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Vol. 27.

TORONTO, MARCH 16, 1894.

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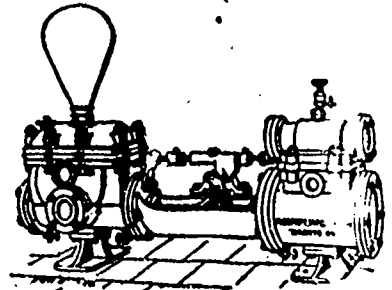
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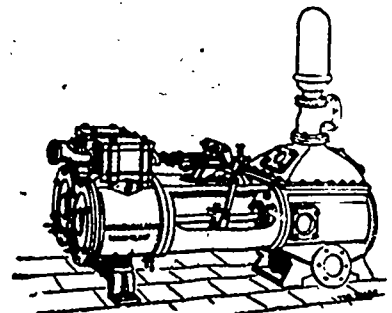
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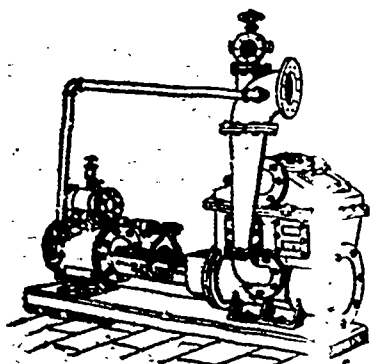


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THE ADVOCACY OF WILD PROJECTS.

Times of depression always furnish an opportunity to many well-meaning persons to get a hearing for the cry that the people perish for lack of knowledge of their particular nostrums for the ills of the body politic. If any one wants to see an assortment of these nostrums let him peruse the editorial and correspondence columns of The Farmers' Sun, the mouthpiece of the Patrons of Ontario. The Sun is a sort of dispensary for a stock of economic lymphs, boluses, salves and emulsions compounded for the good of society in general and of the Canadian farmer in particular, and which range all the way from a plank for

the abolition of the gardeners attached to Government house to the enormous revolution involved in the proposition that we should get rid of existing methods of collecting revenue and trust to the taxation of land values as expounded by Henry George, who borrowed it from John Stuart Mill, who got it from the French physiocrats of the eighteenth century. But whereas Mill proposed to compensate the individual owners of farm land and town lots for the loss of the "unearned increment," Mr. George and his Canadian disciples advocate confiscation, pure and unrelieved, which would certainly be a curious mode of helping the farmer.

Midway between the two extremes of the pharmacopoeia are proposals of various kinds for reforming the trade policy of the country. The most attractive one, the one which apparently finds the largest support, is that for abolishing protective and substituting "British duties." The Young Liberal clubs, which have a knack of solving the profoundest problems right off the reel, have a fancy for the British duties plan, though it is plain that neither they nor the Patron correspondents of the Sun have any very clear idea of what those duties are. They seem to think there is something magical in them, that their introduction into Canadian finance could be readily accomplished and would prove an unqualified boon, and that nothing prevents it but the rascally opposition of the Manufacturers' Association.

The imperial revenue is derived principally from customs and excise duties, from taxes on incomes, from legacy and succession duties, from stamps on bills of exchange, etc., from taxes on land and railways, from Government telegraphs and the post office. Where a customs duty is imposed on an article manufactured at home, on spirits for instance, a corresponding excise duty is levied on the home product; hence, as free traders boast, there is not a shred of protection in the British tariff. Customs duties are collected from tobacco, spirits, beer, wine, tea, coffee, chicory and cocoa, as a general thing. Excise duties are collected from home-made liquors and licenses to manufacture and sell them. The other duties and taxes require no explanation, except that the railway tax is a tax on passenger earnings and the land tax a small affair of the nature of a commutation based on old valuations. The taxation is far from being equitably adjusted. From year to year The Financial Reformer, a valuable publication issued by the advanced Liberals, denounces the whole arrangement as a fraud upon the poor. It estimates that the amount taken by the customs and excise duties from a workingman getting 20 shillings a week is from one-tenth to one-seventh of his earnings; while on incomes of a thousand pounds a year it is only one-twentieth. To understand this we have but to bear in mind that a tax of say sixpence per pound on tea, regardless of cost or quality, necessarily makes a bigger hole in the pocket of the poor than in the pocket of the rich consumer, and so with the duties on other articles of general consumption. The tobacco of the many is taxed 350 per cent., the cigars of the few from 15 to 50 per cent., with other inequalities of a like kind. It is reckoned that the direct taxes contribute 30 per cent. of the revenue, the indirect 55, other sources 15.

Pray how could we adopt this system? Britain obtains

two-fifths of her revenue from her excessively high customs and excise duties on liquors and tobacco. Owing to the length of our frontier adjoining the United States and the vast size of our territory, with the sparse population, we could not impose such duties without at once promoting smuggling and illicit manufacture on a stupendous scale. Under our present moderate duties on spirits there is a great deal of smuggling in the Gulf of St. Lawrence which gun-boats are powerless to check. For equally cogent reasons we could not afford to levy heavy duties on tea and coffee or on sugar while they are free in the United States. We might raise a trifle by legacy and succession duties, though Mr. Blake said in his West Durham letter that "direct taxation even in its most promising form, a succession tax, is at present out of the question." A land tax, however light, would not suit the farmer in his present circumstances, and a tax on railway passenger earnings would only serve to exalt the rates, already high enough. The income tax in England is levied at so much in the pound on incomes above a hundred and fifty pounds. In the United States the Democrats are proposing to levy a tax of two per cent. on incomes over \$4,000, that is, there is to be a four-thousand exemption, so that the man in receipt of \$5,000 will pay \$20, of \$6,000 \$40 and so on. With us such a tax would not bring in anything worth speaking of and we could hardly impose one on lower incomes, as Britain does, without giving rise to the impression that by comparison with the States, Canada was a poor country for the poor man. It would be still more foolish to tax foreign capital as some Patron speakers have suggested. Instead of coming here, where it is badly wanted, it would go in increased volume to the States or Australia, carrying population along with it.

It is sheer nonsense, then, having regard to our widely different conditions of life and geographical situation, to talk of copying the British system. The municipal reformers of Toronto or Montreal might as well talk of copying the French octroi system, whereby specific duties are collected on all materials and articles of consumption entering a city or town for the use of its inhabitants; indeed, this would be at least practicable, while the other would not. Mr. Blake said at Malvern in 1887, and repeated in his West Durham letter, that "we shall be compelled for an indefinite time to raise the bulk of an enormous revenue by high duties on imports." This is inevitable. No amount of newspaper writing or of debating club rhetoric on the magic power of British duties, direct taxation, single tax, or an irredeemable currency issued on the security of our wild lands, or on the security of the water in Lake Ontario, can remove that necessity of our position. The question is whether the high duties shall be levied so as to afford a fair measure of protection to national industry or so as to favor the foreign producer as far as possible. On this issue the enlightened self-interest of the people is sure to prevail over the theories of the anarchical philosophers now filling the land with their din.

THE LIBERAL PARTY AND THE TARIFF.

A Liberal paper, in addressing the Patrons, speaks of the "years and years during which the Liberal party has suffered exclusion in consequence of its undeviating attach-

ment to free trade" and extols "the leaders of long ago who flung that banner to the breeze" as well as "the men of the present day who have waved it aloft without faltering." This is poetical enough, but it is not altogether true.

The Liberal party and its leaders have been on both sides of the tariff question. Without going back to old times, it is notorious that Mr. Blake's Malvern speech was practically in favor of protection of the continuance of the N. P. with certain modifications. It is not perhaps so well known that the very first speech Mr. Laurier made in a legislative body contained a strong plea for protection. The speech is to be found in the English edition of "Wilfrid Laurier on the Platform," published a few years ago. The Quebec legislature, where he delivered it, had nothing to do with such matters, but that did not prevent him from declaring that it was the duty of French Canadians to create national industries as a means of checking the exodus of population and removing other ills. He wanted to see the abundant raw material which the Province possesses transmuted into factory goods by Quebec labor, and went so far as to endorse Papineau's advice that French Canada should buy nothing from Britain. Papineau recommended such a boycott at his St. Laurent meeting and elsewhere, in order to emphasize the popular discontent and "from hatred of the injustices which we have suffered at the hands of the aristocracy, both Whig and Tory, and to move the English people to crush the iron rod of their and our oppressors." He also intended, as the resolutions show, to encourage home industry by excluding British competition. The boycott against Britain was probably suggested to his mind by the non-importation agreement adopted by the leaders of the revolt in the American Colonies in 1774. Mr. Laurier did not counsel the revival of Papineau's plan as a measure of agitation or rebellion, but simply, as the context shows, as a measure for encouraging native manufactures. Protection was a plank in the Rouge platform of 1872; as worded, the plank read: "To obtain the absolute right to regulate our commercial relations with foreign countries so as to ensure the establishment of manufactures in Canada." In the general election campaign of that year such lights of the party as Mr. Joly, Mr. Jette, Mr. Workman, Mr. Richard, of Megantic, Mr. Fabre and Mr. Mercier talked protection out and out. The *Bien Public*, the leading French Liberal paper in Montreal, argued in favor of increasing the duties on British manufactures to 20 per cent. and of putting the same duties on American goods as Congress levied upon ours. "This," it said, "must be the policy of every government having the prosperity of the country at heart. It is the policy which everyone demands with the exception of certain doctrinaires who sacrifice practical considerations to theory. Mr. Mackenzie has promised to revise the tariff in the interest of Canada, and we are sure he will keep his word." When in power Mr. Mackenzie refused to increase the tariff to 20 per cent. because his Maritime followers objected, whereupon all the French Liberals, with the exception of Mr. Joly, abandoned protection and began to pose as free traders *pur sang*. It was a case of party first, principle afterwards. One of the best protectionist pamphlets ever written in Canada was the "Reform of the

Canadian Tariff" by Mr. Beausoliel, the present Liberal member for Berthier. He and Mr. L. O. David, Mr. Laurier's bosom friend, edited *The Bien Public*.

It is not worth while citing further evidence of the fact that the French Liberals, Mr. Laurier amongst them, were protectionists until a desire to be where the flesh pots were carried them over to free trade; or resurrecting the protectionist speeches made by Mr. Charlton and Mr. Patterson, of Brant, when Mr. Mackenzie was in office. But a line of action was pursued on one memorable occasion by the Ontario Liberals, to which reference may be made, because it has a bearing on the situation to-day, and is worth studying just now by all moderate men.

In 1859, as everyone knows, Sir Alexander Galt framed a high revenue tariff with a view of doing away with the deficits arising from a large outlay on railways, and of affording protection to Canadian industries. The Reformers under Mr. George Brown opposed it as a protectionist measure and likewise on the ground that it would benefit Lower at the expense of Upper Canada. Two years later the war of the rebellion broke out in the United States. By the Morrill tariff, adopted on the eve of the war, and subsequent measures, an enormous augmentation of customs duties took place along with and partly as compensation for the imposition of internal revenue taxes on something like two hundred articles of common consumption. Our efforts to obtain a prolongation of the reciprocity treaty failed. Confederation was about to be launched. Ours was a 20 per cent. tariff, that of New Brunswick 15½, those of Nova Scotia and Prince Edward Island 10, Newfoundland's 11 per cent. In order to smooth the path for Confederation and to make it easy for Prince Edward and Newfoundland to convince their people that union would benefit them also, Mr. Galt, in 1866, reduced our tariff to 15 per cent. But he did not contemplate abandoning protection. On the contrary it was pointed out that owing to their internal revenue taxes and disordered currency, gold being at an immense premium, the Americans would not be able to make any greater inroads on our home market for manufactures than before. And as they had abrogated the reciprocity in natural products, and were about to tax ours, he imposed duties on some of theirs.

