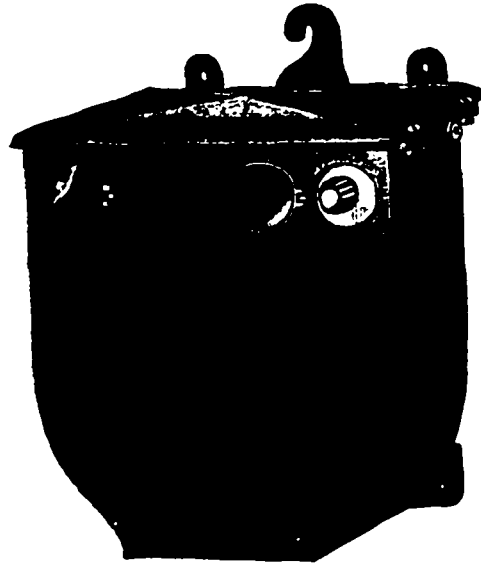
The manufacturers, the Penberthy Injector Co., of Detroit, Mich., will be pleased to send descriptive circulars and quote prices on application.

The Packard Transformer.

The accompanying illustration is of the Packard electrical transformer, invented by a member of the Packard Lamp Co., Montreal, and manufactured by that concern.

The manufacturers make particular mention of the following points of excellence:--

1. In mechanical construction every desired point is covered.
2. In electrical design it is scientifically and commercially correct.
3. By an entirely new system of insulating transformer windings,



the coils are protected in such a manner that under conditions anywhere near normal, a burnout is an impossibility.

4. Its electrical efficiency, both on heavy load and open secondary, is several per cent. higher than is realized in other transformers.

5. Its regulation is as near perfection as can be hoped for in transformer lighting.

6. Its coolness when in operation is very marked, a transformer of a given size will produce less heat than other transformers of anywhere near that size.

7. The price at which this transformer is sold is as low as can be consistent with the cost of a really first-class article.

Attention is also directed to a valuable and prominent feature in this transformer to wit, the simple style of fuse box used with it, by which the manufacturers claim that the possibility of an accident from it is entirely averted, the fuse being contained in a cylindrical porcelain cup, which is easily accessible to the line man without the use of screwdriver, pliers or wrench.

The Packard Lamp Co., Montreal, will take pleasure in giving further information regarding this instrument.

According to a paper read by R. T. Crane at the recent Steam Fitters Convention the following is the process now employed in the mills for making lap-weld tubes for wrought iron gas pipe. The sheet of iron is rolled to the desired thickness, width and length. The edges are then scarfed, as in the case of the gun barrel. It is then drawn, while red-hot, through a bell-shaped die, by means of an endless chain, which rounds it up and laps one edge over the other. The whole length is put in the furnace and heated to the welding heat; afterward pushed out of the furnace at the opposite end into grooved rolls of a size corresponding to the size of the pipe. The inside lap is supported by a ball, attached to a long bar of iron which holds the ball in position in the roll. The ball and the iron and the groove of the roll all correspond, so that the roll exerts a sufficient pressure upon the iron and the ball to force the laps of the iron firmly together, thus producing the weld. The entire process must be perfect in order to insure success; that is, the bending and lapping of the iron, the heating of the furnace, and the adjustment of the rolls and balls must all receive the most scrupulous attention. This operation is one of the most beautiful in all the mechanical arts. After the process of welding, the crude piece of pipe is passed through other rolls to give it the correct diameter, and again through others, for the purpose of straightening it. If the tubes are to be used in boilers, they are only cut off the desired length and tested being then ready for use. If the tubes are to be used for steam pipe, the ragged ends are cut off, screws cut on both ends, and a socket put on one end. The tubes are then tested, and are ready for the market.

The Mackintosh and the Tariff.

An excellent example of what injury the Wilson bill if passed is likely to inflict on a growing and healthy industry, is afforded by the mackintosh trade. It is due to the McKinley tariff that this industry has been built up to its present magnitude. The year before the present duties went into effect there were not more than \$200,000 worth of mackintoshes made in the United States. There were probably \$500,000 worth imported in the same year, making the annual consumption about \$700,000. In the first year of the present tariff the manufacture by American makers jumped from \$200,000 to \$1,200,000, and the English goods were actually driven from the market. The importations since have been practically nil. Each year the manufacture has increased by leaps and bounds, and for the twelve months ending March 1, 1893, the production was well nigh to \$5,000,000. Under the revised tariff of 1883 mackintoshes paid a duty of 40 per cent. The McKinley bill raised this to 60 per cent, which was practically prohibitive to the foreign article.

The most significant fact in the growth of the mackintosh industry through the advantages of a higher tariff is the lower cost at which the garment can be sold. At the present time a mackintosh of equal quality can be bought for fifty per cent. less than it could in 1890.

We make a much superior article to the English in fit and durability, and our styles in cloth are quite as fine. Garments manufactured here are steam vulcanized and suited to our great variety of climate. The English manufacturers treat their rubber by an acid process which does well enough for their comparatively equitable climate, but not for ours. This the American public has rapidly learned to appreciate, and our best outfitters to-day are carrying a line of American in place of the English goods.

The growth of the industry was also very materially aided by the full protection afforded American cloth manufacturers, particularly those who make cloth such as is used in mackintosh. Before the McKinley tariff these cloths were largely imported for the garments that were to be made here. Under its operation the production of American manufacturers has increased 300 to 400 per cent. In the past year the amount of imported cloth has been insignificant in comparison with the quantity made here. The variety our manufacturers get out is also something wonderful. Thus one large manufacturer is carrying from 325 to 350 different styles and a stock of about 400,000 yards. Had manufacturers been assured of the protection afforded by the McKinley bill this year a much better showing than this would certainly have been made.

Since the present administration came into power with its tariff smudging programme, a continual diminution in the production of mackintoshes has resulted. For the year ending June 30, 1894 it is very doubtful if the manufacture of mackintoshes will be over \$2,500,000. Of course the demand for mackintoshes has fallen off as a result of hard times, but this only carries us back to the fundamental cause of business depression, the assault on American industry.—The Manufacturer.

Boiler Explosions and Boiler Inspection.

This paper has frequently called the attention of steam users to the necessity of regular inspections by a competent engineer of all stationary boilers. Nearly all the explosions of boilers which have occurred in late years have been of those which were uninspected and uninsured. True, some of the wrecked boilers had been under the supervision of government inspectors, but those under the charge of boiler inspection and insurance companies have escaped almost entirely, there being only three such reported as having exploded in the last ten years.

We herewith give a view of the power house of the Royal Electric Light Company, Montreal, showing the damage done by the explosion of the boiler therein on May 24. This company have a battery of six boilers, used to develop power, and five of these were insured and regularly inspected. The fifth, a new boiler, was considered safe and was not insured, and strange as it may appear to those who are not conversant with the use of steam, this was the boiler to bring wreck and devastation to the property of the company, the damage as reported being about \$20,000.

The Steam Boiler and Plate Glass Insurance and Inspection Co., of London, Ont., has the following printed in their calendar, "The Unexpected Generally Happens," and this was certainly true in this Montreal case. No person has a right to place the lives of his fellow men in jeopardy, and it is the duty of every owner of a steam plant to take every precaution and know absolutely that his boilers are in a safe condition.

It is only about two months ago that a frightful calamity happened near Dresden, Ont., resulting in the death of the engineer and his three little children, and the total wreck of the boiler. These casualties, of course, cause thinking men to take precautions, but a great many steam boiler owners are willing to trust to luck and are entirely indifferent in this respect, and we think it is high time the Ontario Government took some means to prevent the sacrifice of lives and loss of property caused by the carelessness of those in charge of boilers.

Quebec has a law which makes it compulsory for all owners of stationary boilers to have them regularly inspected; and recognizing

CAPTAINS OF INDUSTRY.

This department of the Canadian Manufacturer is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.

A. Tuttle's planing mill at Moncton, N. B., was destroyed by fire June 10, loss about \$4,000.

A new woolen mill is to be built at West Selkirk, Man. The mayor of that town can give information.

J. H. Davey's sash and door factory at Bradford, Ont., was destroyed by fire June 9, loss about \$1,000.

The daily capacity of the Grenville Flour Mills at Ayr, Ont., is to be increased from 400 to 700 barrels.

Fire in the factory of the Toronto Carpet Mfg. Co. on June 11, did damage to the extent of about \$5,000.

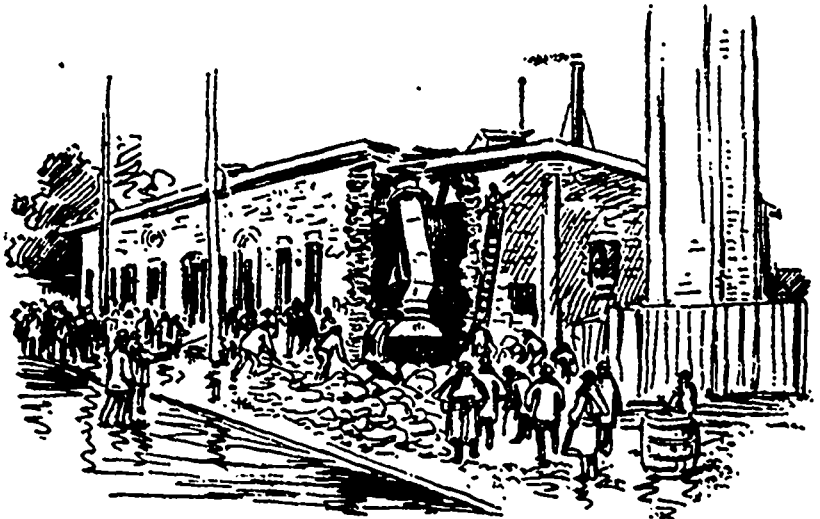
A new steel bridge is to be erected across the river Speed at Hespeler, Ont., to replace a wooden structure.

Messrs. Le Blanc & Co., West Pubnico, N. S., have just put in a new engine and boiler and a full outfit of planing mill machinery purchased from Messrs. Cowan & Co., Galt, Ont.

Messrs. R. Richardson & Son, Bedford, N. S., whose property was recently destroyed by fire, have placed their order with Messrs. Cowan & Co., Galt, Ont., for a 50 horse-power engine and a 65 horse-power boiler, two large planers and matchers, surface planer and all shafting and pulleys necessary for re-fitting their establishment.

The Paul Frind Woolen Machinery Co., Toronto, have since our last mention of them, supplied woolen machinery as follows:—Port Elgin Woolen Mills, Port Elgin, N. B., one customs carding machine; Lambton Woolen Mills, Lambton, Ont., one napper; A. S. McKay & Co., Galt, Ont., one Goddard hurr picker, one scouring roller; Dominion Blanket and Fibre Co., Montreal, for their factory at Beauharnois, Que., one spooler.

Messrs. Cowan & Co., Galt, Ont., have the contract from Mr. John Ballantine, Preston, Ont., for the 65 horse-power Corliss engine and boiler, cupola and all shafting, couplings and pulleys necessary for equipping his new foundry and machine shop.



the value of the inspection work done by boiler insurance companies, that Government accepts the inspection certificates of these companies in lieu of those of their own officials. The Manitoba Government at its last session passed a law similar to that of Quebec.

There is no good reason why there should be boiler explosions, for proper inspection and the careful carrying out of the instructions of the inspector will ensure safety and reduce to a minimum the risk of an explosion.

It has been said that a good manager is never too poor to economize. It certainly is economy, as well as safety, to have boilers inspected at regular intervals by a competent engineer. Another strong point in favor of boiler insurance and inspection is, that the lives of the men in charge are insured without any additional cost, which certainly indicates that insurance companies have discovered by experience that inspection prevents explosions.