The Reformers under Mr. Brown protested that they were still free traders, but opposed the reduction and supported a motion by Mr. McGiverin, of Hamilton, that it was not expedient at that time to adopt tariff changes which would have the effect of unnecessarily disturbing commerce and industry. The late Mr. Alexander Mackenzie was one of those who urged that consideration should be shown to the interests which had sprung up under the shelter of the 20 per cent. tariff. He did not believe in protection, he said, "but at the same time if the United States had adopted a policy whereby we lose them as a market, we were bound to adopt such means as would make a market for ourselves." Moreover "under the policy of the Finance Minister manufactures had grown up in the country, and it would be unjust to those who had embarked their capital in them that the protection should now be withdrawn without a moment's warning." Quotations from this speech were made in Mr. Mackenzie's presence in the House of Commons, April 9, 1879, and he

interjected a remark testifying to their accuracy. In another part of the speech Mr. Mackenzie repeated that Galt's policy "had not been in harmony with free trade, but large interests had grown up under our system of incidental protection, which, he considered, should not be destroyed."

Here we see the Liberals outdoing Galt in their regard for Canadian industries and deprecating a reduction of duties as fraught with injustice and danger. To-day the same party is clamoring for the removal of every shred of protection without caring for the consequences either to the public revenues or to the industries whose life is at stake. Yet the conditions now plead with almost infinitely greater force for that consideration to the protected interests which Mr. Mackenzie besought than did those of 1866. Nearly two hundred million dollars have been invested in manufacturing enterprises since 1879, in the belief that protection had been adopted as a permanent policy, and this of course implies that a very large number of persons depend upon the maintenance of protection for the means of earning a living. The Americans still see fit to shut us out of their market, and protection alone enables us, in Mr. Mackenzie's words, to "make a market for ourselves." They are no longer suffering from a debased currency; the internal taxes levied during the war have long since been repealed, and, fostered by seventy years of protection, their manufacturing industries can easily close those of Canada if, as Liberals suggest, their products are allowed into Canada at revenue rates while our products are excluded from their market by the protective duties of the Wilson bill, which, be it noted, are higher, on the average, than the duties of the existing Dominion tariff. If, as Liberals contended, Galt did wrong in reducing the protection to Canadian industry, what shall be said of Sir Richard Cartwright and the Globe, who would destroy it altogether, though every circumstance of the case proclaims that there is a greater necessity for it now than there was then?

We leave this question to be answered by those moderate Liberals who prefer the well-being of the country to the success of party. It cannot be the desire of anyone having a stake in the Dominion to see our manufacturing, and many of our financial institutions along with them, wrecked and ruined, the national progress of the last fifteen years undone, and our future as a people rendered in the last degree precarious, merely in order that that ill-starred man may get back to office.

THEORY VS. CONDITION.

When Mr. Cleveland was a candidate for the presidency, in discussing the industrial and financial condition of the United States, he declared that it was a condition, not a theory that confronted the people, and that the condition demanded a change in the administration of the government. The change he alluded to was to turn out the Republicans and turn in the Democrats. Acting upon his suggestion the people did as he desired, and Mr. Cleveland is now president. We are all familiar with the condition that now confronts the people of that country. When the Republican theory prevailed, meaning the system of tariff protection to American manufacturing industries, that had

carried the United States to the zenith of prosperity, the industrial establishments of the country were all in full blast and the working people had plenty of employment at remunerative wages. The theory of the Republicans was that protection had accomplished this; and that although the tariff had operated not very favorably towards the labor of other countries, it had accomplished much in favor of American labor. A consequence of the lack of employment to labor in foreign countries was the ruinous lowering of prices of foreign products; and it was this circumstance—this condition, as Mr. Cleveland termed it—that he so successfully used in inducing the people to believe that it would be better for them to open the ports of the country to the free admission of these cheap foreign products than to keep them closed to the end that American capital and American labor should be benefited thereby. It is true that the ports are not yet thus thrown open, for the American tariff has not yet been brought to a free trade basis; but the knowledge that it is the desire of the dominant Democratic party to make as near an approach to free trade as possible, and that most radical and sweeping changes in the American tariff are probable and imminent, has resulted in a condition in that country—not a theory—the like of which has never before been known there. Mr. Cleveland was elected to the presidency on November 8th, 1892, and it may be instructive to show the decline in values of certain railway stocks since that time, as indicative of how the wild projects of that man and his party have affected that interest as well as those to which we have alluded. A New York financial journal gives a list of twenty-five representative American railways and the closing prices in that market of their stocks on November 7, the day before Mr. Cleveland's election; March 4, 1893, the day of his inauguration, and March 3, 1894, the end of the first year of his administration. The average value of the stocks of these twenty-five roads on the first mentioned date was 76.44 per cent of par value; on second date, 70.98 per cent, and on third date, 59.77 per cent., which shows that these stocks were worth on an average about 16.5 per cent less when Mr. Cleveland was inaugurated than when he was elected, and 11.25 per cent. less a year after he went into office than when he went in. Since his election the New York stock market has declined nearly 16.75 per cent.

Canada, like the United States, is afflicted with a class of political purists for whom this earth is not good enough. The most ultra political adherents Mr. Cleveland had in his approach to the presidency, and who cling to him now, were, many of them, men who left the Republican party because they had discovered that they were entirely too good to remain with it, professing to believe that their flop over would be considered in the light of a purification of politics and an emancipation from the shackles of party domination; and although they have succeeded most admirably in making fools of themselves they seem to be oblivious of that fact. Unfortunately for Canada we have men of that character among us, such as Mr. McCarthy, for instance, who will discover sooner or later that they could have accomplished much more for the good of the country by remaining with their party than by endeavoring to destroy it.

JUSTICE WILL BE DONE.

Our esteemed astute political economist, The Montreal Herald, in advocating what it calls the manufacturers' right to justice, while arguing that "the duties on agricultural implements ought to be very greatly reduced or even abolished in view of the decision of the American Congress to make implements free," says that if the implement maker is going to have the duty on his implements removed, he should in common justice have the right of purchasing his iron and steel, which he uses in immense quantities, wherever he can purchase them the cheapest; and it quotes the fact that Mr. Massey gave evidence in 1890 before the combines committee of the House of Commons that the result of the changes in the iron duties in 1887 had been to add over \$30,000 to the annual cost of his raw material, and this, it says, is one of the anomalies of the tariff. It also informs us that to take off the protection on agricultural implements and leave untouched the duty on the raw material of the manufacturer would make his ruin complete.

It is quite refreshing to observe the great concern of The Herald for the manufacturers. It has discovered incongruities in the tariff that it thinks had not before been observed, and on this occasion it demands that the duty upon the raw material be reduced the better to enable the manufacturers to avail themselves of the advantages in prospect for them by the decision of the American Congress to place agricultural implements on the free list. This event has not yet occurred, but that is a matter of very little consequence with the Herald. It also tells us that its argument applies to every branch of hardware and machine manufacturing that there can be no reduction in the duty on such products unless iron and steel are also released from the duty now imposed upon them. We are sure the manufacturers will be duly and truly grateful to The Herald for the interest it evinces in their behalf, and that they would at once depute it to take their matter in hand and advise the Government regarding it, if they had not long ago committed this very matter to those who frame our laws, with an abiding faith that equal justice and right will be observed towards all interests in such changes in the tariff as are now being made. There will be no occasion to entrust The Herald with the commission.

As regards the manufacture of agricultural implements The Herald's illustration is not a happy one. It may be true that the change in the iron duties in 1887 resulted in the addition of \$30,000 to the annual cost of raw material to Mr. Massey; but if it did it assisted in building up in Canada a most valuable steel manufacturing plant, which goes far towards rendering the country independent as regards such specialties as are produced by it. But even the increased duties upon iron and steel have not retarded the prosperity of the manufacturers of agricultural implements, judging by their ability to erect costly music halls; and it is quite evident that the welfare of the country would not suffer to any great extent, or even that of the manufacturers themselves, if there should be a reduction of duties upon their products. They enjoy a double share of protection—one which exempts them from the competition of foreigners, and another and greater afforded by the patents under which

their goods are made, and which renders it absolutely impossible for any other person to make such implements.

The Herald need have no apprehension that all proper and necessary changes in the tariff will not be made. Wherever it may be found desirable to lower the duties upon the raw materials of any industry, no doubt the duties upon the finished products of such industry will be correspondingly lowered, but the public mind should entertain no apprehension that any valuable Canadian industry will be injuriously affected by any changes that may be made in the tariff.

CANADIAN ARCHITECTS.

The announcement that the Canada Life Assurance Company will soon begin the construction in Montreal of a very large and expensive building, even larger and more expensive than that which they now have in Toronto, and that it is to be according to plans made by an American architect, again emphasizes the fact that the working of our tariff needs amending in regard of the duty imposed upon architects' plans. Item 308 of the tariff reads: Paintings, prints, engravings, drawings and building plans, 20 per cent. ad valorem. Because of being included with paintings, prints, engravings and drawings, it is impossible to tell from the official returns the number or value of building plans imported into the country, nor how much revenue is derived from that source. But it is well known that the plans and specifications of many of the largest and finest buildings in Canada were prepared by foreigners in foreign countries, not only to the great disadvantage of Canadian architects, but also to that of the Dominion finances. The frauds upon the revenue in importing foreign architectural plans without the payment of proper duty, or even of any duty, may not result in as much financial loss to the Government as is experienced in some other transactions; but the almost utter failure on the part of the Government to collect the duties that should be paid works a very serious injury to our architects. No doubt there was a two-fold object in imposing a duty upon building plans—one to protect Canadian architects—the other to raise revenue. But, unfortunately, the wording of the law is not sufficiently plain. Building plans should not have been included in an item along with paintings, prints and engravings. In these latter their value may be easily determined, but it is not thus with building plans. A painting is an article complete in itself, but a building plan obtains its value from the use for which it is intended. A building plan, somewhat like a painting, represents the skill and cunning of the architect, but it may be duplicated as often as may be necessary for the guidance of the workmen, by means of blue prints, and these are all that may be required in the construction of the building, it being possible that the original plans, upon which the skill and cunning of the architect had been expended, and which give them their intrinsic value, may never come within a thousand miles of the building constructed in accordance with them. Blue prints of paintings, however, are unheard of, and no reproduction of a painting, no matter how artistically done, or by whatever method, can ever approximate to the value of the original. An illustration of this contention is shown in the fact that the building plans of

the recently completed Ontario Parliament building in Toronto, which were prepared by a foreign architect in a foreign country, are supposed to be yet in the custody of the Customs authorities, held for non-payment of duties. The original of these plans represented the skill and cunning of the foreign architect, but the blue prints made from them represented only a few cents' worth of chemically prepared paper. No doubt the foreign architect would very willingly have paid 20 per cent. duty on the value of this few cents' worth of blue prints, but he was not willing and did not pay as much as one cent duty upon the plans which were filed away in his office in a foreign country.

The amendment to the law, then, should be in the direction of holding the building, or the owner thereof, responsible to the Government for the duty imposed upon the building plans thereof, when prepared by a foreigner in a foreign country. The value of the plans could be fixed according to the cost of the building, or the fees paid to the foreign architect. This would be but fair to Canadian architects.

Canadian manufacturers, some of them, are more deeply interested in this matter of the employment of foreign architects in the construction of buildings in Canada than many imagine. Usually every detail involved is specified by the architect. It is he who says what sort or kind of material shall be used, from the foundation to the coping stone—the brick, the cement, the lime, the structural iron and steel, the heating apparatus—boiler, pipes and radiators, the gas and electrical fixtures, the locks, hinges, etc. upon doors and windows, and all the plumbing and sanitary appliances. Nearly every article entering into the construction of a building can be produced in Canada; but it is a well known fact that where foreign architects are employed, no such article of Canadian production is specified when it is possible to import it from abroad. Any one familiar with the origin of builders' hardware could fail to truthfully surmise the nationality of the architect when inspecting the hardware used in a building. This discrimination against Canadian manufacturers is unjust in the extreme and should be suppressed.

Certainly the Government, in the interest of both Canadian architects and Canadian manufacturers, should amend the tariff, as indicated.

THE EMPIRE.

A Toronto daily newspaper, The Evening News, publishes an article in which it shows that our esteemed contemporary, The Empire, is in a bad way. This showing is not by innuendo, but chiefly by statements made by leading men of the Conservative party, one of whom, Hon. J. C. Patterson, is a member of the Dominion Government. Mr. Patterson is reported as saying that The Empire is a millstone around the necks of Conservatives, and a weakness to the party; that it does not reflect the views of the Dominion Cabinet. These sentiments were expressed, the News says, at a recent meeting of the Toronto Conservative Association, which was held in The Empire office. In discussing the separation of Mr. McCarthy from the Conservative party, when the question was asked why that gentleman had acted as he had, the reply came quickly to the effect that it was because he had been read out of

the party by *The Empire*, presumably at the request of the Government; at which juncture Mr. Patterson said the Government had not authorized the attack upon Mr. McCarthy; that it was not suggested by any one connected with it; that it was not desired, and that the matter was one of annoyance. He further stated that only one member of the Government was financially interested in *The Empire*, and the original value of his stock was only \$500.

It was also stated at that meeting that the unfortunate attack upon Mr. McCarthy was not only not suggested or desired by the Government, but it had appeared unknown to any of the directors of *The Empire Company*, except one, a gentleman who seemed to have a reason other than political for attacking Mr. McCarthy. It was suggested that Mr. Thomas Long had inspired the attack. Mr. Patterson is reported as saying: "The assault was unauthorized, and was, from the point of view of the party, foolish and damaging. The paper does us great harm, although it was established to do us good. It convinces nobody, and is read by very few. It is a millstone around our necks, and the sooner the party gets rid of it the better."

From all of which it would seem that the recent meeting of the Toronto Conservative Association in the office of *The Empire* must have been an exceedingly interesting and entertaining event, but one at which no one at all familiar with the course of that journal should entertain any feelings of astonishment or surprise. It has always been a matter of surprise, however, that the founders of *The Empire*, with certain lights before them, should have entrusted the welfare of so important an undertaking into the hands of incompetent and inexperienced men; and it is still more surprising that, having discovered their mistake, they did not rectify it. Viewed from the standpoint of those interests to which this journal is devoted—those of Canadian manufacturers—*The Empire* has been a continuous failure. Viewed from the National Policy standpoint it has been worse than a failure. Professing to be the champion and friend of the manufacturers, it has proven itself unable to comprehend their political necessities; and its littleness and meanness has led it to studiously refrain, as far as it possibly could, from any recognition of even the existence of that organization to which the National Policy party owe so much, the Canadian Manufacturers' Association.

Under different conditions *The Empire* ought to prove a grand journalistic success; but before it can become such it must be lifted out of the backwoods methods that have brought it into the disfavor that now oppresses it. If it desires to be a consistent advocate of the National Policy it must abandon its constant tirades and abuse of that policy in another country. If it desires to obtain the respect of intelligent readers it must cease uttering foolish misrepresentations concerning matters with which they are more or less familiar. Under its present regime it may be difficult to effect these reforms; but its very existence depends upon their being made.

Since the foregoing was written an article has appeared in *The Empire* in which it is stated that at a meeting of the Liberal Conservative Association of Toronto held on March 12 the following resolution was passed:

Resolved, that this association, at the first meeting there-

of after the publication of an article in *The Toronto Evening News* in its issue of the 10th March, 1894, headed "Repudiates *The Empire*," wherein certain statements are contained alleged to have been made by the Hon. J. C. Patterson at a meeting of the association held in *The Empire* office on Wednesday, the 7th March, inst., hereby characterize the said article as a contemptible fabrication.

And this association hereby records its continued confidence in *The Empire* newspaper as one of the recognized exponents of the principles of the Liberal-Conservative party in the Dominion of Canada, and expresses the opinion that the Liberal Conservative party generally and particularly in this province, is greatly indebted to the said newspaper, for valued assistance to Conservative interests, and also to Mr. David Creighton and his editors for the able and efficient manner in which the said newspaper has been and is being conducted, and hereby resents the wanton and unscrupulous attempts of enemies of the Liberal-Conservative party to breed discord and attack the prestige and fair reputation justly enjoyed by *The Empire*.

This journal has nothing whatever to do with any disagreement that may exist between *The Empire* and other Toronto daily newspapers, and is entirely indifferent to any results that may accrue therefrom. What we have said, it will be observed, is based upon statements made in *The Evening News*; and if *The Empire* or the Toronto Liberal Association had made any direct denial of the facts as stated in *The News*, and had shown that Hon. Mr. Patterson and other gentlemen had not made the statements attributed to them, or that they had been misrepresented, this article would not have been published. We will never willingly or knowingly do any injustice to any one.

But the resolution of the Association goes no further in this direction than to declare that the article in *The News* is a "contemptible fabrication." There is no denial by or for Mr. Patterson that he had been misrepresented; and no fact as stated in *The News* is controverted or denied. Of course the Liberal Association have an undoubted right to go into the whitewashing business as extensively as they please, and to declare their resentment of what they term "wanton and unscrupulous" attempts to attack *The Empire*; but these sentiments are very diaphanous when viewed in the light of undisputed facts. *The Empire* professes to observe the ordinary proprieties of journalism, and to maintain that dignity that should be maintained at all times by respectable journals, but it falls very short of the mark when it speaks of other equally respectable newspapers as "a pack of yelping journalistic curs."

What the reading public is interested in knowing in this matter is, not whether *The News* or any other paper is a "yelping journalistic cur," but if Hon. Mr. Patterson is correctly reported in what *The News* declares he said, and if the charges are true.

TRADE AND NAVIGATION RETURNS.

The Trade and Navigation Returns for Canada for the fiscal year ending June 30, 1893, just issued, show the business of this country to be on a sound basis.

The value of the imports last year amounted to \$129,074,268, and of exports to \$118,564,352. The value of our aggregate trade reached a total of \$247,638,620, the largest in the history of the Dominion. It was \$6,260,177 in excess of the aggregate trade of the previous year, which was the then highest on record. The values of the

respective divisions of our foreign trade were in 1892 and 1893 as follows :

	1892.	1893.
Exports of Canadian produce	\$99,338,913	\$105,798,257
Exports of foreign produce.	14,624,462	12,766,095
Imports.....	\$113,963,375	\$118,564,352
Aggregate trade.....	127,406,068	129,074,268
Aggregate trade.....	\$241,379,463	\$247,638,620

There was, therefore, in 1893, as compared with the previous year, an increase in exports of home produce of \$6,459,344 ; in imports of \$1,668,200, and a decrease in exports of foreign produce of \$1,858,367.

The imports for home consumption in 1893 amounted to \$121,705,030, as against \$116,978,943 in the preceding year, an increase of \$4,726,087. The total imports have been exceeded but once since confederation, viz., in 1883 ; while those for home consumption have been exceeded three times, 1883, 1874 and 1873.

With the exception of the year 1880 there has been a continuous excess of imports over exports, amounting on an average, for the 26 years since confederation, to \$20,062,649 per annum. The actual excess in 1893 was considerably below this average, being \$10,509,916. The duty collected from customs last year amounted to \$21,161,711, an increase of \$611,129 over the preceding year. There was an advance in the values per head of the estimated population, of both imports and exports, as well as of the aggregate trade. The value per head of imports last year was \$26.01 ; of exports \$23.89. The duties collected averaged \$4.26 per head, an increase of 6 cents over the preceding year, but a decrease of 58 cents over 1891.

The increase in the imports of \$1,668,200 is made up by increased trade with 26 countries, counteracted by a diminution in trade with 22 countries. The largest falling off is with Germany, consequent upon the excessive importation of sugar from that country in 1892, \$2,128,123 worth of that article being imported, as against only \$226,432 in 1893 ; otherwise the general trade with Germany is maintained. The other decreases of any magnitude were in imports from Japan, Newfoundland and the British East Indies, from which latter country sugar again was the cause of the decline. The large increases were in imports from Great Britain and the United States, the increase in free goods from the latter country having been upwards of \$6,000,000. The total value of imports from the United States was \$65,061,968, an increase of \$1,092,931 ; from Great Britain \$43,310,577, increase \$1,665,438 ; France \$2,847,095, increase \$397,893 ; British West Indies \$1,166,008, increase \$124,621 ; Dutch East Indies \$444,474, increase \$596,770. Of the increases in the trade over \$100,000 are to be noticed with the Spanish possessions, Holland, Venezuela and British Africa.

The increase in the exports of Canadian produce, amounting to \$6,456,332, occurred principally in shipments to Great Britain, United States, Newfoundland, Belgium and Argentina, the increased exports to the United States and the Argentine Republic consisting very largely of forest products, those to Belgium of breadstuffs, while the unusually large quantities of supplies sent to Newfoundland in consequence of the disastrous fire at St. John's in 1892, contributed materially to the increase in exports to that

island. The increases in our export trade with Great Britain amounted to \$1,367,314 in products of the forest, and of \$2,983,969 in animals and their products, while there were decreases of \$438,534 and \$659,734 in products of the mine and fisheries respectively. The net total increase amounted to \$3,490,551. In consequence of reduced shipments of fish and agricultural products, principally potatoes, the exports to the Spanish West Indies declined over \$300,000, while a diminished demand from Holland for breadstuffs accounts for the reduction in the exports to that country by upwards of \$240,000.

The following table shows the condition of our trade in 1893 and 1892, with the principal countries with which Canada does business.

	1893.	1892.
Great Britain.....	\$107,391,070	\$106,551,688
United States.....	108,984,978	102,957,064
Germany.....	4,515,451	6,314,080
Spanish West Indies.....	3,676,627	4,258,228
Newfoundland.....	3,246,913	2,675,770
France.....	3,111,142	2,816,741
British West Indies.....	3,109,233	2,888,687
Spanish possessions in Pacific ocean.....	2,204,584	1,949,945
Japan.....	1,531,861	1,947,097
China.....	1,279,403	1,385,013
Dutch East Indies.....	1,041,244	444,474
Belgium.....	1,027,745	572,501
Holland.....	682,276	852,206
British Guiana.....	625,705	650,284
Australasia.....	571,325	728,613
Brazil.....	548,479	502,912
Italy.....	504,431	487,443

On the basis of goods imported and entered for consumption and of goods exported, being the produce of Canada, the following is the summary statement of Canadian trade:

	Per Cent.
Great Britain.....	44.69
United States.....	42.05
France.....	1.36
Germany.....	1.98
Other European countries.....	1.49
British West Indies.....	1.31
Other West Indies.....	1.64
Newfoundland.....	1.34
Other British possessions.....	0.90
Other foreign countries.....	3.44
	100.00

Comparing these percentages with previous years the trade with Britain is higher than for many years past, while that with the United States shows a falling off of about 2 1/2 per cent.