D. O'Connor, jr., Ottawa, has placed his order with Messrs. Cowan & Co., Galt, Ont., for one of their celebrated moulders, besides a number of other large wood working tools.

The Paul Frind Woolen Machinery Co., Toronto, are supplying woolen machinery to the new mill of John Routh, at Campbellford, Ont., as follows:—eight looms, one warper, one beamer, one sizer, one spooler, one spool stand, one drying machine, one 92-spindle stocking yarn ring twister.

Mr. John Routh, who some thirteen years ago started what is now known as the Coburg Woolen Mills, at Coburg, Ont., has purchased the Campbellford Woolen Mills, at Campbellford, Ont., and is refitting the same, the expectation being that they will be in operation in a few days. The price paid for the property, we learn, is in the neighborhood of \$5,000; and the municipal authorities of the town have exempted the property from taxation for a term of ten years. Mr. Routh has associated his son with him in this new business.

The Kemp Mfg. Co., Toronto, have sent us specimens of the tinware manufactured by them of the tin plate sent to them for trial purposes by the makers thereof, the New Castle, Penna., Steel and Tin Plate Co., heretofore alluded to in this journal. As there stated, these tin plates were made of American steel rolled in American mills. The specimens before us are first class in every particular, the deep pans showing that the plates are equal to the severe test to which they were subjected. If the McKinley duty upon tin plates is suffered to remain as it is it will not be long before the industry in the United States will be so far advanced as to entirely exclude the foreign article from that market, with the natural consequence that Canada will then draw its supplies from that source instead of from Wales; unless in the meantime the Dominion Government conclude to build up the industry in this country.

Fort William, Ont., will build a waterworks system.

Messrs. McLaughlin & Co., Owen Sound, Ont., will build a three storey extension to their confectionery factory.

Alph. Tessier, Penetang., Ont., has placed a Cowan & Co., planer and matcher, with beading and moulding attachment in his shop.

James Coates' foundry and moulding shop at Bradford, Ont., were destroyed by fire June 9, loss about \$2,500.

Messrs. Bennett & Constable, Spencerville, Ont., are placing a 65 horse-power, Corliss engine and boiler purchased from Messrs. Cowan & Co., Galt, Ont.

The Berlin Felt Boot Co., Berlin, Ont., of which George Ruple is proprietor, are making considerable improvements in their factory, and adding new machinery as follows supplied by the Paul Frind Woolen Machinery Co., Toronto:—one 60-inch card, one Blaimire feed, one 6-4 rotary press, one 6-4 shear, one duster.

Messrs. Cowan & Co., Galt, Ont., report business in a flourishing condition and have been compelled through press of orders to have the men work over time. The demand for their patent revolving bed moulder, they inform us, has been unprecedented. In the engine department they have been hard pressed to get their orders filled in the time specified. They have recently got out a new double surface planer and matcher which is giving much satisfaction to mill men.

Several of the leading woolen mills of the Dominion are closing down their mills for extensive repairs, and others are working on reduced hours. We are informed that notwithstanding the protection afforded to woolen manufacturers under the National Policy they find it difficult to compete with the British manufacturers, whose patterns and qualities are superior to those of the Canadian manufacturers, while at the same time their prices are very much lower than those for such qualities as our mills are able to produce.—The Shareholder.



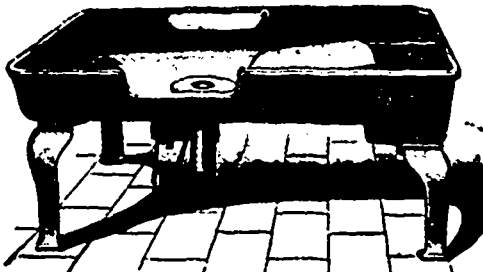
Buffalo Planing Mill Exhaust Fans

EFFICIENCY UNEQUALLED
DURABILITY UNSURPASSED
SMOOTH RUNNING INCOMPARABLE

THE LARGEST

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In the World



Thirty-Eight Other Designs of Portable and Stationary Types.

BUFFALO LUMBER DRY KILNS

Blowers, Blacksmiths' Tools, etc.

.....MANUFACTURERS OF.....

Superior Chilled Iron Rolls



Chilled Iron Roll, as used by Iron Rolling Mills. Various sizes.

Perfect Surface, Deep Chill, Hard, Tough, Durable, Guaranteed free from flaw

.....FOR.....

Iron Rolling Mills, Rubber Works, Paper Mills, Flour Mills, Etc.

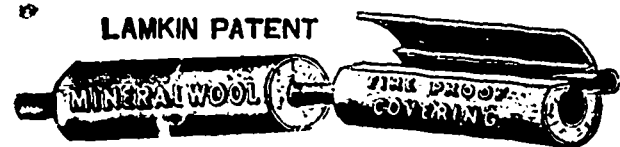
.....FOR ROLLING.....

Iron, Steel, Gold, Silver, Brass, Copper, Wire, Lead, Paper, Etc.

Extensive plant for Grinding and Corrugating Rolls

Wm. & J. G. Greey

2 CHURCH ST., TORONTO.



Steam Pipe and Boiler Coverings

ASBESTOS GOODS STEAM PACKINGS
COTTON WASTE GASKETS, Etc., Etc.

Largest and Best Assortment in Canada.

Canadian Mineral Wool Co., Ltd. =:- 122 Bay St., Toronto.
TELEPHONE 2376.

Messrs. Charles Hamilton & Sons' steam saw mills at St. John N.B., were destroyed by fire, June 2.

John Newton, Morin Flats, Que., has just received a large revolving bed moulder supplied by Cowan & Co., Galt, Ont.

Messrs. A.J. Webster & Co., Shediac, N.B., will introduce considerable new machinery into their boot and shoe factory.

Messrs. J.A. & M. Cote, St. Hyacinthe, Que., have purchased from Messrs. Cowan & Co., Galt, Ont., a new 34 horse-power boiler.

The Rathbun Co., of Deseronto, Ont., who own the franchise, will build an electric street railway in the town of Oshawa, Ont.

E. W. Benjamin, Yarker, Ont., has placed his order with Messrs. Cowan & Co., Galt, Ont., for a surface planer, buzz planer and several other tools.

The Nova Scotia Gypsum Co., of Parrsboro', N. S., is being incorporated, with a capital stock of \$2,000, to manufacture gypsum, plaster, lime, etc.

R. H. Hardwich, of Annapolis, N. S., has just purchased a new 45 horse-power engine and a 60 horse-power boiler from Messrs. Cowan & Co., Galt, Ont.

Mr. J. E. Molleur has bought the old Douglas canning factory, with the view of converting it into a straw hat or knitting factory.—St. John's, Que., News.

Messrs. Spencer Bros. & Turner, Truro, N. S., have just been supplied with a large diagonal door planer and polisher from Messrs. Cowan & Co., Galt, Ont.

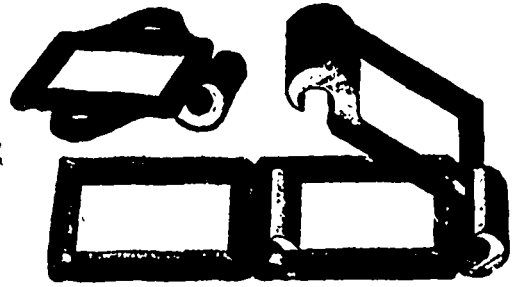
The Young and Brother Co., Hamilton, Ont., are applying for incorporation with a capital stock of \$150,000 to manufacture plumbers' and steam fitters' supplies, lamp goods, etc.

Mr. Wm. Rankin, Toronto, Ont., whose premises were lately destroyed by fire, has placed his order with Messrs. Cowan & Co., Galt, Ont., for a full outfit of planing mill machinery.

The grizzly is known to be a "great b'ar," but a salesman connected with the John Abell Engine and Machine Works Co., Toronto, notwithstanding the torridity of the weather, informs us that the grate bars manufactured by his company can knock a grizzly every time.

Messrs. Paquet & Godbout, St. Hyacinthe, Que., finding their boiler capacity insufficient for their requirements, have placed their order with Messrs. Cowan & Co., Galt, for a new 80 horse-power boiler.

EWART LINK CHAIN BELTING



Attachments and Sprocket Wheels. Large stock always on hand
—Special Agents—

WM. & J. G. GREY, 2 Church St., Toronto.
Also complete stock of General Mill Supplies and Furnishings.
Orders Filled Promptly.



CROSBY Steam Gage & Valve Co.

Sole Proprietors and Manufacturers of

Crosby Pop Safety Valves, for all kinds of boilers;
Water Relief Valves, including the Underwriter,
which is fully approved by the Associated Factory
Mutual Ins. Cos.; Crosby Steam Engine Indicators,
with Sargent's Electrical Attachment; Crosby
Improved Steam Gages and Patent Gage Testers;
The Original Single Bell Chime Whistles.

All kinds of Pressure and Vacuum Gages used
in the various arts.

UNDERWRITER Sole Agents for
Clark's Linen Fire Hose and Adjustable Couplings.
Gold Medal, Paris Exposition, 1889. Ten Highest awards, Columbian Expos., 1893.
Branch Offices at New York, Chicago and London, Eng.
Main Office and Works, **BOSTON, MASS., U.S.**

E. LEONARD & SONS

LONDON - - - CANADA
MANUFACTURERS OF

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(NEW DESIGNS)

STEAM PLANTS EQUIPPED FOR ALL PURPOSES

Highest Economy, Regulation Perfect. Send for
Circulars. Interviews Desired.

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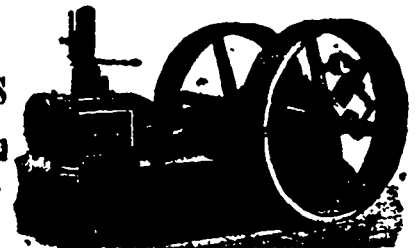
79 YORK STREET, TORONTO, ONT.

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High Grade Power Plants

Robb-Armstrong
Automatic Engines

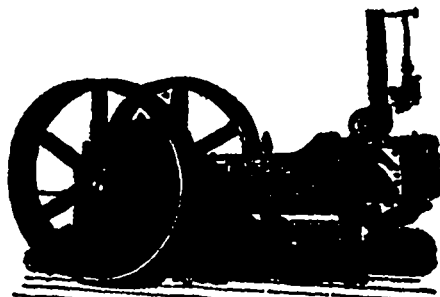
Interchangeable Parts
Perfect Alignment. Large
Bearings.



Robb Engineering Co., Ltd., Amherst, N. S.

Armington & Sims

AUTOMATIC HIGH SPEED ENGINES



—FOR—
ELECTRIC LIGHTING

—AND—
GENERAL FACTORY
PURPOSES

Perfect Regulation and
Highest Economy.

Steam Pumps
SHAFTING, PULLEYS

—AND—
General Machinery

Nie & Whitfield - HAMILTON, ONT.



**THE WEBBER PATENT
Straitway Valve**

FOR
STEAM, WATER OR GAS
EVERY VALVE TESTED

THE KERR ENGINE CO. (LTD.)
WALKERVILLE, ONT.

Sole Manufacturers for Canada
Send for Price List

New waterworks are to be erected at Stadacona, Que.

Messrs. Ross & Muir are erecting a grist mill at Mattawa, Ont. It is also their intention to install an electric light plant in their mill if satisfactory arrangements can be made for lighting the town. According to their agreement with the town, the mill is to be not less than 50 barrels capacity per day, and is to be completed by the 16th of October next.