Comparing the total export of 1893 with previous years, it is noticeable that there was an increase of \$2,276,397, which was all in articles of Canadian production, the decline in foreign goods having amounted to \$4,179,935.

The carrying trade of Canada is of much importance, but in the absence of any general system of obtaining particulars, it is not possible to do full justice to the figures. At present the only direct information obtainable is that furnished at the port of Montreal of merchandise received from the United States and transhipped at that port, either to the States or to other countries. The value of this trade in 1893 amounted to \$9,313,904, a decrease of \$109,558. The articles exported consisted principally

of animal and agricultural products. Seventy-seven per cent. of the total value consisted of exports from the United States, via Canada, to Great Britain; the remainder going either to the United States or Newfoundland.

The difference in the Canadian and United States returns of the aggregate trade of the two countries is very striking, our own returns showing an increase over the United States figures of \$21,498,516. This discrepancy is difficult to explain, although there are various ways of accounting for it. Undoubtedly greater care is exercised by the Canadian customs officials in securing accurate statistics. This remark applies with great force to the imports, accuracy being essential in making up the amounts of duties to be collected. It is possible also that some of our imports entered as from the States, because they were purchased there, may be included in the United States transit and transshipment trade, and it is perfectly certain that this remark also applies to our exports, Canadian goods purchased by United States merchants being frequently treated in our books as exports to that country, when in reality they have only been purchased for export, while they are treated by the United States authorities as exports of foreign commerce or as a part of their transshipment trade.

The total coasting trade of Canada last year amounted to a tonnage of 24,579,123. Of this large total Ontario is credited with 1,829,834 tons, the largest in her history, Quebec and Nova Scotia, half a million each, the figures respectively being, 4,433,796 and 4,390,852. New Brunswick totalled 1,083,134, British Columbia 3,030,833, and P. E. Island 1,198,538.

There was an increase of 35 in the number of vessels built last year, but a decrease in the tonnage of 5,800 tons. The average selling price has declined from \$37 per ton in 1868 to about \$1: 50 per ton in 1893. The actual number of vessels built in Canada was 313, and of Canadian vessels sold, 42.

EDITORIAL NOTES.

As a result of the visit of A. McKay, M. P., and Chas. Myles to Ottawa, a telegram has been received from Ottawa stating that the collector of customs has been authorized to admit the rails for the H., G. and B. electric railway free of duty. The rails were ordered from Scotland, the quantity being 1,500 tons, and, as the duty is \$6.75 per ton, the company will save an expenditure of \$10,125. About 600 tons of the rails have already arrived, and \$4,000 duty was paid on them, which will be refunded. —Hamilton Spectator.

If it is a fact that the rails for a Hamilton electric railway are to be admitted into the country duty free, then it would be right to admit duty free all rails intended for any other electric railway in Canada; and whatever duties may have already been paid upon any such rails, should be promptly refunded. The permission to admit rails for the Hamilton railway duty free might be considered a distinct disavowal of the policy of the Government to charge a duty upon such rails, and as a foreshadow of what will be made the law in the forthcoming tariff. If such rails are to be free in the new tariff, then other forms of steel, such as structural shapes for bridge builders use, for architectural purposes, etc., should also be free; and if these be free then why not boiler

plates and all other forms of iron and steel. If steel rails are to be free, what is to become of what we have so fondly hoped for in the way of a policy that would give us blast furnaces and steel works? Whatever the policy of the Government is: it should be adhered to.

A deputation of fruit growers and their friends attended upon the Government at Ottawa a few days ago, headed by Mr. A. H. Pettitt, of Grimsby, to protest against the ratification of the proposed French treaty, as likely to interfere with the grape growing and wine making industries of Canada. In addition to this Mr. Pettitt asked for the adoption of a tariff for revenue only and the abolition of exemptions, whatever that may mean. On being asked if he also advocated the abolition of the duties upon pork, he declined to express an opinion. Dear, good, consistent man that he is, Mr. Pettitt is one of those self-sacrificing patriots who want the duty increased upon whatever he may produce, and lowered or abolished upon whatever he may have to purchase. This journal has always opposed the ratification of the French treaty as a Tupperian freak that would greatly benefit France and greatly injure certain Canadian industries of great value. With grape growing and wine making industries of our own, upon which we could rely with certainty for domestic wines of absolute purity, and which give profitable employment to so many of our people, it would not be an act of wisdom to give free entry into our markets of the wretched so-called cheap wines of France. But it is queer that when grape growers approach the Government asking protection for their industry, they utilize the occasion to demand the removal of protection from even more important industries.

Electric Power, a technical journal published in New York, advises the placing in each electric car of a simple device to indicate to the motorman that the speed of his car has exceeded the maximum allowed, and, furthermore, to prevent runovers, each car should be provided either with a brake, which could act automatically and instantaneously, or a fender which could be trusted to fulfil requirements. "This," it says, "may savor of municipal paternalism, but, as we have seen by the records of the past six years, it is certain that the electric street railway companies will take no steps to prevent fatal accidents unless compelled to either by public indignation vigorously expressed, or by compulsory legislation duly enforced. Indeed, humanity cuts so small a figure in the question as to be practically, in so far as they are concerned, negligible. If the law as to speed had been enforced, and the proper safeguards been placed upon the cars in the first place, electrical street railways would have taken a far wider extension than they have, and the operating companies would have saved thousands spent in litigation and damages, the public would have been reassured as to the safety of electric travel, while the manufacturers would have profited by the increased demand for apparatus, unhampered by the odium which clings about the very name of trolley."

A circular issued by a firm dealing in cotton attributes the recent decline of the price of that staple to the fall in

the price of silver. It would be quite as accurate to attribute the precipitation of apples from a tree to the influence of Niagara Falls. The force that tumbles the water over the precipice is the same that drops the apple from the tree, namely, the attraction of gravitation. Cotton and wheat were not dragged down last week by silver, but cotton and wheat and silver went down together (or appeared to go down) because gold went up. As a matter of fact, there was but one movement of one commodity: the upward movement of gold. Where gold is not used as the standard there was no movement at all. Wheat and cotton have the same price in India and Mexico now that they had one year ago, or ten years ago, because silver in those countries measures values. The disturbance of prices is felt only in the countries where gold is the standard and that is because gold is constantly moving upward. To the man in a balloon the whole earth spins off into space while he stands still. To the spectator upon the earth the man in the balloon is going up. The man in Mexico or India occupies the position of the spectator referred to. The man in this and European countries is in the balloon. The Manufacturer.

Mr. P. Beneteau, of Windsor, Ont., was in Toronto a few days ago and was interviewed by The Globe. Speaking of the beet sugar industry Mr. Beneteau said: "I am here in the interests of the beet sugar industry. Essex being the county where the root can be produced to the best advantage in the Dominion, besides having the best facilities for reduction, being but a short distance from the coal beds of Ohio, from which the freight is but a trifle. The beet root of Essex, upon being analyzed, proved the richest of any yet tested, the last test showing 17 per cent., which you will see by referring to the blue book is 6 or 7 per cent. better than the roots raised in the eastern townships. In addition to this we have a class of farmers inclined to cultivate that kind of product, and as the Northwest develops, where grain and stock can be raised so cheaply, the more urgent will become the necessity for sectional industries. The dairy business can be made a success in certain parts of the country where the land is more or less rolling. The same is true of sheep raising, and, while we cannot successfully compete in the above lines, yet we can, and no doubt we will, in time supply the country with sugar, wine, brandy and tobacco, our products in these lines (excepting sugar) having already attained a reputation." An analysis was made of the Essex beet, and it yielded 17 per cent. sugar, which is equal to any beet in the world. It is intended to establish a factory in Essex, and the Dominion Government has granted a bonus of two cents a pound. This bonus, however, expires on June 30 this year, and Mr. Beneteau is here to ask the Government to renew the bonus. He has had an interview with the Minister of Trade and Commerce. They propose also to ask the Ontario Government for a bonus of 50 cents a ton, payable not to the factory, but to the farmers direct, as in Quebec.

We are quietly waiting to observe with what grace and dignity The Canadian Mining Review will climb down from its recent untenable position re the manufacturers of mining machinery, and apologize as best it can for the gratuitous insults it has cast upon them. Better come down.

It has been asserted time and again that fiscal protection was fatal to the progress of foreign trade. Under a protective tariff the exports of Canada have increased from \$71,491,255 in 1879 to \$118,564,352 in 1893. Under a free trade regime they fell from \$89,789,922 in 1873 to \$71,491,255 in 1879. So with the imports. In 1873 they were \$128,011,281; in 1879 they were only \$81,094,327. Under protection they have risen to \$129,074,208. These figures, it is also to be remembered, make a more favorable showing for the early years in the comparison than the late ones. There has been a continuous decline in values of all leading articles of merchandise for many years now. Taking the whole list of articles dealt with in the tables it would probably be found to exceed 30 per cent. The quantity of merchandise imported and exported as distinguished from the value should be added to by that amount to gain an accurate idea of the increase in transactions. This gain has also been made while a greater development of internal trade was going on. The statistics of the coasting trade and the tariff returns of the railroads show conclusively that large as has been the growth of external commerce, it has been less than that of interprovincial and internal trade. The increase of domestic industries and the enlargement of foreign trade have been contemporaneous with the existence of the National Policy. The figures are there and speak for themselves. Montreal Gazette.

The effects of the free trade pestilential policy of prostration continue to be sadly experienced. We have been showing from month to month the loss in the volume of trade throughout the country since March 4, 1893, as reported through bank clearances to Bradstreet's, as compared with the corresponding months a year previously. For a period of ten months they were as follows:

Month.	1893.	1892.
April	\$ 4,918,819,872	\$5,069,679,409
May	5,244,302,329	5,014,020,107
June	4,524,000,767	4,915,758,398
July	4,138,069,804	4,027,501,773
August	3,319,233,938	4,513,193,512
September	3,311,635,037	4,779,384,710
October	3,083,569,393	5,470,307,243
November	4,051,057,546	5,443,235,918
December	4,022,103,857	5,999,009,520
	1894.	1893.
January	4,020,847,008	5,020,159,634
Totals	\$41,570,050,671	\$51,7207,20,224

We here find that since April 1, 1893, the beginning of the month after the Administration of the national affairs of the United States passed into the hands of a party devoted to free trade, the total volume of business throughout the country, as represented by bank clearings, was \$10,150,000,000 less than during the corresponding months a year previously. The practical insolvency of the National Treasury, its inability to meet its payments, an increase of \$50,000,000 in the national debt, and a loss of more than ten billions of dollars in the volume of trade at some sixty cities only, form a record in just accordance with a free trade policy of prostration. - American Economist.

At Toronto, February 14, the Hon. Mackenzie Bowell, Minister of Trade and Commerce of the Dominion, who had recently returned from Australasia, addressed an important

meeting of the Canadian Manufacturers' Association in favor of closer trade relations between those great British dependencies, and in favor of supplementing the recently established steamship line by a submarine cable, which should also touch at Honolulu. He made an instructive and impressive speech, and there is little doubt that under the new arrangements Canadian manufacturers can find a large and friendly market for many wares. But the Australians will before many years do most of their own manufacturing. In every great country more can be made by cultivating the home market than any or all foreign markets, that is, in most lines.—Home Market Bulletin, Boston, Mass.