The Atlas Mfg. Co., Newark N. J., have sent us a circular having reference to their improved double cylinder burring machine, in which they say that every manufacturer knows much that, while of conceded importance, is too often overlooked or ignored. To nothing does this statement more forcibly apply than to various economies, often fundamental and important, the application of which to any manufacturing plant, means simply an added earning power. Concerning raw material, the tap-root of a manufacturing plant, any thinking man, and all successful manufacturers are such, will concede that when he can be furnished with his raw material from which all foreign matter has been eliminated, an economy has been started in his establishment that, commencing at the first operation, never halts until it leaves his output ready for packing and shipment. In other words, where raw material is thoroughly cleansed from impurities, and all of the machinery relieved of its too frequently enforced labor as a scavenger, it is left free to run to its utmost capacity on the work it was especially built to accomplish. This means turning out the maximum of first-class work on the one hand, with the minimum wear to machinery on the other, and the further satisfaction of knowing that the machinery is only being subjected to legitimate wear and not abuse. The Parkhurst double cylinder burring machine manufactured by this concern, supplies to the textile worker, it is claimed, precisely such an economy as is here outlined, with which they undertake to thoroughly open and cleanse stock for the cards, remove all fine dirt, burrs, trash, hard substances, etc., without waste of, or injury to the staple by cutting or rolling. The Parkhurst burring machine, is the invention of a practical textile worker, and is the outcome of years spent in a daily struggle with the troubles which render it an appliance indispensable to a modern textile plant.

The Lanark County Electric Railway Co., of Perth, Ont. are applying for incorporation with a capital stock of \$100,000, to build and operate an electric street railway in that town.

The Port Arthur, Ont., Council decided to lease the electric railway, which the town owns and operates, between there, Fort William and West Fort William, for a term of years, the lessee to have the sole right also to furnish light and power for municipal, domestic and commercial purposes. Tenders will be asked.

The Dominion Bridge Co., Montreal, are now engaged in erecting steel bridges in Nova Scotia as follows: at Pugwash, at Grand River, at Stoney Brook and at Country Harbor, all for the Nova Scotia Government; 25 spans at Louisburg for the Dominion Coal Co. and two on the line of the Western Counties' Railway.

EAGLE FOUNDRY  Established 1820.

...GEORGE BRUSH...

14 to 34 King and Queen Streets, - Montreal

.. Maker of ..

STEAM ENGINES, STEAM BOILERS,
HOISTING ENGINES, STEAM PUMPS,

Circular Saw Mills, Bark Mills, Shingle Mills, Ore Crushers, Mill Gearing, Shafting Hangers and Pulleys.

Safety Elevators and Hoists for Warehouses, Etc.

HEINE SAFETY STEAM BOILERS....

Blake "Challenge" Stone Breaker.

VALVES and -
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Write for Latest Prices.

RICE LEWIS & SON
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Cor. King and Victoria Ste. - TORONTO.

Galvanized Iron, "Gordon Crown."

'Tin Plate, "M. L. S."

Solder, $\frac{1}{2}$ & $\frac{1}{4}$, "M. L. S. Guaranteed."

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30 Front Street West, Toronto

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W. S. HILL ELECTRIC COMPANY

Manufacturers of High Grade

SWITCHES

For Power and Light Stations.

Switch Boards

For Arc, Power and Incandescent Circuits.

.. A NEW ..

**Lightning
Arrester**

- - FOR ALL CIRCUITS - -

Price \$15.00.

Discounts on Application.



In the Doane Arrester the short circuit is made through a non-inductive resistance sufficient to limit the current that will follow the lightning discharge to an amount that cannot do any injury.

In a 500 Volt Circuit

With a non-inductive resistance of 100 ohms in series with the arc, only five amperes can follow the discharge; this can do no possible harm, and the arc formed by the passage between the carbons is easily extinguished and without injury to any portion of the circuit.

No current passes through any of the movable parts of this Arrester, and with only a limited current through the carbons, they are practically indestructible.

133 Oliver St., BOSTON, MASS.

Represented in New York City by

The Elson & Browster Eng'g Co., 141 Liberty St.

Smith's Falls, Ont., will have an electric fire alarm system.

The Grand Trunk Ry. Co., will erect a new passenger station at St. Hyacinthe, Que.

The North West Electric Co., Winnipeg, Man., contemplate making improvements to their plant.

The plant for the electric lighting system of Sarnia, Ont., will be supplied by the General Electric Co. of Toronto.

The Horton Fire Ladder Co., Halifax, N.S., is being incorporated with a capital stock of \$6,000 to manufacture fire ladders.

The Simcoe Wood and Lumber Co., Simcoe, Ont., has been incorporated with a capital stock of \$45,000 to manufacture lumber, etc.

W. H. Cameron and W. S. Barker have purchased a plot of land near Whitewater station, Man., on which there is said to be first-class brick clay and will establish a brick yard at once.

The Toronto Telephone Co., have received from Montreal the first shipment of their new switch-board, which is to be placed in the new premises of the company on Temperance street.

The Bear Lake Consolidated Mining Co. has been incorporated in British Columbia with a capital stock of \$500,000, and head office at Victoria, to carry on mining and similar operations in that province.

The municipal council of Windsor Mills, Que., have passed a by-law to give the Canada Paper Company a bonus of \$10,000 in consideration that they built a dam across the St. Francis river and enlarged their mills and make other improvements at that place. It is expected that the company will expend \$75,000 or \$100,000 which will make one of the largest establishments of the kind in the Dominion.

The East River Electric Co. is being incorporated at Pictou, N.S., with a capital stock of \$30,000 to supply New Glasgow, Stellarton, Westville and Ferrona with electric light produced by water power. With this object in view, the West Branch of the East River of Pictou has been examined by engineers, who report that at the dryest season of the year 200 horse-power may be developed by means of a dam 30 feet high, located near the village of Hopewell, N.S.

The North Star Mining Co. are applying for incorporation in British Columbia with a capital stock of \$100,000 and head office at Vancouver, to carry on the business of mining, smelting, etc., in that province.

The Styne Creek Gold Mining Co. are applying for incorporation in British Columbia with a capital stock of \$200,000, and head office at Vancouver, to carry on mining operations at Styne Creek, and elsewhere in that province.

The Canadian Pacific Mining and Milling Co., of Minneapolis, Minn., have obtained registration in British Columbia, to engage in mining, smelting, reducing, refining and working ores and minerals in that province. Capital stock \$500,000.

A telegram from Sherbrooke, Que., a few days ago stated that The Paton Manufacturing Company say that the statement that they were preparing to shut down their mills for three months is not correct. They have no intention of doing anything of the kind.

La Compagnie Manufacturiere et Electrique de Montmagny (The Montmagny Manufacturing and Electric Company), are applying for incorporation with a capital stock of \$10,000, headquarters at Montmagny, Que., for the purpose of manufacturing lumber, to instal electric light and telephones and to manufacture and sell electric apparatus, telephones, etc.

The New Glasgow Iron Co., purpose building three miles of a novel kind of railway from the iron ore mines near Arisaig to a wharf at Arisaig. The rails will be formed out of round poles, sixteen feet long, and four inches diameter at the top. These poles will not be squared, but placed on the sleepers in their original form and bolted to the sleepers, which will be further apart than the iron rails on an ordinary railway; 1,000 sleepers is the maximum number to the mile. The wheels of the trucks will be double flanged. If this railway serves its purpose, it will be from an economical standpoint a success. An engine capable of running at a speed of five miles per hour is being looked for. Mr. J.R. Porter, of Stellarton, has a contract to supply 14,000 feet of pole rails.—Halifax Chronicle.

Kay Electric Co'y

MANUFACTURERS OF

DYNAMOS

FOR

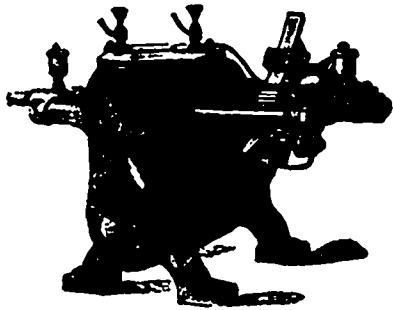
ARC AND INCANDESCENT LIGHTING,

Plating Machines,

Medical Batteries

AND ALL KINDS OF

ELECTRIC APPLIANCES



HAMILTON, ONTARIO

THE PETERBOROUGH CARBON & PORCELAIN CO. LIMITED

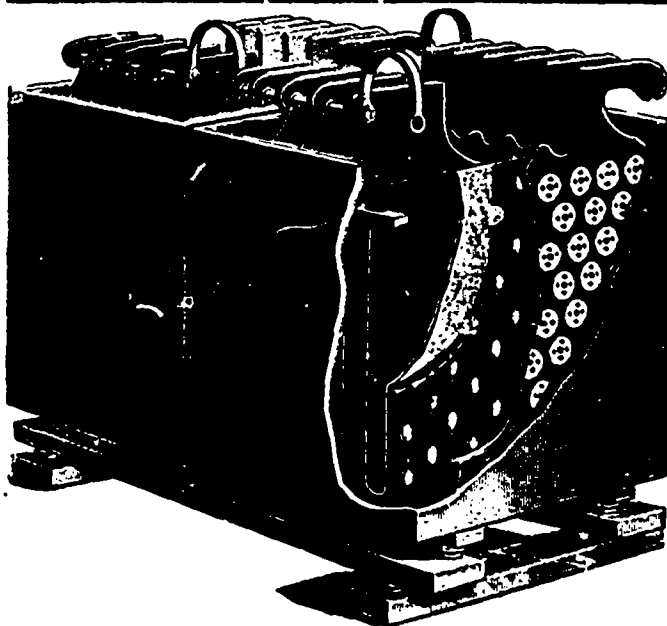
MANUFACTURERS OF

Carbon Points for All Systems of Arc Lights

BATTERY PLATES, CARBON BRUSHES, and all kinds of PORCELAIN for Electrical and Hardware Lines.

All goods guaranteed equal in quality to the best manufacturers in the world.

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THE CHLORIDE ACCUMULATOR

The Electric Storage Battery Co.

SOLE AMERICAN MANUFACTURERS OF

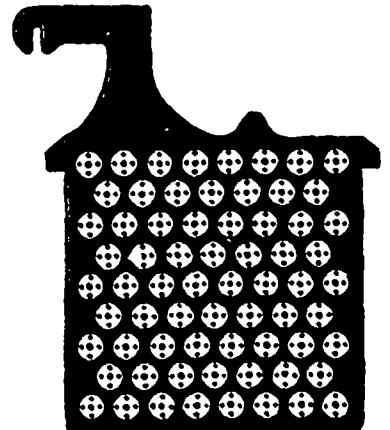
The Chloride Accumulator

Elements of all sizes, from 100 to 10,000 Watts-hours capacity each.

Traction Cells a Specialty

Electric Launch Equipment, Telegraph Phonograph, Surgical and all Special Cells.

Drexel Building - Philadelphia



The Ontario Mica Co., Toronto, have discovered a valuable deposit of mica on their property in Haliburton, near Peterborough, Ont., The vein is said to be 90 feet wide.

The municipality of Kamloops, B.C., contemplate the erection of a new electric light plant, considerably larger than that at present operated by the Kamloops Electric Light Co.

The Musquash Lumber Co. has been incorporated in New Brunswick with a capital stock of \$25,000 to manufacture lumber, etc. John Sealy, St. John, N.B., is one of the incorporators.

The removal of American machines from the cotton mills at St. Stephen, N.B., and the substitution of English machines, according to the St. Croix Courier, enables the same amount of work to be accomplished with a reduction of labor on the machines to the extent of over 60 per cent.

The Pittsburgh, Shenandoah and Lake Erie Ry. Co. propose to build and operate a line of not less than two large steel ferry steamers costing \$400,000, to transport loaded freight cars from their docks at Covenant, Ohio, to Port Dover, Ont., to connect with the Grand Trunk Ry. at that place. That is, this will be done if the Dominion Government will dredge the Port Dover harbor to a sufficient depth to admit the passage of these steamers. No doubt the traffic other than coal would be enormous, especially in lumber and ores, from Canada. General Manager Seargeant, of the Grand Trunk railway, heartily endorses the scheme, and says the company will undertake considerable expense to prepare for the proposed international service. General Manager Shaughnessy, of the C.P.R., also says that their coal supply as far up as North Bay would come via this route. The new line will undoubtedly be of great benefit to Port Dover and the surrounding district.

The Hamilton Facing Mill Co., Hamilton, Ont., have sent us their new catalogue having reference to their business, in the title page of which it is announced that they are manufacturers of foundry facings and blackings; importers of Ceylon plumbago and German lead, and dealers in foundry supplies, fire brick and clay, and moulding sand. We are informed that this concern is perhaps the largest manufacturers in Canada of foundry facings, having one of the best equipped mills on the Continent. The catalogue mentions and describes in detail the almost innumerable articles which are handled, and all the moulders, tools, etc., are shown with appropriate illustrations. The Hamilton Facing Mill Co. are sole agents for Canada for Root's positive blower, essential in every foundry; and also for the Collian cupola furnace. To any who may be interested the company will be pleased to send this catalogue on application.

The Canada Cotton Mills and the Stormont Mills, at Cornwall, Ont. which have been undergoing repairs, have been again put in operation.

Mr. Duncan Macdonald, 13 North St., Toronto, has been commissioned to let a contract for furnishing a 100-light electric plant for a hotel on Muskoka Lake, Ont.

Mr. Feodor Boas, St. Hyacinthe, Que., proposes to utilize the surplus water power used in the running of his knitting mills, for lighting the town and supplying power.

Messrs. J. & J. Taylor, Toronto, manufacturers of fire and burglar proof safes, who a short time ago made a shipment of a number of their safes to Hong Kong, China, as a result thereof are in receipt of orders for more of these goods, to go not only to Hong Kong but to other cities in that country.

Messrs. A. Park and C.W. Boch, Toronto, have associated themselves together as the Toronto Emery Wheel Co., and will manufacture high grade emery wheels, emery stones, etc. Mr. Boch, was, we understand, for a considerable time with the Tanite Co., a well-known American concern, manufacturing emery goods. The Toronto Emery Wheel Co.'s works are on Esplanade, foot of Jarvis street.

The Montreal Street Railway are said to have a great scheme on foot which, if carried into effect, will necessitate an enormous outlay of money. Owing to the rapid growth of the city the company have for some time contemplated the erection of a large power house and yards in a central part of the city. The only site which is said to be desirable for the project is the large square bounded by St. George, Vallee, Philip and Dorchester streets. Some of the proprietors have been waited on, and offers made for their properties. If the scheme is carried out an immense power house will be built on a portion of the ground. The remaining sections will be utilized for tracks and running sheds for the electric cars.—Montreal Star.

Messrs. McLaughlin Brothers, teasel growers and shippers, Skaneateles Falls, N.Y., report that they find business gradually improving, especially among the Canadian mills. This firm is, we are informed, the oldest in the business, although the members of it are all young men, brought up to the teasel trade. They have a good connection throughout Canada, Mexico, Scotland, Yorkshire and the West of England, Belgium, Germany, Russia and the United States. They are prepared to accept orders for teasels of all kinds, at the lowest prices in the market, quality considered, and deliver them in the shortest time, as their equipment for the work connected with the teasel business is unsurpassed.

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Alternating Current Indicators

Are now ready. Before purchasing elsewhere send for our New Catalogue, which contains the prices and description of the above instruments, and also a list and prices of other new instruments of our manufacture.

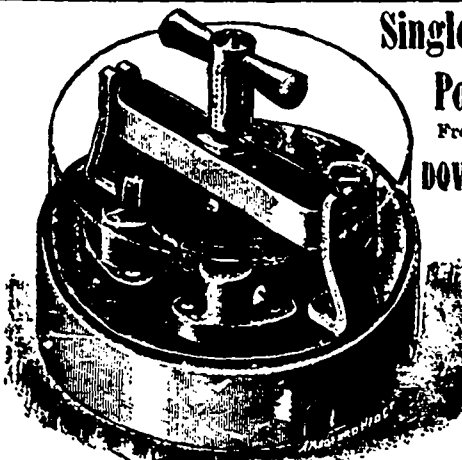
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Sherbrooke, P.Q., Canada. Penacook, N.H., U.S.

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Henry F. Kellogg, General Selling Agent.

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BALTIMORE, M.D., The Poole Electric Co. SAN FRANCISCO, CAL., California Electrical Works.
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Single and Double Pole Switches

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Perkins' Electric Switch Mfg. Co.

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For Sale by The Canadian General Electric Co., Toronto.

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New Railway Generators and Station Equipments. Complete Railway Car Equipments. Direct Current Lighting Dynamos. Direct Current Power Motors.

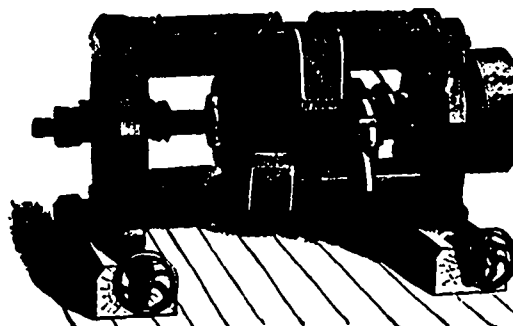
Alternating Single and Two Phase Current Generators, for Lighting and Power.

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THE RELIANCE ELECTRIC MANFG. CO. Ltd.

Manufacturers of The Reliance System of Arc and Incandescent Lighting

and Power Apparatus. The Rho System of Electric Railway.

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The lumbermen at the Chaudiere are vigorously at work polluting and filling up the noble Ottawa river with sawdust, which instead of being wasted might be utilized. At Deseronto, Mr. E. W. Rathbun will not allow one handful to go to waste but manufactures it into paper mache and obtains from it pyrolineous acid. It is by thrift that the enormous business at Deseronto has been built up.—Ottawa Citizen.

The Dominion Compressed Food and Fodder Co., with head office at Barrie, Ont. is being incorporated with a capital stock of \$100,000 to manufacture horse and cattle food ground up and compressed into portable packages by a patented process.

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:- **FACINGS**

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Foundry Supplies and
Moulding Sand.

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HAMILTON - - - **Ontario**

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STEAM LAUNCHES to carry six persons, from \$175 up.

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Write for particulars,
Mentioning this paper.

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42 St. John Street,
MONTREAL.

It was recently announced in these pages that the paper mills of the Dominion Paper Co. at Kingsley Falls, Que., had been destroyed by fire. It is probable that the company will erect new mills at Sherbrooke, Que.

A syndicate of American capitalists has leased four thousand acres of land from the Canada Company, three miles north of Thedford, Ont., and test wells for petroleum are being put down. A Petrolea firm has taken the contract to sink holes in different parts of the territory, and a drilling rig of the latest design has arrived on the ground and commenced operations.

The Toronto City Council at a recent meeting adopted the following: In view of the national importance and vast benefits that would accrue to the trade and commerce of Canada, including the shipping and the development of the farm and the mine, and the increase of the population engaged in these industries, as well as the manufactures of the country and the prosperity of this city in particular, by the deepening of the St. Lawrence canals; he it resolved, that this Council petition the Government of Canada to hasten the work of deepening the St. Lawrence canals by adopting the same means to that end, if need be, as used in expediting the completion of the Sault Ste. Marie canal.

The foundation and frame work of the fitting shop of Mr. Chas. Fawcett's new foundry at Sackville are completed. The foundation of the moulding shop will be finished next week. A large number of men are at work and the building is being pushed along rapidly. The numerous and expensive buildings which are being put up in Sackville this summer have caused quite a boom in the quarrying business. Two new quarries have been opened at Westcock this spring. From both as yet surface stone only has been removed but both give evidence that fine quality stone will be found at a greater depth. In one owned by Roderick McLeod and situated near the aboideau is found stone of a brown color and in the other which is situated on the lands of Messrs. Sanford and William Barnes, three quarters of a mile nearer Woodpoint, the stone is of a lighter color. It is said that those interested in the quarries at Woodpoint and vicinity and at Westcock are endeavoring to get a branch line built to connect with the I. C. R. at Sackville. The present method of shipping stone on scows to Sackville and from there by rail is both expensive and unsatisfactory and the new branch should meet with encouragement. Mr. John Estabrooks, of Sackville, who has the contract for the new warehouse for the Enterprise Foundry Co., is getting well along with the work. The building will be 60x45 feet and three storey.—Sackville, N. B., Post.

The Reliance Electric Manufacturing Company, Waterford, Ont., announce that they are now contemplating an extension of their business, which will in all probability necessitate a change to a more central location in Ontario.

The No. 2 salt well of the Canadian Pacific Railway, at Windsor, was started on Saturday, the obstructions that got into the well some months ago having been removed. The works are now turning out about 700 barrels a day, and, although they have refused all orders since February, they are now 12,000 barrels behind. As soon as the cavity in the well gets larger, the works can be run to their full capacity, which is 1,000 barrels a day, but even then the management say they will be unable to supply the demand. The production is said by experts to be as fine an article as is produced, and it is driving from the market the other salt wells of Canada. A few weeks ago a party of English capitalists inspected the works, among them being salt experts. They were so surprised at what the wells were producing that last week they paid another visit. The salt is in four qualities, and the works are running night and day. By the new arrangement of slides a car of 100 barrels can be loaded in twenty-five minutes.—Petrolea Advertiser.

A matter interesting to the public at large, as well as the confectionery trade, is the new Holmes machine. The inventions of new machinery never cease, and in every department of human industry the help of the labor-saving devices is coming daily more and more into use. In the big biscuit and confectionery Works of D. S. Perrin & Co., they have now got two new machines running, whose work is a wonder in its completeness. They are called Holmes' chocolate coating and cooling machines, and they are an exception to most labor-saving inventions, inasmuch as their product is superior to the hand work of the same class. Chocolate confectionery is one of the most popular lines on the market to-day, as it has been for years, and anything that will tend to improve the quality and increase its production must be a useful and valuable machine. With their usual enterprise D. S. Perrin & Co. lead all other manufacturers in Canada in the use of the Holmes machine, the two that have been running in their works for the past week or two being the only ones operated in the Dominion. D. S. Perrin & Co. have bought the exclusive right for Ontario for these machines, and all who use or handle their celebrated confectionery will have an early opportunity of inspecting for themselves the much-improved class of goods that are now being turned out. The principle of the machine consists of a chocolate bath, into which the confections are dipped, and on their passage through the machine dried by a cold air blast.—London, Ont., Free Press.

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Equal to the Best English and German Brands

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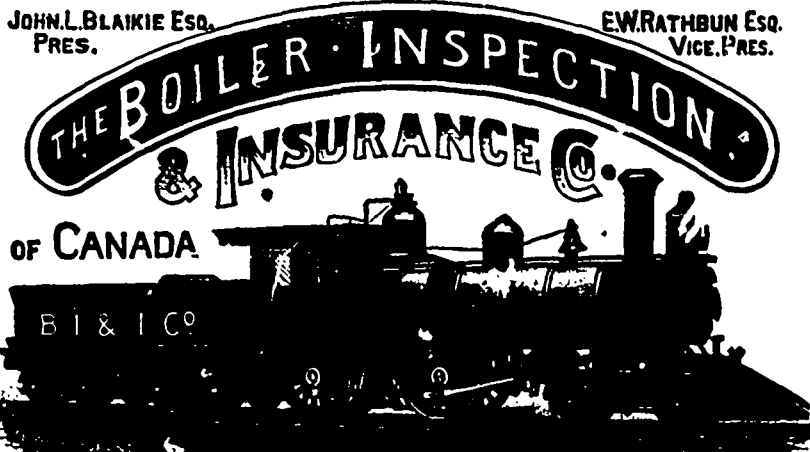
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CONSULTING ENGINEERS:
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Head Office: TORONTO

ARE YOU
SURE
THEY ARE
SAFE
AND
IN GOOD
CONDITION?