The holders of Canadian fleeces are said to be confident of disposing of a large quantity of their stock in the United States at profitable prices as soon as the Wilson Bill becomes a law. They are advised, however, by one of the leading authorities of the Dominion not to count too much upon such a possibility. Attention is called to the fact that the manufacturers of the United States in the present state of trade cannot consume their home supply of raw material, and that there is no guarantee that prices will remain even at their present level in case the proposed free wool policy should go into effect. In fact, it is extremely probable that such a change would be followed by a still further drop in prices. Under these circumstances the outlook for a large market here for Canadian wool is certainly not of the brightest, even on a free wool basis.—New York Industrial Record.

There are scores of business men who, when told that the circulation of a trade paper is 3,000 to 4,000, are inclined to ridicule its claims as an advertising medium, not knowing that a single edition of a trade paper, with a circulation of 1,000 copies, reaches more persons whom they wish to reach than the issue of a daily paper of 100,000 copies. Those who may be surprised at this statement and imagine that the figures are incorrect may easily convince themselves of their error by referring to the commercial agency reports. To reach the consumer of general merchandise the daily papers are a valuable medium; to reach those particularly interested in trade the trade papers alone cover the field.—Journal of Building.

The Canadian Magazine for March is throughout entertaining, and it contains several striking articles equal in interest to any in current magazine literature. Amongst the contributions in the current number is a remarkable article by Mr. Arthur Harvey on "A Physical Catastrophe to America." The writer ingeniously brings the cataclysmic theory to his aid in picturing a change beginning in 1894, which culminates in the raising of the Atlantic seaboard, the destruction of Chicago and the permanent submergence of the Mississippi, Red and Nelson valleys in ocean waters. The industrial, social and political changes consequent on the cataclysm are not less interestingly described than the physical convulsions preceding them. Dr. John Ferguson contributes a strong article in favor of the abolition of the "Death Penalty." Among the illustrated articles is Mrs. E. Molson Spragge's "The Garden of British Columbia," Dr. Bryce's exceedingly entertaining and well written article on "Mexico and Its People," and Faith Fenton's charming description of "The Winter Carnival at Quebec." Amongst other contributions are "Vancouver and Hawaii," by Rev. H. H. Gowen; "Canadian Art Schools," by J. A. Radford; "Brummagem Jewellery," by Bernard McEvoy; "The Canadian Premier and the United States President," by John A. Cooper; "Lenten and Easter Observances," by Thos. E. Champion; "Milestone Moods and Memories," by David Boyle, and two excellent stories. The Canadian Magazine is published by the Ontario Publishing Co., Ltd., Toronto, for \$2.50 per annum.

The March number of Godey's Magazine comes filled with brilliant articles and excellent illustrations. The most important feature is

the first of a series of hitherto unpublished papers, on "William H. Seward," by his son, Frederick W. Seward. The March paper treats upon "Seward and Napoleon III." There are also the closing chapters of Margaret Lee's novel, "This Man and This Woman;" an excellent story, "A New Thing Under the Sun," by Julia Magruder; "Richard Eversleigh's Viola," an hypnotic story, by Stinson Jarvis, and there are four illustrated articles, on the "Old Drury Lane Theatre, London;" "About Albani," a Neapolitan sketch; and in the boys' department, "The Right Way to Row," by Ralph D. Paine, of Yale; Albert Hardy contributes an Easter poem, illustrated by Sidney Moran; Godey's fashions and the other departments are all good.

Scribner's Magazine for March opens with the second article by Joel Chandler Harris on "The Sea Island Hurricanes." Mr. Harris in his tour for Scribner's Magazine through all these islands, has presented not only the distressing part of the catastrophe but the humorous side of it which the sea-island negro so plentifully furnishes. The illustrations by Daniel Smith, made from sketches on the spot, add to this impression of reality. Two articles of very practical interest are entitled "The High Building and its Art," by Barr Ferree and "The Cable Street Railway," by Philip G. Hubert, Jr. The High Building illustrations are selected from notable high buildings in the great cities of the country. In the Cable Railway article Mr. Hubert gives a clear description in un-technical language of the mechanical achievements which have resulted in the cable car. The illustrations show some of the huge machinery in the power-house; also the mechanism in the trench below the street. In Fiction this number is notable, containing the first instalment of a four-part story "A Pound of Cure," by William Henry Bishop, the author of "The House of a Merchant Prince." The first of Octave Thanet's Sketches of American Types is also published, under the title "The Farmer in the North"—a very clever and faithful characterization of the types of farmer seen around the State Buildings at the World's Fair, with illustrations by Mr. A. B. Frost. The third instalment of "John March, Southerner," Mr. Cable's great serial of the New South, is notable for its humorous negro characterizations and for a charming bit of love-making.

We are in receipt of the following from the Halifax, N.S., Colliery Guardian, which explains itself: "We beg to draw your attention to the accompanying number of the Canadian Colliery Guardian, Critic, and Journal of the Iron and Steel Trades of Canada, which has absorbed The Critic. We are as yet imperfectly organized, but in a very short time we will comprehend in our columns the operation of the coal, gold, iron and steel trades of the entire Dominion and furnish a thorough representation of such to the outside world, which we believe is desirous of some such source of information as the Colliery Guardian is to become. In order that the circulation of the paper may become extensive and wide we have fixed our subscription at a nominal rate, (\$1.00 if paid in advance) and trust that you will give us all the publicity and assistance that you can." Live and let live is a good precept, and we wish this new journalistic venture every success. There is plenty of room in Canada for a good live paper of this description. The Colliery Guardian has received a good fraternal welcome from The Canadian Mining Review, so unique and characteristic in its way that we reproduce it. Here it is:—

Charles Ochiltree Macdonald, erstwhile an itinerant writer on space in The Colliery Guardian, and at one time the promoter of a windy and short-lived English financial sheet, and whose proposed "corner" in the Canadian spruce gum and maple sugar trade The Review on a previous occasion referred to, has joined hands with Howard Clark, a fanciful and eccentric scribbler of mining items on The Halifax Critic; and this brilliant galaxy of intellect and genius, supported by a "powerful company," will henceforth cater to the public under the high sounding and pretentious title "The Canadian Colliery Guardian, Critic and Journal of the Iron and Steel Trades." Among the vicissitudes of his journalistic career, we understand the promoter of the new enterprise did a "turn" with the pick (also short-lived) in the pits at Cow Bay, and it is quite evident he there inhaled freely of the atmosphere that is gassy. An explosion may follow when The English Colliery Guardian takes steps to interdict what is unquestionably a characteristically impudent infringement of its old established and world-wide trade mark. In the meantime, while anticipating a new source of amusement from the perusal of this weekly *omnium gatherum* of political, commercial, financial, mining and general news, edited by the paste pot and scissors, we cannot restrain a tear for such of the unfortunate investors as may have been induced to put their money into what cannot fail to be a short-lived and unprofitable venture.

A new departure in loading coal and ore vessels will be made in the construction of the proposed ore docks at Conneaut, O. Permanent bridges will span slips 100 feet wide for the operation of electric hoisting machines. These bridges will be high enough to clear the decks of the whaleback barges by 30 feet. The design is for the steamers, which will tow two consort each, to put the barges far into these great slips, and then to follow, head in, the three passing under the trestle bridges, except that the stern of the steamer, with her stack, will be outside the outer trestle. The cars will then run directly over the hatches, dumping the ore on either side of the slip. After the power house is supplied with men, the electric hoists require only one man to a car. He travels with the bucket and dispenses with the signal men and extra engineers and firemen required by the steam hoists. The same power that propels the machinery

generates light, so that the stock piles and the holds of the boats can be illuminated and the work carried on by night as well as by day.

A manufacturer of lead pipes is rejoicing somewhat over a process that has just come into his possession for giving a pipe made of lead a much greater power to resist a bursting pressure than was ever possible heretofore. A coil of steel wire is made use of for this purpose, which is led into the machine that forms the pipe in such a way that it comes out in the body of the pipe all wound in a coil just large enough to be covered up by the lead walls on both sides. This helps to keep the pipe in its circular form, allowing it to be easily bent, and increases its strength twenty-fold. Hose pipes have been treated in this manner for some time, and pipes made of copper, and corrugated in the screw-thread form, can be wound with steel to give the required strength against bursting and still be left free to expand or contract as the case may require. We shall expect to hear of some one before long making use of this very principle in drawing brass tubing that will have a steel wire coiled up within the shell of the pipe to add to the strength of the brass, while the brass can give good protection to the steel.

Boiler Testing.

"How do you know when a plate is crystallized in a boiler?" is a question frequently asked engineers. A plate that is crystallized has a bell-like ring, while a good plate has a deader sound. An old engineer used to say that when the plate sounded as though it was good, he knew it was bad and when it sounded dull, as though something was the matter, he knew it was all right. That is one way of putting it. The inexperienced engineer would say the crystallized plate was the good plate every time, if he judged by the sound alone.

"Every boiler maker isn't an expert at finding cracks in a boiler shell," said an inspector the other day. "I found a crack in a boiler a little while ago directly over the fire about half-way up to the brickwork. We ordered a patch put on, but word came back that there could be no crack in the boiler as the boiler-maker had hunted over every inch and could not find it. I wrote them where the crack was, but still the boiler-maker could not find it, and I had to go out and draw a chalk mark around that crack before the boiler-maker discovered it."

Small cracks in a boiler are not always easy to find; they cannot always be seen and must be detected by the sound or feeling. The latter method is the surer. The inspector taps with his hammer along the boiler shell, with his finger on the plate a few inches in advance of the hammer, and his sensitive finger will feel the vibration of the plate, if it is injured. But if there is a crack in the plate between his finger and the hammer no vibration can be felt, the crack preventing it. In this manner the crack can be readily located.—Boston Journal of Commerce.

Pure Air for Mills.

Operatives in factories or other buildings feel the need of pure air properly heated and in generous amounts in winter, and also require the same amount of air in summer, at a temperature not detrimental to the health. The health of the operatives should be carefully looked after; if they are cheerful and happy, much more work is turned out and in better condition than can be done by people that languish because of impure air. People that have to work in heated, impure air soon have nausea, sick headache and other troubles that they are at a loss to account for. When in such condition they cannot accomplish what is reasonable for them to do, or get from a machine its full complement of work.

Artificial means must be resorted to for proper ventilation and heating in winter, also cooling in summer. The ventilating fan is the medium that meets the requirements at present nearer than any other way, in winter, by using a force-blast fan situated at one end or side of buildings, passing the air forced in around heated pipes, thence to rooms to be heated and ventilated, the air in all cases to be taken from the outside, as far from contamination as possible. At the opposite end or side, a suction fan to eject the air, both running at slow velocities but with great volume. In summer, the heating coil is filled with cold water and cools the air. By so doing, draughts will be avoided and best results reached.

A proper oversight should be kept of the amount of moisture that is in the atmosphere; a hot, dry air is bad, while air surcharged with moisture is worse. A happy medium can be kept with little trouble. By proper attention to the matter of heat, ventilation and moisture, the output can be maintained, steady, with good health for the workers.

Telegraphing Without Wires.

Genuine progress is being made toward the next great electrical triumph telegraphing and telephoning without wires. The latest results of English experiments were described in a lecture before the Society of Arts on Thursday by W. H. Preece. A copper wire a half-mile long was hung on poles on the coast near Cardiff, the earth completing the circuit. Six hundred yards away another wire, 600 yards long, and parallel with the original line, was buried in the sand at the low water mark. More than three miles off, on Flat Holme Island, another wire, also 600 yards and parallel, was laid down. An alternating current, controlled by a Morse key, was sent through the first wire. The signals were reproduced in the wire on the island and read by a pair of telephones. Messages were easily

sent. Similar experiments at five and a half miles were similarly successful. The human voice was easily transmitted by the same means one and a quarter miles. Preece's critics contend that the results were due to conduction through the earth. He maintains that the results were due to electro-magnetic induction of the rapidly-alternating current in the primary circuit, throwing the surrounding ether into oscillations, and the energy was radiated in electric waves. These waves, he says, spread out like waves of light, and if they fall on conductors properly placed and sympathetically prepared are converted into an alternate current in the secondary circuit. Enthusiasts on the subject argue that we are fast getting on the track of the secret which, when secured, will enable us to communicate with other planets.