A sub-committee of the Board of Works of the Toronto City Council appointed to investigate the quality of the cement used on city pavements have investigated samples taken from 21 openings in roadways, which had been laid for five years, of which nine were of native and 12 of English Portland cement. Of the imported article 5 specimens were reported no good, 3 medium and 4 very good. Of the samples of Canadian cement 6 were found very good and 3 medium.

Probably the most commodious mill platform in America is that in connection with Mr. J. R. Booth's mills. Since the acquisition of the Perley & Pattee mill the platform has been extended in nearly every direction, and now ample room is afforded the large number of men to keep the lumber properly classified. The work is so thoroughly systematized that a particular place is allotted to lumber of every grade and dimension, and a fair average of what leaves the platform daily is obtained through the medium of a check book in which all the loads are marked.—Ottawa Citizen.

Work changing the machinery in the old smelting plant near Tower Bay slip for the use of the barytes manufacture, will be completed within a week and shortly after the works will be in full operation. President Charles Brent is devoting his personal supervision to the preliminary work, and yesterday he said:—"We expected to have a boat out for ore before this. We get this ore from a small island, about twenty miles from Port Arthur, which contains probably four acres. The vein is 75 feet wide, and although we have not ascertained its depth, we know that a parallel vein has been worked 1,360 feet below the level of Lake Superior. Barytes is largely used in the manufacture of white lead, in rubber (particularly belting), in paper manufacturing, and even in the composition of candles. There are several hundred thousand tons used, but being a great adulterant, it is hard to determine just how much is used. It sells from \$12 to \$25 per ton, according to its purity, and is very heavy, an ordinary flour barrel full weighing 700 pounds. We shall at the start employ ten men, which we hope business will warrant us in increasing. We have a convenient plant here for our business, the only thing necessary to do, outside of the building, is to extend the switch track, now lying between us and the Grand Republic mill, around the north side of our plant, which we shall do. Our improvements and new machinery thus far have cost about \$5,000. I am the only member of the company who is not a Duluth man," Mr. Brent continued. "My home has been in London, Canada; but in the future I shall probably make it in Superior. Should we some time get a deep-water channel to the sea, I believe the greatest city on the American continent will be here."—West Superior, Ont., Leader.

Taking advantage of the coal miners' strike in the States, the Canadian mines are now shipping quantities of coal there at profitable prices. The Joggins Mines, of Nova Scotia, have already executed several good orders from Boston and Portland and have others in hand for these and other American cities. By continually adding to their extensive plant in the past, the Canada Coals and Railway Company, the owners of these mines, are now able to push their output in this direction, as well as meet the growing demand in the home market.

Speaking of the sale of agricultural implements in Manitoba, the Winnipeg Commercial says. The trade is turning out quite as light as was expected. The regular dealers opened the season with the intention of greatly curtailing business, unless it could be done very much more largely on a cash basis than in the past. There has been a heavy decline in this branch in the last two seasons, as compared with 1891, and this year will show a much sharper decline, probably not exceeding 25 per cent. of the aggregate trade of 1891. The fact is that dealers are carrying altogether too much farmers' paper, for goods sold in past years. Farmers' paper is not regarded as a high-class security, and when a concern gets loaded up with this class of collateral, and begins to want money, it is a very difficult thing to realize upon. The banks do not care to handle any more of it than they can get along without. Altogether, it appears that the implement trade of Canada has over reached itself, by selling too freely upon credit, and though the manufacturers and dealers hold any quantity of paper of this class, some of them are reported to be in need of cash, which it is hard to secure on the class of securities held. The curtailment of business, therefore, is no doubt partly the result of an effort to place the business of the different concerns upon a sounder basis. One company reported in financial difficulties a short time ago, is said to have sold off a quantity of last year's goods which were held in Manitoba, rather freely, but all the other home dealers are very conservative. Representatives of United States firms are said to be selling more freely here on credit terms than Canadian dealers. The tariff debate on agricultural implements came up at Ottawa on Thursday, and the item passed as previously placed at 20 per cent. Some of the leading Liberals protested against the high duty implement manufacturers were obliged to pay on their raw material, and they pointed out that the reduction in the duty on their raw material was very small, in comparison with the reduction in the tariff on implements. This, it was shown, was very unfair to the implement men, and they demanded a greater reduction on iron and steel, which comprises the great bulk of the raw material used by implement manufacturers.—Winnipeg Commercial.

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Have your boiler inspected and insured, it pays to know that you are right.

Don't Trust to Luck. Will Your Boiler Stand the Pressure at its Weakest Point? Can you Judge It? Are the Safety Valves and Steam Gauges Right? It is your duty to take every precaution. Inspection makes you safe. Insurance indemnifies you against loss.



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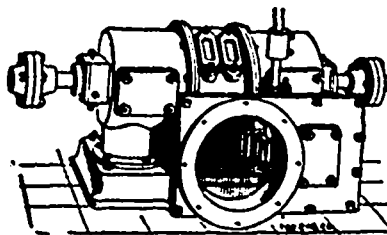
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MUDDY OR GRITTY LIQUIDS
 HANDLED WITHOUT WEAR

Descriptive Catalogue, with Prices, Furnished on Application.

Pulsometer Steam Pump Co.
 NEW YORK, U.S.A.

Mr. John Farquharson, Montreal, will build a large biscuit factory in that city.

Messrs. Rhodes, Curry & Co., Amherst, N.S., have contracted to build 50 cottages for the Dominion Coal Co., at Glace Bay, Cape Breton, and also a hotel, and have also contracted to build a lot of cars for the Louisburg railway. The amount of these contracts is over \$50,000. The Dominion Coal Co. are constructing all their works with a view to durability. The houses are to be built on the most approved plans, special regard being paid to sanitary arrangements.

The Alberni, B.C., paper mill is now in operation. The paper and pulp mill machinery is of the most approved description for working up the refuse from the saw mill, and also any other paper making material, consisting of rag and rope cutting machine, wood barking, chipping, crushing and pulping machines, two large globular boilers, two roller gangs with granite runners, five rag beaters, four Driver paper making machines with five cylinders, large reel paper cutting machine, bag making and printing machinery, capable of turning out 10,000 bags an hour. There is also an engineer and blacksmith's shop, fitted with large lath, saw bench, etc., a massive steam boiler for boiling and drying.—Commercial.

The Canadian Mineral Wool Co., Toronto, have just shipped two car loads of mineral wool to Messrs. R. Dunsmuir & Sons, Victoria, B.C., to be used in the construction of their cold storage establishment in that city.

It is now expected that the Canadian ship canal at Sault Ste. Marie will be completed in July. Work on this enterprise has extended over a period of five years, and in completing it this summer the contractors are a year in advance of the time originally set, and earn a bonus of about \$90,000 from the Dominion Government. The completion of the work will have an immediate bearing on lake transportation by giving a 20 foot channel through the "Soo" in place of one of from 14 to 16 feet, according to the stage of the water in the American canal now in use; Hay Lake Channel which the American government is now deepening will also be completed this year. The new Canadian ship canal is about one mile long and the lock is 900 feet in length by 60 in breadth. The channel is 20 feet at ordinary stage of water. Two of the largest lake vessels can be locked through together. The lock in the canal now in use is 515 feet in length, with 60 foot gates and from 14 to 17 feet of water. The new American "Soo" canal will be completed in 1896.—Cleveland, O., Marine Record.

...**JOHN MCDUGALL**...

Caledonian Iron Works, for BOILERS, - ENGINES, - PUMPS.
Gearing, Hangers, Shafting, etc.

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cut out this advertisement and send with 50c for a 5 pound Tin by Express, prepaid.

J. L. GOODHUE & CO., Manufacturers of **Leather Belting, DANVILLE, QUE.**

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Oak Tanned Leather Belting,
Montreal & Toronto.

We make BELTING FOR ALL KINDS OF WORK. When ordering state where BELTS ARE TO RUN.

The Canadian Pacific Ry. Co. will sink a third salt well at Windsor, Ont.

The Corticelli Silk Co., will add another wing to their already large factory at St. John's, Que.

The Canadian Locomotive and Engine Co., Kingston, Ont., have been awarded the contract for the construction of the machinery to be used in operating the lock gates of the new Sault Ste. Marie canal.

CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from April 2 to April 12, 1894, inclusive.

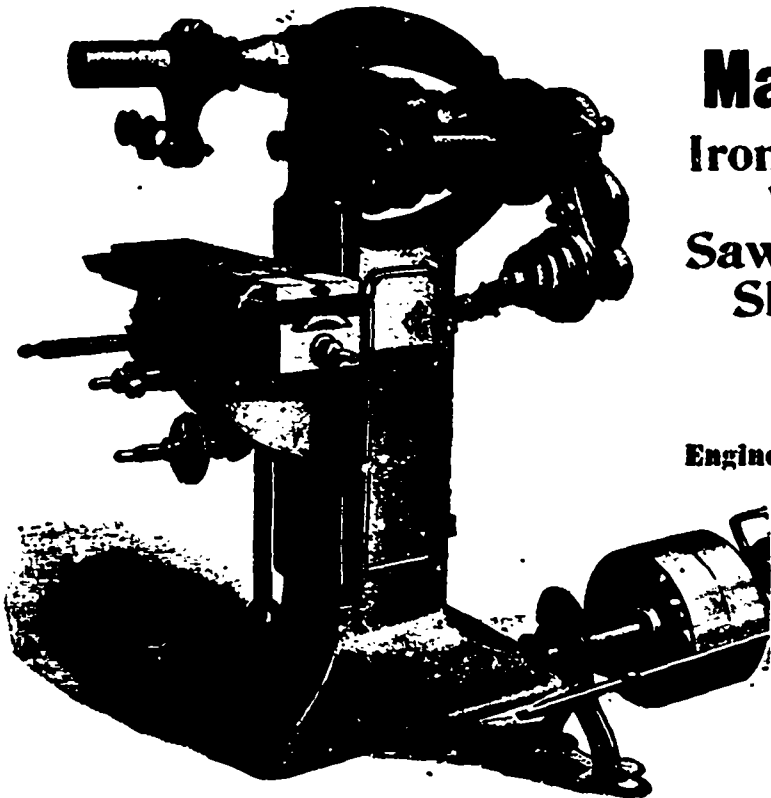
Information regarding any of these patents may be had on application as follows:—

Fetherstonhaugh & Co.,	Bank of Commerce Building,	Toronto.
Ridout & Maybee,	103 Bay street,	Toronto.
A. Harvey,	Central Chambers,	Ottawa.
J. A. Grenier,	Imperial Building,	Montreal.

Copies of American patents corresponding to Canadian patents can be procured from these attorneys for the sum of twenty-five cents each.

- 45,662 Over-draw check bit, Joseph Carter, Blyth, Ont., April 2.
- 45,663 Car coupler, David S. Hutton, Martinsburg, Iowa, April 2.
- 45,664 Hay press, Hubert Trefle Chalifoux, St. Hyacinthe, Que., April 2.
- 45,665 Shoe, Edwin L. Goding, Portland, Me., April 2.
- 45,666 Hay press, Albert G. Wilson, Wolfe City, Texas, April 2.
- 45,667 Wash stand, Henry H. Whitney, Centreville, Ida., and William F. Plimney, Standish, Me., April 2.
- 45,668 Clothes pin, William C. Popplewell, Eureka Springs, Ark., April 2.
- 45,669 Gate hinge, Joseph Alexis, Robillard, St. Andrew, Que., April 2.
- 45,670 Locomotive fire kindling apparatus, James McNaughton, Waukesha, Wis., April 2.

A. R. WILLIAMS,



Manufacturer of and Dealer in

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Iron Working Machinery.
Wood Working Machinery.
Saw Mill Machinery.
Shingle Mill Machinery.
Veneer Mill Machinery.
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Hamilton : : : Ont.

Manufacturers of

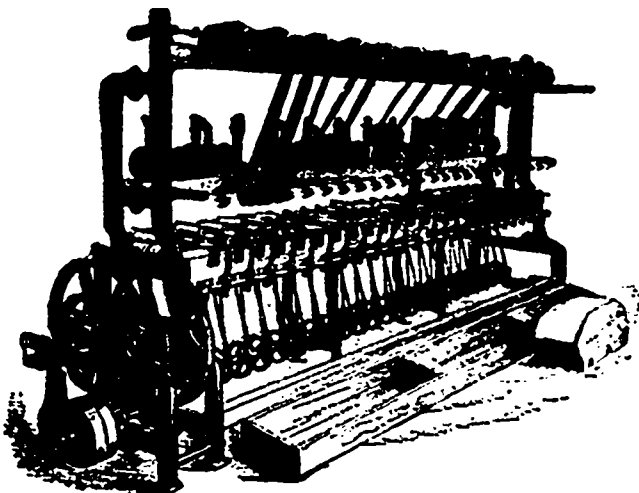
FILES and RASPS

Resulting in all Branches

- 45,671 Pipe coupling, James S. Johnson, Almont, Mich., April 3.
- 45,672 Churn, Emmette W. Settle, Cedar City, Mo., April 3.
- 45,673 Electric motor, Robert Lundell, Brooklyn, N.Y., April 3.
- 45,674 Electric motor, Robert Lundell, Brooklyn, N.Y., April 3.
- 45,675 Switch, Robert Lundell, Brooklyn, N.Y., April 3.
- 45,676 Car coupler, Omer Sevigny and Zacharie Therien, St. Guillaume, Que., April 3.
- 45,677 Magnet, The Whitney Electrical Instrument Co., of Saco, Me., April 3.
- 45,678 Car coupler, Benjamin Whitlock, et al, New York, N.Y., April 3.
- 45,679 Car coupler, Benjamin M. Whitlock et al, New York N. Y., April 3.
- 45,680 Bicycle, Henry J. Bechtel, George C. Schultz and William D. Schultz, Bramford, Ont., April 3.
- 45,681 Circuit maker, Joseph Weaver, Canandaigua, New York, N. Y., April 3.
- 45,682 Curtain holding device, Edward E. Piper, Portland, Me., April 3.

- 45,683 Incandescent electric lamp, Henry Green, Hartford, Conn., April 3.
- 45,684 Nut lock, Stephen McLaughlin, Debert Station and Lewis & Sons, Truro, N.S., April 3.
- 45,685 Egg carrier, Emery J. Vance, and James M. Leaver, Bay City, Mich., April 3.
- 45,686 Crimped paper bag, The E. B. Eddy Co., Hull, Que., April 3.
- 45,687 Paper for carpet linings, wrappers, etc., The E. B. Eddy Co., Hull, Que., April 3.
- 45,688 Machine for cutting soles, etc., The Canadian Rubber Co. Montreal, Que., April 4.
- 45,689 Ash-sifter Hugh Elias McColl, Toronto, Ont., April 4.
- 45,690 Partition, etc., Thomas A. Lee, New York, N.Y., April 4.
- 45,691 Horseshoe, Arthur E. Ogden, Ashley, N.D., April 4.
- 45,692 Oil or hydro-carbon motor, James E. Weyman, George Hitchcock and James A. Drake, Guildford, England, April 4.
- 45,693 Combined shovel and sifter, Charles Tanner, Staunton, Va., April 4.
- 45,694 Road cart, Moysius Brohmann, Mildmay, Ont., April 4.

MEDAL AWARDED AT WORLD'S FAIR



Patent Bobbin Winding Machine, for Worsted or Cotton Yarns
Pat. Nov. 22nd, 1887, with variable motion. Pat. Aug. 5th, 1893.

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- 45,695 Apparatus for weaving strands into seat fabrics, Dwight E. Warfield, Worcester, Mass., April 4.
- 45,696 Lasting machine, Sherman W. Ladd, Somerville, Mass., April 4.
- 45,697 Gas governor, Frank Peterson, Montreal, Que., April 4.
- 45,698 Gas governor, F. Peterson, Montreal, Que., April 4.
- 45,699 Quarter boot, Joseph Carter, Blyth, Ont., April 4.
- 45,700 Door fender, Ira I. Ritz, Newtonville, Mass., April 5.
- 45,701 Railway car, Henry S. Pruyn, Hoosick Falls, New York, N. Y., April 5.
- 45,702 Latch and lock, John Edward Armstrong, Santa Cruz, Cal., April 5.
- 45,703 Steam boiler, Henry A. Laughlin, Pittsburg, Pa., April 5.
- 45,704 Sash lock, Willoughby Moffat, Hamilton, Ont., April 5.
- 45,705 Rail joint, Clarence Leroy Wheeler, Marion, Ind., April 5.
- 45,706 Rail joint, Clarence Leroy Wheeler, Marion, Ind., April 5.
- 45,707 Wash-board, Charles Thomas Brandon, Akron, O., April 5.
- 45,708 Pump, Charles Rumley, Helena, Mont., April 5.
- 45,709 Fire lighter, John D. LeBel, London, Ont., April 5.
- 45,710 Milking stool, Timothy McMonagh, Port Huron, Mich., April 5.
- 45,711 Railway switch, William Halliday and Thomas F. Rawls, Barnett, Miss., April 5.
- 45,712 Wash boiler, Washington P. Burke, Quitman, Ga., April 6.
- 45,713 Folding door, Oliver T. Springer, Burlington, Ont., April 6.
- 45,714 Woven wire mattress, Edward C. Granville, Ottawa, Ont., April 6.
- 45,715 Non-heat conducting cement for boilers, steam pipes, etc., J. E. Turgeon, Sherbrooke, Que., April 6.
- 45,716 Smoke consumer and blower, Garrett Wallace Poole, Newark N. J., April 6.

- 45,717 Heating stove, William W. Towne, Danville Que., April 6.
- 45,718 Buffing roll, George Henry Peck Flagg, Boston, Mass., April 6.
- 45,719 Knottter for grain binders, Benjamin Franklin Stewart and the Plano Mfg. Co., Chicago, Ill., April 6.
- 45,720 Revolving window-sash, Philip Stover Riddelle, Fentriss Gordon Kerlin, Woodstock, Va., and Benjamin Franklin Dyre, Melrose, Mass., April 6.
- 45,721 Window sash hanger, Ryerson W. Hilliker, Kansas City, Kan., April 6.
- 45,722 Governor for machinery, Edward Thunderbolt, Carlton, Victoria, Australia, April 6.
- 45,723 Water elevator, Philibert Gonthier and Louis Gendreau, Parish St. George, Que., April 6.
- 45,724 Curd cutting machine, John Colon Grant, Peterborough, Ont., April 6.
- 44,725 Wooden bicycle rim, The Toronto Cycle Co., Toronto, Ont., April 6.
- 45,726 Revolving chimney top, Henry Iwan, Streator, Ill., April 6.
- 45,727 Sash lock lift, etc., Wilhelm A. Zietzke and Will F. Davis, Bozeman, Mont., April 6.
- 45,728 Nut lock, John Horace O'Brien, East St. Kilda, Victoria, Australia, April 6.
- 45,729 Electric fire alarm system, Gustave A. Drolet, and Francis Hurtubise, Montreal, Que., April 6.

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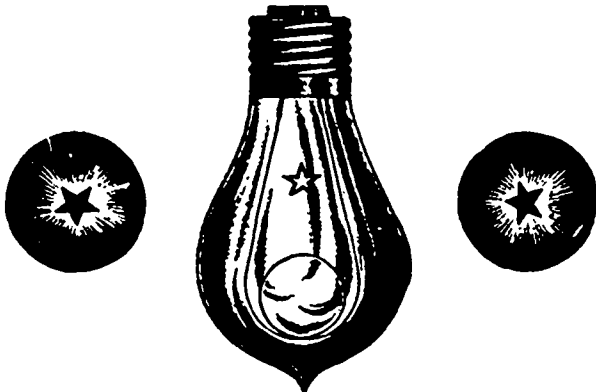
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- 45.730 Bottle stopper, John James Varley, London, England, April 6.
- 45.731 Explosive, Theron Rudd Gue, Halifax, N. S., and Solomon Turck, New York, N. Y., April 7.
- 45.732 Amalgamator, Hugh Calhoun, Hot Springs, and Aron M. Beam, Bear, Ark., April 7.
- 45.733 Seat for agricultural machines and vehicles, George Banks, Greenville, Mich., April 6.
- 45.734 Furnace, William L. Teter, Philadelphia, Pa., and Henry L. Webster, Seneca Falls, N.Y., April 7.
- 45.735 Process of making building composition, William Pinkerton, Toronto, Ont., April 7.
- 45.736 Rail joint, Clarence Leroy Wheeler, Marion, Ind., April 7.
- 45.737 Nut-lock, Joseph Lachace, St. Francois, De la Beauce, Que., April 7.
- 45.738 Divider for pea harvester, John Richmond, Morris, Ont., April 7.
- 45.739 Window head fastener, Alonzo P. Read, Kenosha, Wis., April 7.
- 45.740 Washing machine, J.L. Knoll, Lebanon, Pa., April 7.
- 45.741 Vehicle wheel, C.W. Robinson, Florence, Ala., April 7.
- 45.742 Car replacer and derailer, Daniel D. Green, Scofield, Utha., April 9.
- 45.743 Process of manufacturing pseudojonone, Johann C. W. F. Fiemann, Berlin, Germany, April 9.
- 45.744 Belt tightener, James Wright, Jackson, Tenn., April 9.
- 45.745 Device for unloading cars, George H. Hullett, Cleveland, O., April 9.
- 45.746 Switch stand, Axel A. Strom, Austin, Ill., April 9.
- 45.747 Ventilator, George T. Orton, Winnipeg, Man., April 9.
- 45.748 Hay tedder, Edward C. Blackstone, Stanford, Eng., April 9.
- 45.749 Apparatus for preventing locomotives from leaving the rails, Matthew Belk, Palmerston, Wellington, Colony of New Zealand, April 9.
- 45.750 Hot water heater, Edward Wilson, Exeter, Eng., April 9.
- 45.751 Floor set, Hubert A. Bates, Bath, Me., April 9.
- 45.752 Boot and shoe, Osear P. Hurd, Binghamton, N.Y., April 9.
- 45.753 Sh metal spring, Charles La Dow, Albany, N.Y., April 10.