A Cheap Condenser for Exhaust Steam.

Mr. F. H. Wenham, of London, describes a method of condensing the exhaust steam from a high pressure engine, which is new to us, and probably will be to most of our readers. It is capable of a very extended application, and in many cases would be very useful. Mr. Wenham says:

"I had to burn anthracite or smokeless coal, yet the exhaust steam up the chimney caused particles of iron to descend on to linen hung out to dry in a laundry next door. For this I was threatened with an injunction and damages. I therefore had to take immediate steps to get rid of the exhaust steam. Water was scarce and expensive, so I turned the steam into a disused rainwater well as a temporary expedient; this got rid of it for several days, till the ground got dry and hot; then the steam finally escaped up through five holes in a stone sink in the corner of the building. Above this was a 5 inch wooden spout reaching to the roof; up this the steam was drawn by a strong draft, but I noticed that none came out at the top. It was all condensed, and fell in a shower out of the open bottom of the spout, and drained back into the sink. As the wood was scarcely warm, I saw that external or surface condensation had nothing to do with the result; it was simply the rush of cold air mixing with the steam that condensed it. I then carried the suction of my feed-pump to the bottom of the tank, and for years fed my boiler with hot distilled water, very little extra being required to make up waste. The consequence was that my boiler was kept free from incrustation. Several engines that I afterward erected were provided with this inexpensive arrangement, using ordinary stone-ware pipes to the top of the building, of course leaving the bottom open for the free ingress of air. The arrangement cost but little, and never caused any trouble. About 16 cub. ft. of air will be required to condense 1 cub. ft. of steam."—American Engineer.

The New Diazotizing Process.

The importance which the producing of colors by diazotizing and developing on vegetable fibres has lately attained, has induced Wm. J. Matheson & Co. to issue a special sample card with a series of dyeings produced by this method, which they will be glad to send to those interested.

In some branches of the dyeing industry the want has been felt to produce in this way not only staple shades, as blues, browns, and blacks, but also fancy shades, as well as all other colors obtainable by developing on the fibre. Up to three years ago primuline was the only dyestuff suitable for developing on the fibre, and only by the introduction of black, blue and brown diazotizable Diamine Colors has a more general application of this process become possible.

Among the advantages which this process offers may be mentioned the following:

First.—Quick and cheap working, as no mordanting is required.
Second.—Superior fastness to washing of the dyeings produced, a large number of which are even fast to milling.
Third.—Perfect preservation of the cotton fibre, which in some cases even gains in strength.

This last claim has lately been confirmed by repeated tests made with cotton thread dyed in the cop with Diamine Black and developed, the strength of which was found to be by 30 per cent. better than that of the same undyed fibre.

The following is the method for dyeing and developing Diamine colors and Primuline:—

(1) Boil for one hour, using for each 100 lbs. cotton yarn Diamine colors required for the shade desired, and 30 lbs. common salt; or
(2) Diamine colors required for the shade desired, and 5 lbs. sal sod.; 15 lbs. glauber salts.

(For water free from lime we recommend recipe numbered 1; for water containing lime, we recommend recipe numbered 2.)

For standing kettles about one-half the dyestuff used in the first kettle is required, and about one-quarter to one-third the quantity of mordant.

After dyeing wash in cold water, giving the yarn three or four turns, and pass into the diazotizing bath.

Prepare this bath by dissolving 3 lbs. nitric soda in one pail of hot water. Add this to the kettle filled with cold water; then add to the kettle 5 lbs. oil vitriol or 10 lbs. muriatic acid, diluted in one pail of cold water. Work the yarn 15 minutes; lift, rinse in cold water, giving three or four turns, and pass at once into the developing bath.

Prepare this bath by adding to the kettle filled with cold water the quantity of developer dissolved as per instructions for each. Work

the yarn about 15 minutes, or until the depth of the shade increases no more; rinse and finish.

(The diazotizing bath should be kept as cold as possible; the developing bath at 80 to 90 F.

Electric Carriages.

For several years past the application of electric storage batteries to the driving of ordinary road carriages has attracted attention, and repeated efforts have been made, principally in France, to bring vehicles propelled in this way into favor. The latest outcome of French enterprise in this field is a carriage, designed by Paul Pouchain, of Armentieres, with which most satisfactory results are said to have been recently obtained. It has seats for six persons, and electric power is furnished by Dujardin batteries arranged in six groups of nine cells each. Each group is contained in a box twelve inches high, seventeen inches long and thirteen inches wide, and each cell consists of one positive and two negative plates mounted in an ebonite shell. The cells of each group are connected in series. The batteries are carried in a large box, coated with asphaltum, and careful provision has been made to avoid spilling the solution. A suitable controlling switch enables the making of various combinations among the batteries so as to make different working speeds possible. The motor is a Reclmiewski machine of 2,000 watts capacity, capable, in case of need, of developing double that amount of power for a short time. The power is transmitted to the rear carriage axle by link belts and sprocket wheels. Steering is effected by a hand wheel attached to a rod, the lower end of which moves the axle by means of bevel gearing. The electric measuring instruments, switches for lighting the three lamps with which the carriage is equipped, and a reversing switch are carried on the dashboard. The service weight of the whole outfit is about 3,000 pounds, and one charge of the batteries is said to be sufficient for a forty-four-mile trip on a paved street at the rate of about ten miles an hour. Cassier's Magazine.

"Crystal-Carbonate."

This material is claimed to be the purest crystallized Carbonate of Soda in the market. The following analysis shows its relative value:

	SODA CRYSTALS.	CRYSTAL-CARBONATE.
Carbonate of Soda	34.22	\$2.00
Hydrate of Soda	.10	0.00
Sulphate of Soda	2.54	trace
Chloride of Sodium	.27	0.25
Water.	62.84	17.50
	99.97	99.75

Solubility. Soda Crystals are soluble in cold water with difficulty, because

1stly Being in large lumps, they offer but little surface to the action of the water.

2ndly By solution they lower the temperature of the water, 122 units of heat being absorbed.

Crystal-Carbonate dissolves in cold water with great ease, because

1stly Consisting of minute crystals, it offers immense surface to the action of the water.

2ndly By solution it raises the temperature of the water, 35 units of heat being evolved.

Melting Point. Soda Crystals melt in the water of Crystallization at about 90 Fahr., and cannot be stored in tropical countries without very considerable loss.

Crystal-Carbonate does not melt below a red heat, and is therefore particularly suitable for use in tropical countries.

Carriage. Crystal-Carbonate containing so much more Alkali than Soda Crystals there is a saving in cost of carriage.

Storage. 48 cwt. of Soda Crystals packed in 24 two-cwt. barrels occupy about 150 cubic feet.

One ton of Crystal-Carbonate packed in casks, holding from three to four cwt. each, occupies about 65 cubic feet.

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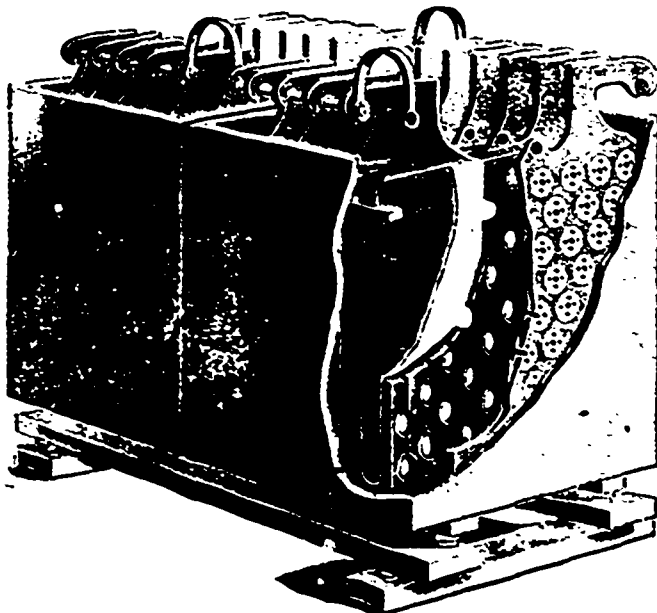
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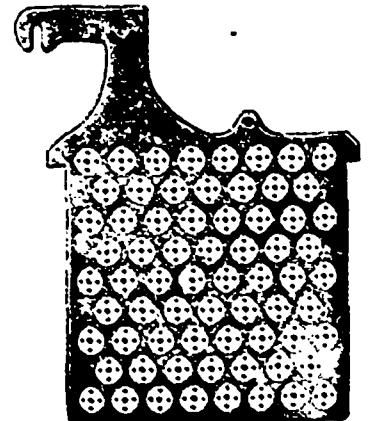
The Chloride Accumulator

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

Traction Cells a Specialty

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

Dexrel Building - Philadelphia



Inspection of Boilers.

There is doubtless no state in the Union that has provided to a greater extent than Massachusetts for the protection of working people employed in manufacturing and mechanical establishments from the dangers to which they are exposed by unprotected machinery. Laws have been enacted providing for proper ventilation of work rooms, adequate means of egress from buildings where operatives are employed, care of elevators, etc., and yet there has remained one missing link in the state's factory inspection laws, viz., boiler inspection and the proper supervision of those in charge of them.

And it was not until last year that an act was passed providing for the appointment of an additional district police officer for temporary service in the inspection of uninsured steam boilers. The report of this inspector has just been made public. It reveals an astonishing condition of affairs, which calls for the immediate enactment of a permanent law providing for the inspection of every uninsured steam boiler within the state, and their appurtenances, and for ascertaining the ability and competency of the engineers in charge thereof. The safety of the public requires this safeguard.

Referring to the report of Inspector Hawley, which occupies 23 closely printed pages, it is found that out of 171 boilers which were examined by him, 148 were found defective in some particular, some having a number of defects, the total defects observed being 486 and the number of these defects considered dangerous being 114. By examining a summary of his report it will be seen that 57 had leaky tubes, 52 external corrosion, 43 were without fusible plug and 35 had defective water flow-off. Many cases were found where the boiler had not been opened for inspection for many years, not even to cleaning, and no knowledge was possessed by the engineer as to the safety of the boiler other than that the scale was cleaned out as much as possible once a year.

Other features which were revealed by this inspection were that too many "Jack-at-all-trades" were employed to examine boilers who went no further than to hunt for leaks, or put a patch on where a sheet was burned, and that there was lacking, to a large degree, that technical knowledge of engines and boilers which all engineers should possess. On broaching the subject of state supervision to engineers, not more than 12 out of over 500 questioned were opposed to submitting to an examination, but many confessed they would have to study up matters preparatory to such an investigation.

Unquestionably there is great need of legislation on this subject, and would it not be wise to introduce a bill at once, providing for state supervision of uninsured boilers? This should call for the examination and licensing of engineers, the effect of which would be the raising of the standard of this class of labor, and obliging them to gain the knowledge which their employers now suppose they possess.

-American Wool and Cotton Reporter

A Fine Side-Wheeler.