- 45.754 Holding mechanism for spring actuated shades, Edward T. Burrows, Portland, Me., April 10.
- 45.755 Boiler furnace, Albert F. Kingsley, Washington, D. C., April 10.
- 45.756 Postal and other tubes, Peter Tyrer, Cranfield Lodge, Bexley Heaths, Kent, Eng., April 10.
- 45.757 Piano damper, Antonio Pratte, Montreal, Que., April 10.
- 45.758 Rail joint, Solomon F. Stever, Fairfield, Ia., April 10.
- 45.759 Oiler, James Lund, Heaton Chapel, and Robert H. Taylor, Ardwick, Manchester, Eng., April 10.
- 45.760 Horse power or capstan, etc., Hubert T. Chalifoux, St. Hyacinthe, Que., April 10.
- 45.761 Wind mill, Ever Everson, Mankato, Kan., April 10.
- 45.762 Oil cup for carriage axles, George W. Butler, Oxford, Kent, Ont., April 10.
- 45.763 Car coupler, The Gould Coupler Co., New York, N.Y., April 11.
- 45.764 Process for manufacturing rivets, studs, etc., William S. Wilson, and David S. Henderson, Brantford, Ont., April 11.
- 45.765 Cane planter, Oligio O. Y. Martinez and Edwards M. Acevedo, Havana, Cuba, April 11.
- 45.766 Band saw mill, George M. Hinkley, Dempey B. Hanson, William H. Trout and The Edward P. Allis Co., Milwaukee, Wis., April 11.
- 45.767 Nut lock, John Homer, Dubois, Pa., April 11.
- 45.768 Ink stand, Thomas S. Shenston, Brantford, Ont., April 11.
- 45.769 Combined tank or cistern, pump and measure for liquids, William Barnes, Derbyshire, Eng., April 11.
- 45.770 Weighing scales, Robert A. Dunning, Bath, Me., April 11.
- 45.771 Vacuum holder for syringes, etc., James C. Parker, Wordston, Kan., April 11.
- 45.772 Stem winding watch, George S. Klein, Toronto, Ont., April 11.
- 45.773 Range boiler, Valentin Wilhelme, Paterson, N.J., April 11.
- 45.774 Shoemaker's last, Clinton M. Hurlbut, Toronto, Ont., April 11.
- 45.775 Heat regulator, John J. Schrag, Valentine, Kan., April 12.
- 45.776 Umbrella, Ernest C. Chard, Chelsea, Middlesex, Eng., April 12.

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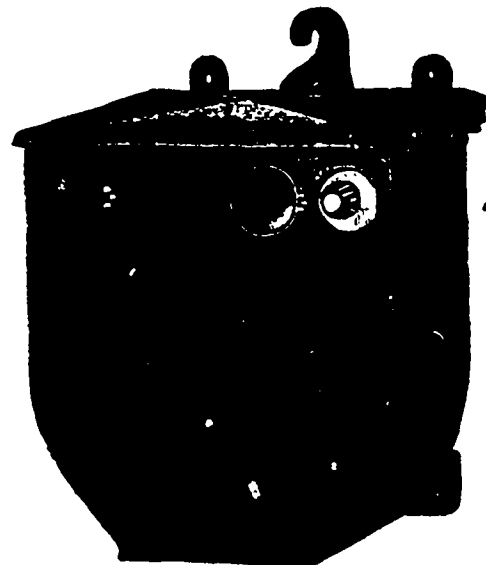
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- 45,777 Wall finishing compound, Robert E. Haire, Grand Rapids, Mich., April 12.
 45,778 Can, Marshall J. Kinney, Astoria, Oregon, April 12.
 45,779 Apparatus for using liquid fuel, Henri Galopin, Melbourne, Colony of Victoria, April 12.
 45,780 Dust collector, George S. Wilson, Tecumseh, Mich., April 12.
 45,781 Over-stocking, Gasper S. Grosch, Milverton, Ont., April 12.
 45,782 Army accoutrement, William Silver Oliver, Halifax, N. S., April 12.
 45,783 Sap evaporator, Louis Gauthier, Village de St. Pie, Que., April 12.
 47,784 Electric wire covering, Franklin Streater Randall, Philadelphia, Pa., April 12.
 45,785 Kiln, Adams Knacker, Edgar, Neb., April 12.
 45,786 Bracket table, John W. Smyth, and Francis W. Smith, London, Ont., April 12.
 45,787 Method of tanning leather, Martin Dennis, Newark, N. J., April 12.

UNITED STATES PATENTS.

GRANTED TO CANADIAN INVENTORS.

The following patents were issued from the United States Patent Office, on May 29 and June 5, 1894, and reported especially for the CANADIAN MANUFACTURER by Glascock & Co., patent attorneys, Washington, D. C. Printed copies of these patents can be obtained from them for 25 cents each.

- John H. Mayer, Waterloo, Ont., set off mechanism for looms.
 J. Harvey Vanderburgh, Orono, Ont., cloth measuring machine.
 Henry C. Biette, assignor of one-half to A. Blackburn, and F. A. Ramage, Toronto, autographic register.
 Joseph Carter, Blyth, Ont., checkrein support.
 Arthur K. Evans, Toronto, stay traveler.
 Edwin F. Moore, Toronto, antifriction wheel hub.
 Charles W. Vanderburgh, Wellington, Ont., steam generator.
 John B. Watson, Toronto, and J. R. Douglas, Ottawa, ventilating and furnace checking device.
 James W. Woods and D. I. Barnett, Toronto, length indicator for fabrics.

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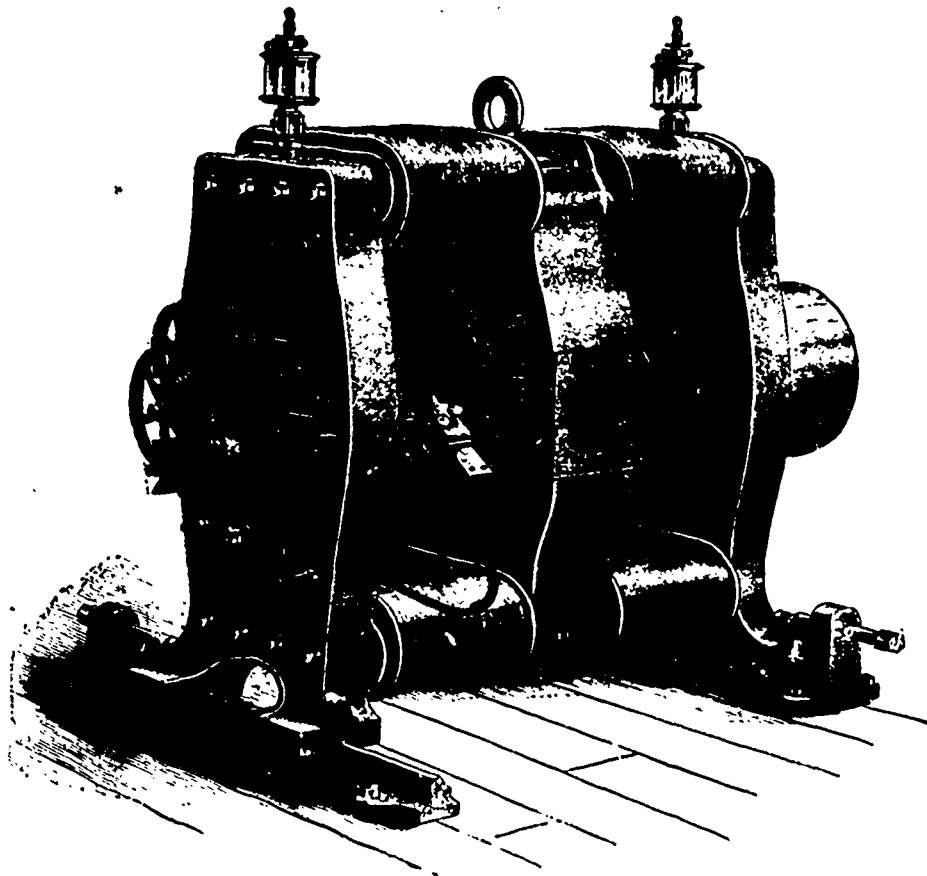
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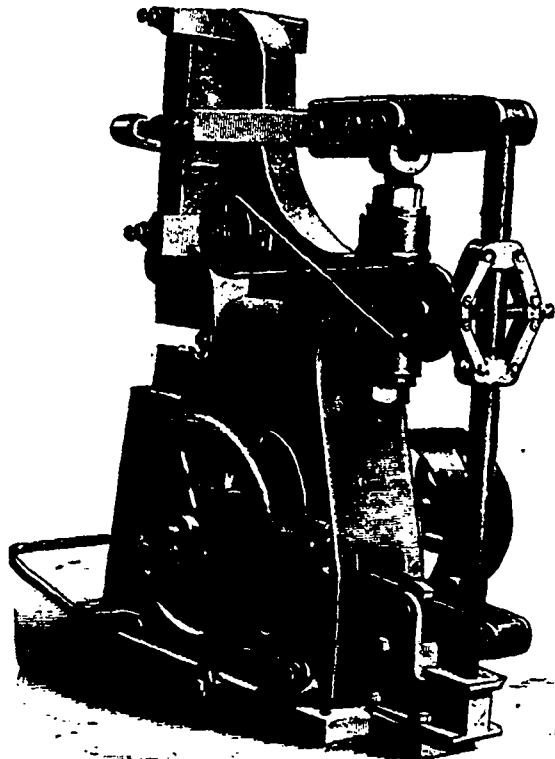
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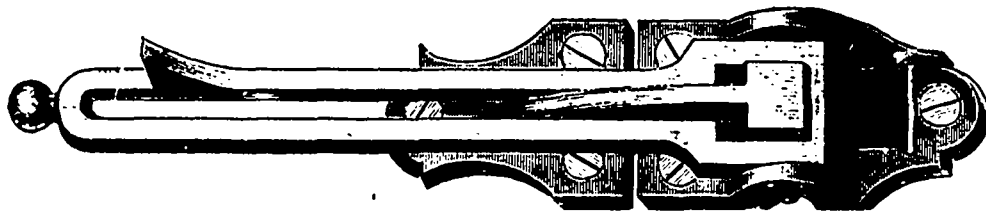
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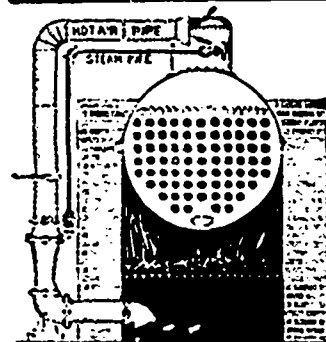
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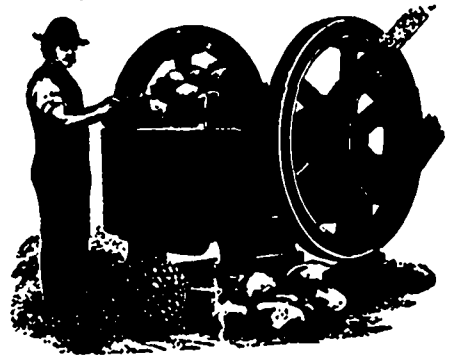
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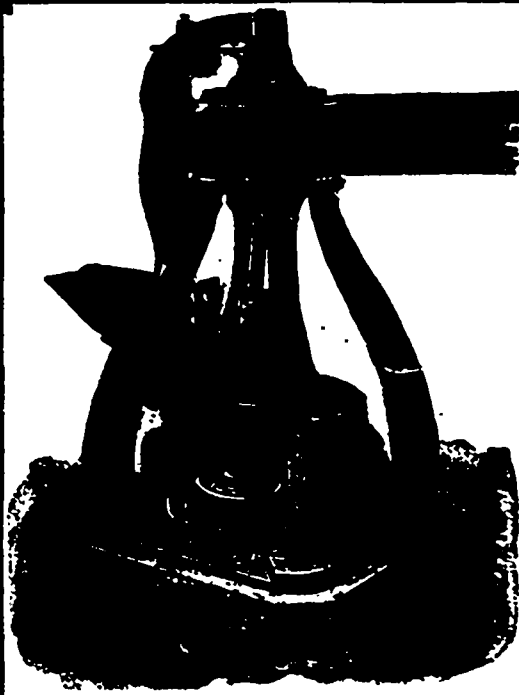
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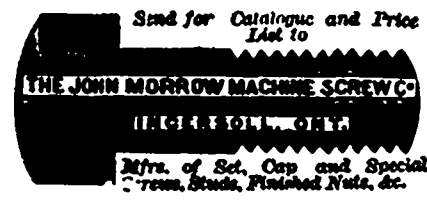
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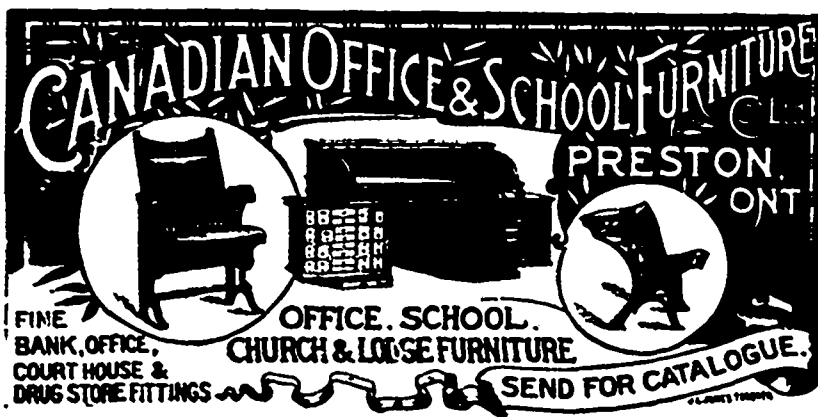
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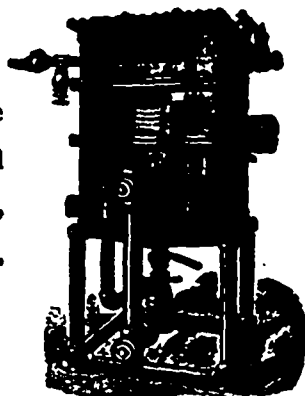
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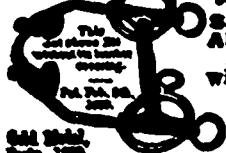
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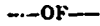
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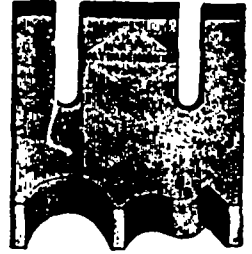
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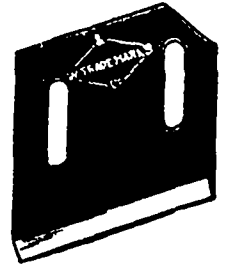
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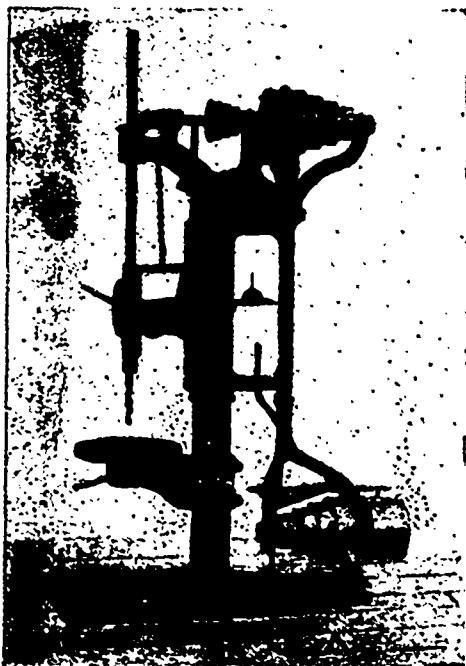
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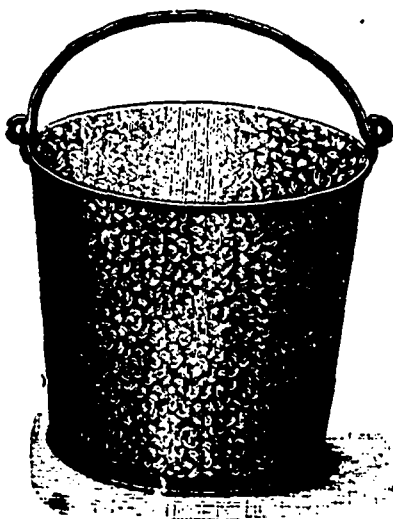
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Something entirely new, and superior to the old style buckets, made in three sizes.

They are superior to the ordinary flaring English bucket, being of greater capacity.

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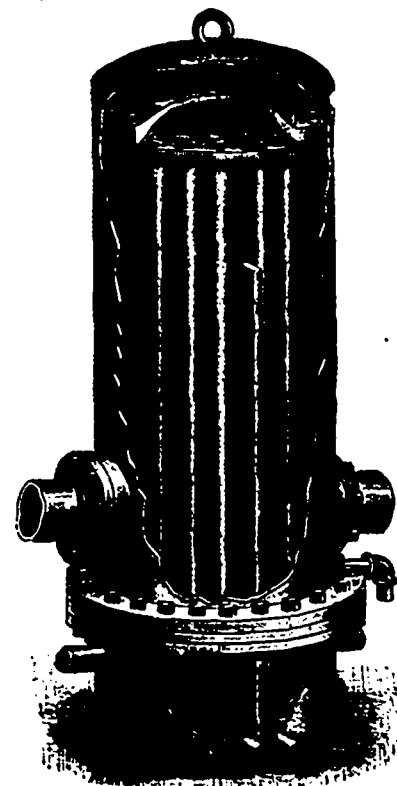
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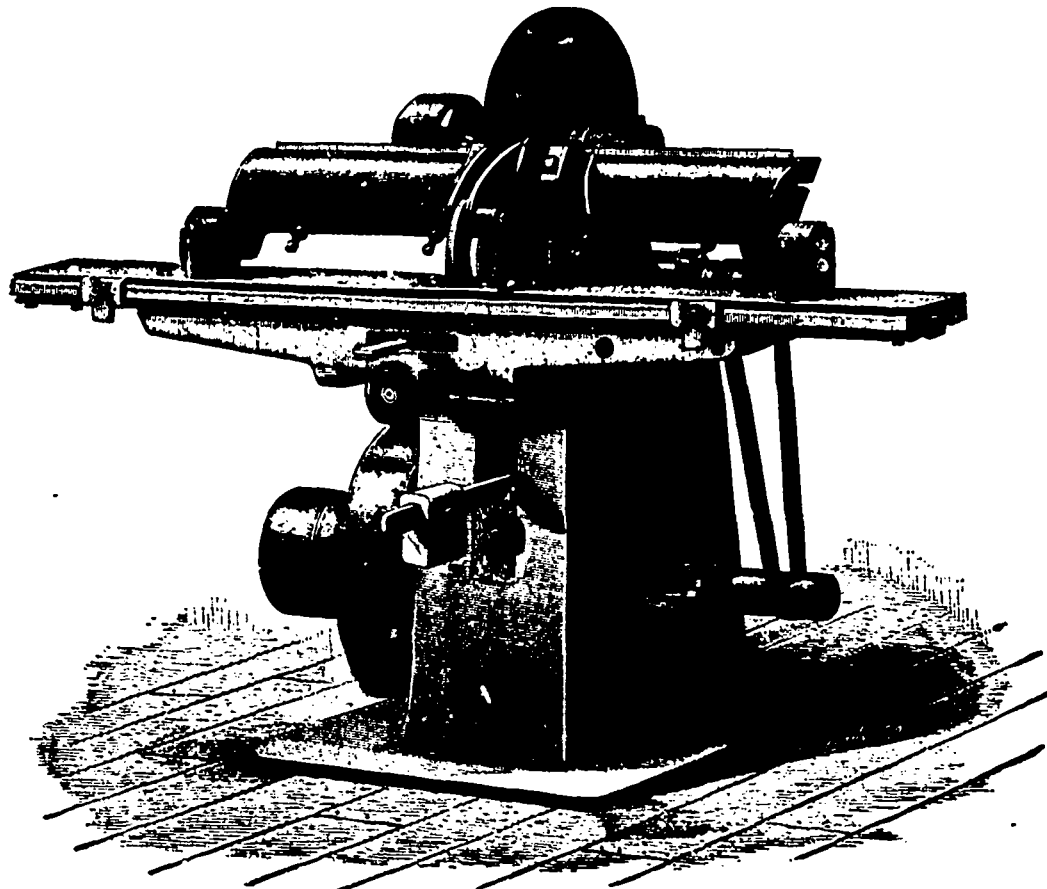
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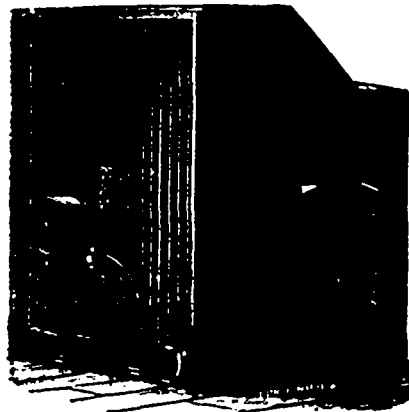
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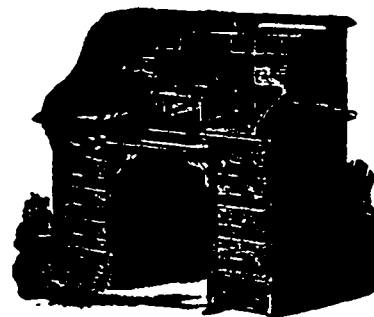
J. D. McEACHREN, Galt, Ont.

Waterloo, Ont., Nov. 26th, 1892.

Mr. J. D. McEachren, Galt:
Dear Sir.—Your favor received. In reply would say that the dry kiln you put in for us last summer is giving entire satisfaction. It dries lumber in a very short time, and does it well. We would not change it for any other kiln that we have seen.
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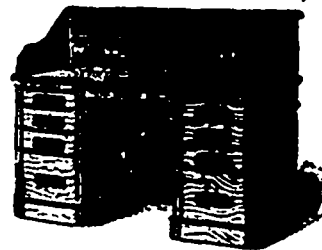
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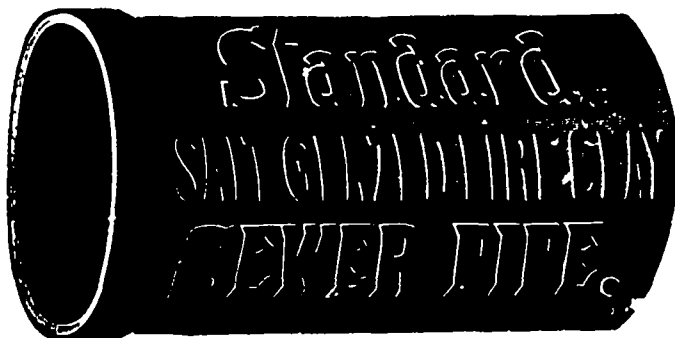
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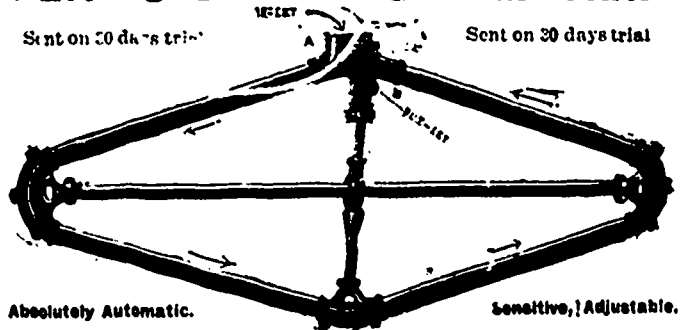
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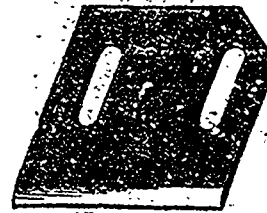
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