The largest steamer ever launched on Lake Ontario slid off the ways at Hamilton, Ont., May 2, 1893. She was the fine new side-wheeler Chippewa, built by Wm. Hendrie from the plans, and under the general supervision, of Mr. Frank E. Kirby, of Detroit. The Chippewa is 311 feet in length over all, with 307 feet on the deck, and 302 feet between perpendiculars, her moulded beam is 36 feet, while over the guards at amidships, she is 67 feet wide; her depth is 13 feet 3 inches. Her hull is of steel, put together in the most perfect manner. Her engines are from the celebrated firm of W. Fletcher & Co., New York, and are of the walking beam type. They are 2,100 horse-power, with 75 inch cylinders and 11 feet stroke. She has five boilers, each 21 feet long and 10 feet 4 inches in diameter, and has a separate engine for electric lighting, forced draught, and all the latest improvements in the way of engine and boiler-room fittings. In the way of construction and finish she is equal to anything on the lakes, and no expense was spared to fit her for the trade between Toronto and Niagara Falls, in which she came out soon enough

to engage during the latter part of last season. She is licensed to carry 2,000 passengers in the lake, and can easily accommodate 3,000 for river service.

Below deck, forward, between water tight boilers, are the crew's quarters, with accommodations for sixteen deck hands and firemen. Aft these are the officers' quarters on the port side and the deck-hands' and firemen's mess-room on the starboard side, each with separate stairways. Aft again are the officers' quarters, well fitted up, and with commodious state rooms. Still aft is the forward boiler room, then the engine room, and then the aft engine room, with coal bunkers in each side. Then, with easy stairs from the main deck, is the dining-room with a large kitchen on the port, and pantry on the starboard side, each with separate stairs and perfectly ventilated. Aft are the sleeping quarters for the waiters and others, with some storage room.

On the main deck forward is the steam windlass and capstan, and a large smoking room, with the steam steerer in the centre, immediately aft. The smoking room is finished in quartered oak paneling. Aft of this is a room almost 63 feet square, paneled and cased in quartered oak. Then come the stateroom for the engineers, the men's lavatory, and a large main saloon finished in mahogany panels. The purser's office is on the starboard side, and the baggage and porters' rooms on the port side. These are paneled in mahogany. The ladies' saloon, 32 by 50 feet, is handsomely finished in paneled mahogany, with carved moldings, hand-decorated ceiling, and plate glass mirrors, and with the latest conveniences and elaborate furnishing. On the promenade deck is a saloon 192 feet long, finished in quartered oak, and open deck room of 50 feet, both fore and aft. The trunk deck has a high arched ceiling, with skylights the entire length, and above it are the pilot-house and captain's stateroom. The upper cabin is also finished in mahogany, and the furnishings are in keeping with the fine work on the boat.

Last season the Chippewa made about twenty miles per hour, but her engines being new, she was not speeded. Next season, her owners expect her to prove the fastest boat in fresh water.

The Chippewa was built under the personal supervision of Mr. Robert Logan, at that time a member of the Toronto firm of Logan & Rankin, of Toronto, but now of Cleveland. Her boilers were constructed by the Hamilton Bridge Works Co., and the interior wood work came from the shops of the W. Wright Co., of Detroit. She is commanded by Capt. McGiffin, who formerly sailed the Cibola, of the same line. She is operated by the Niagara Navigation Co., Limited, of which Hon. Frank Smith is president. She plies between Niagara, Lewiston and Toronto.—Marine Record.

LOOK! LOOK!

Electric Dynamos and Motors Complete

SECOND-HAND LIST

- 1-75 light Eddy, 110 Volt Dynamo.
- 1-4 H.P. Sprague Motor.
- 1-30 light Jenney, 110 Volt Dynamo.
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- 1-7 H.P. E. Leonard & Sons Slide Valve Engine, used very little.

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OF CANADA

Head Office: TORONTO

ARE YOU SURE

THEY ARE

SAFE

AND

IN GOOD

CONDITION?

Chloride Accumulator.

The illustration on page 234 is of the chloride accumulator manufactured by the Electric Storage Battery Co., Philadelphia, Penn. The value and efficiency of it may be better understood from the following letter, which explains itself:—

GRAND TRUNK RAILWAY COMPANY OF CANADA.

Assistant Mechanical Superintendent's Office, Locomotive Works.

MONTREAL, Feb. 23rd, 1894.

Charles R. Hosmer, Esq., President and General Manager, Canadian Pacific Railway Co.'s Telegraph, 4 Hospital St., City.

MY DEAR SIR,—In accordance with your request I have had the small Chloride Accumulator Cell, which you forwarded to me, thoroughly tested by my friend, Prof. H. L. Callendar, of the Physics Department, McGill College, with very gratifying results.

Concerning the same he reports as follows :

Feb. 22nd, 1894.

MY DEAR WANKLYN,—I have tested the small Chloride Accumulator Type E. 5, with results which confirm very nearly the makers' claims with regard to capacity and efficiency. The cell was twice charged and discharged at a 5 ampere rate, the current and voltage being recorded by Weston instruments which have been tested and calibrated in our laboratory. The charging was continued on the first occasion until the cell when tested for a moment with a current of 10 amperes, showed an E. M. F. of 2.70 volts. On the second occasion up to 2.50 volts. The discharge was continued on each occasion until the volts fell to 1.70. Taking both records together the ampere efficiency of the cell comes out 96.1%. The Watt-efficiency 84.0%. The second charge and discharge show a higher efficiency, as might naturally be expected, than the first. The curves approximate very closely throughout with the curves given in the pamphlet. The useful capacity of the cell is now a little over 100 ampere hours, but it can be made to hold more by prolonged charging. At present it is impossible to make any statement with regard to the durability of the cell, but so far as can be judged from its construction this should be very good. The effective resistance of the cell at a 5 ampere current is approximately 1/200th of an ohm. The cell will probably improve a little with further work, so that I think we may conclude that it fully bears out the makers' claims so far as we have been able to test it.

Yours very truly, (signed) HUGH L. CALLENDAR.

Attached you will find Blue Print showing the curves traced during the two chargings and dischargings, which are very satisfactory.

Yours very truly, F. L. WANKLYN.

Coal Consumption in Big Cities.

Those who are interested in the saving of coal wastes and the suppression of particularly smoky factory and other chimneys will find some rather suggestive figures in the report on the mineral industries of the United States, showing what enormous quantities of coal are annually consumed in the different cities of the country.

New York, for example, in 1889 received for consumption a little more than 3,300,000 tons of anthracite, and over 1,850,000 tons of bituminous coal; for Philadelphia the respective amounts for the same year were about 3,190,000 and 920,000 tons; for Chicago, 1,450,000 and 3,220,000 tons; for Boston, 1,240,000 and 525,000, and for Brooklyn, 1,800,000 and 200,000 tons.

But even the smaller cities burn up coal at an impressive rate, making the total annual consumption mount up into a quantity so vast that even the smallest percentage of saving that could be effected would represent something remarkably substantial. Special forms of furnace grates, smoke consumers, mechanical stokers and damper regulators galore have been offered for years with claims of reducing coal consumption by varying fractions. Some of these contrivances are doing good work and are reaping the rewards of their merits in the shape of profitable sales, but they still leave a wide field in which ingenuity and invention may be exercised with every hope of handsome pecuniary returns.

Henderson's Machine for Sharpening Clippers.

The accompanying illustration is of Henderson's newly invented machine for sharpening barber and horse clippers. With it clippers may be concaved and sharpened with rapidity and accuracy; and it consists essentially of an adjustable plate to which the clipper is fastened, and an emery wheel set so that the edge of its periphery shall act upon the surface of the clipper, all parts of the machine being adjustable. In setting forth his claim, upon which a patent was granted, the inventor states:—

In the drawing, A represents a plate, on the surface of which I cement the clipper B, which I may wish to sharpen. The plate A, is bolted to the post C, as indicated, so that it may be readily removed for the purpose of fixing to or taking off the clipper B. The post C, is vertically adjustable and may also be revolved by the worm-spindle D, in order that a proper portion of its surface may be brought into proper line with the emery wheel E. This emery wheel is caused to revolve and is carried in a suitable-bearing box F, which is carried in the head G, and is vertically adjustable therein, being held at any desired position by means of the thumb-screw H, as indicated in the

**Second-Hand Engines and Boilers
for Sale by the
GOLDIE & McCULLOCH CO., Ltd.
GALT, ONT.**

- 100-h.p. Wheelock Engine.
- 90-h.p. Wheelock Engine.
- 75-h.p. Slide Valve Engine.
- 60-h.p. Buckeye Engine.
- 50-h.p. Slide Valve Engine.
- 40-h.p. Slide Valve Engine.

- 35-h.p. Slide Valve Engine.
- 30-h.p. Slide Valve Engine.
- 15-h.p. Slide Valve Engine.
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- 100-h.p. Return Tubular Boiler.
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- 18-h.p. Return Tubular Boiler.

The above Engines and Boilers have been replaced by Wheelock Engines and New Boilers of greater power, and will be rebuilt and sold at very reasonable figures.

For Particulars Apply to

The Goldie & McCulloch Co., Ltd. - Galt, Ont.

**DENNIS'
Tubular Steel Barrows**

COAL
DIRT
FOUNDRY
ROLLING MILL
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For Hard Wear, Strength and Durability they are Simply Unequaled.

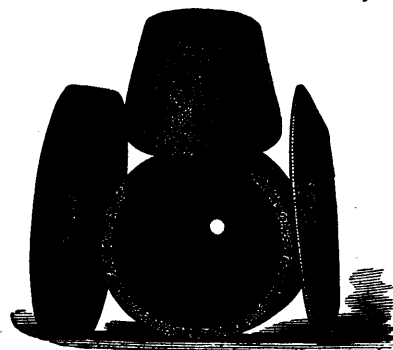
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Dennis Wire and Iron Works, London, Ont.

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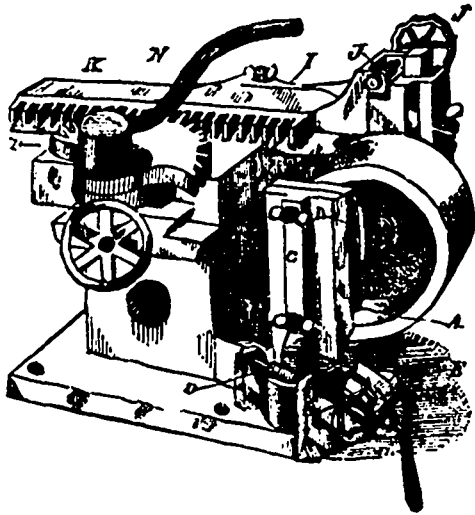


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AND
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To run wet or dry, special shapes

**Perfection
Saw Gummers**

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drawing This head is pivoted on the end of the slide I, and is operated by means of the worm spindle J. On the side of the slide I, is formed a rack K, which rack engages with the teeth in the quadrant L, which is pivoted on the cross-slide M, and provided with the hand lever N, as indicated.



To operate the machine, take the Plate A, place it over gas or suitable heat until the sealing wax is hot, then take one of the clipper combs, drop it on the hot wax, allow it to remain there long enough for the wax to adhere well to the comb, then submerge the whole in cold water, replace the Plate A, together with comb to be ground, on the upright U, tighten the thumb screws and adjust the upright to emery wheel, the wheel to the surface of the comb, then start the machine in motion and give the emery wheel, E, a slight cut, at the same time moving the lever backward and forward, causing the emery wheel to pass across the comb. By this way you will, in a few minutes, have a perfect grind and concave surface. Four plates should be used to do rapid work. Mr. D. S. Henderson, the inventor, is a resident of Brantford, Ont., and his clipper is being manufactured by the D. S. Henderson Mfg. Co., that city.

CAPTAINS OF INDUSTRY

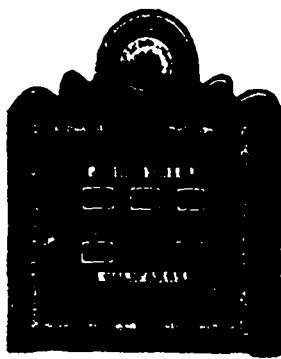
This department of the Canadian Manufacturer is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing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

The F. E. Dixon Belting Company, Toronto, manufacturers of genuine bark tanned star rivet leather belting, have sent us their new catalogue having reference to their business. In the introduction is the following: "There having been a considerable demand lately for the little "Belting Hand Book," which we published a few years ago, and which is now out of print, we have determined to get up another on a little larger scale, which we now offer to our patrons, and others interested in Canadian manufactures. We have taken great pains to collect all the information on the subject of leather belting which from our long experience we considered would be most useful, and we feel sure that in particular the different formulae and tables of horse power, etc., which we have given, will be highly appreciated by many who have hitherto been obliged to work out their own calculations in that branch of their business. We would also point, with what we trust may be considered a pardonable pride, to the numerous and flattering notices we have received from manufacturers and others who have been in the habit of using our belting, many of whom are the very foremost representatives in their line in Canada.

The letters alluded to as having been received from parties who have used Dixon belts are from some of the most prominent and best known manufacturers in Canada, and include, in Toronto, the Wm. Davies Co., Gooderham & Worts, Mason & Risch, Massey-Harris Co., O'Keefe Brewery Co., Toronto Electric Light Co., Christie, Brown & Co., Firstbrook Bros., P. Freyseng & Co., James Massie, warden of Central Prison, C. R. Peterkin and Robertson Bros.; in Galt the Goldie & McCulloch Co., and Cranston and Scrimger; in Hamilton, Gurney, Tilden & Co., and the Hamilton Brass Mfg. Co.; in Ingersoll, the Noxon Bros. Mfg. Co., in Doon, M. B. Perrin & Co., and many others. The general tenor of these letters is to the effect that the Dixon belts have given good satisfaction and proved exceedingly durable. The information regarding belting, etc. is timely and valuable. The photo engraving of Mr. F. E. Dixon is a beautiful likeness of this well-known gentleman. The Murray Printing Co., Toronto, whose imprint the book bears, have done themselves much credit in its production.

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THIS IS AN ENTIRELY NEW DEPARTURE IN ANNUNCIATORS, AS ALL THE TROUBLE AND ANNOYANCE OF RE-SETTING THE DROPS IS DONE AWAY WITH.



THE ONLY ANNUNCIATOR MADE THAT NEVER REQUIRES ATTENTION; HANDSOMELY GOTTEN UP; SIMPLY, CHEAPEST AND BEST ELECTRIC ANNUNCIATOR IN THE MARKET.

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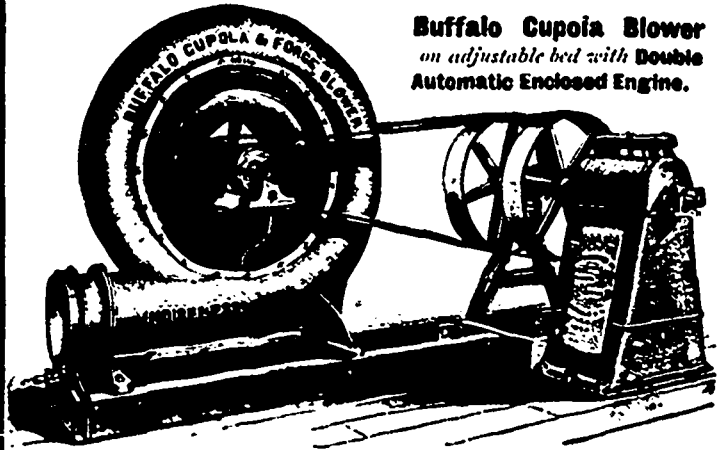
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Buffalo Cupola Blower
on adjustable bed with Double Automatic Enclosed Engine.

Buffalo Dry-Kilns, Shaving Fans, Forges, Blowers, Exhausters, Blacksmith Drills, Etc.

Are described in: Sectional Catalogue FREE on application.

—•••••
Their Efficiency, Smooth Running, and Durability are Unsurpassed

—
BUFFALO FORGE CO., Buffalo, N.Y., U.S.A.

Mr. J. T. Logan is starting a soap works at St. John, N. B.

A large pork packing establishment is to be started at Pictou, N.S.

Mr. Herbert Coates is establishing a factory at Amherst, N.S., for the manufacture of misses' and infants' boots and shoes.

Mr. S. C. Hinsberger's carriage works at Jordan, Ont., were destroyed by fire, March 6, loss about \$5,000.

The F. E. Dixon Belting Co., Toronto, are building two leather belts for the Sandwich, Windsor and Amherstburg Electric Railway Co., each 75 feet long and twenty-eight inches wide, double thickness.

The patent dust guard and oil saver for cars which is the invention of Mr. W.A. Warman, of Moncton, N. B., brakeman on the I. C. R., would appear, from the reports from the roads on which it has been tested, to be a valuable piece of machinery, not only to the inventor but also to the railways, in the direction of economy. The C.P.R. is the latest road to add its testimonial to its worth. The management of that road have informed Mr. Warman that a car on which his patent was tested ran 97 days, covering 17,189 miles with one oiling, the amount of oil used being one quart. It may be said that cars on which the ordinary oil boxes are used require oiling every 100 miles, so it will be readily seen that Mr. Warman's invention must be a great saving. The dust guard and oil saver is a simple arrangement and simply keeps the oil in and the dust out. Besides the great saving effected in oil and labor there must also necessarily be less wear and tear on the machinery. The invention has been taken hold of by a company, and Mr. Warman, besides retaining an interest, has received a snug sum. The patent right for its manufacture has been secured for Canada and the United States.

The sawmill and the large water front belonging to the Georgian Bay Lumber Company, at Collingwood, Ont., have been sold to Messrs. Toner & Gregory, of that town, who intend to put the works in operation at once. The mill usually employs from 75 to 100 men during the cutting season. The capacity of the mill is from 80,000 to 100,000 feet per day.

Mr. E. Best, car foreman in the C.P.R. shops at London, Ont., has for some time past been working on a new invention—a railway safety switch. Having got it in what he considered a condition fit to stand a test, Mr. Best requested the railway company to give it a trial. This was complied with and Wednesday afternoon at 5 o'clock the test was given before Mr. T. Williams, the divisional superintendent, at the Adelaide street crossing of the C.P.R. The switch is very simple in construction, and is designed to prevent run-offs which are now caused by misplaced switches. With this contrivance no matter how the switch is placed, it is impossible for a car to jump the track. This was fully proven yesterday, when it was thrown open in the face of an approaching engine and tender, and both passed over safely. Mr. Williams spoke very highly of its merits and complimented Mr. Best on the success of his trial. Mr. Best has also been working of late on a wrecking dog, which, on a recent trial, placed three derailed cars on the track in one minute. Among other inventions by Mr. Best is a lubricator for engines and railway cars, and an axle box, both of which have been patented in Canada, United States, Great Britain, France, Germany and Belgium. Another lubricator was afterwards invented for use on street cars, patented in the United States and Canada and used on the cars of the street railway in this city.—Advertiser.

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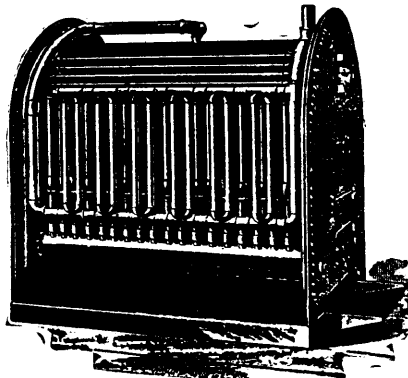
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FINLAYSON WATER TUBE MARINE BOILER

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YACHTS, LAUNCHES and OTHER STEAMERS

The most efficient and Reliable Water Tube Boiler in the market. Has entirely new features and improvements.

Send for Illustrated Catalogue of Boilers and Engines.

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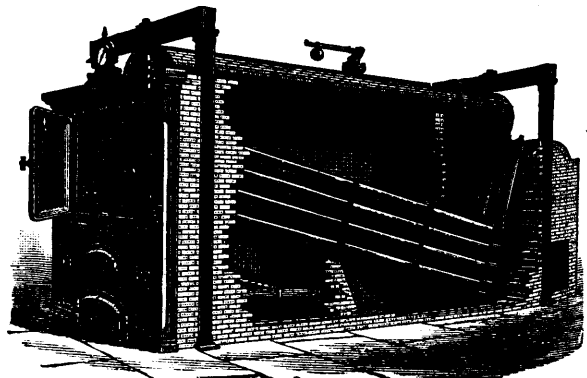
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The E. Howard Watch and Clock Co.,

MANUFACTURERS : 383 Washington St., Boston, Mass.
FINE WATCHES AND CLOCKS : 41 Maiden Lane, New York, N.Y.
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:: Water Tube Steam Boilers ::

Now being manufactured in Canada.

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Send for book "STEAM" free on application.

The F. E. Dixon Belting Co., Toronto, have established a branch house in Montreal, at 13 Lemoine street, where stocks of belting will be kept on hand.

The Robb Engineering Co., of Amherst, N. S., have recently built three of Hughes' patent hydraulic pulp grinders for the Morgan Falls Pulp Co., at New Germany, N. S. These pulp grinders are known as four pocket machines, weigh about five tons each, and have a much greater capacity than the old style of machine.

Mr. John Forman, of Montreal, the Canadian agent of Messrs. Crompton & Co., of London, England, reports that this well-known electrical firm have just secured an order amounting in value to nearly \$75,000 for a large electrical transmission of power plant for Australia. Continuous current is to be used at a pressure of 3,300 volts. Two 1,650 volt dynamos will be run in series, and the current will be transmitted ten miles for light and power.

The work on the Tunnel Island dam is progressing favorably. The very air around seemed to smell of industry. There is built a neat office, well heated, and lighted with electricity, connected by telephone to the town. Off from the office a little way are blacksmith shops and other buildings; so that the once lonely place now shows signs of industry and life. At present there are 96 men engaged on the construction, which has assumed large proportions already. No stonework has been begun yet, but in a few weeks, as soon as the weather permits, the masons will appear on the scene. The stone work will be thirty feet in height and built in a semi-circular wall, which banks the water for over 1,000 feet in width.—Rat Portage Record.

A syndicate of United States capitalists is asking the towns of Port Arthur and Fort William for a bonus to build a smelting and rolling mills plant, capable of turning out 40,000 tons of pig iron and 30,000 tons of steel rails per annum. At a joint meeting of the citizens and councils of the two corporations on Saturday it was resolved: "That this joint meeting of the citizens and councils of the towns of Port Arthur and Fort William, believe that each of the towns would be warranted in giving a bonus of \$50,000 to a blast furnace (capable of turning out 40,000 tons of pig iron per annum), and a like amount to a rolling mill capable of manufacturing 2,500 tons per month of steel rails, etc., that is, that each of the towns should contribute \$100,000; that a free site should also be furnished; that this be done in connection with the construction of the Rainy River Railway; that towns should have a guarantee that the furnace will be operated on an average of at least six months per annum for ten years; and that tax exemption run concurrently with the guarantee."—Winnipeg Commercial.

The Burford Canning Co., Burford, Ont. are applying for incorporation with a capital stock of \$15,000, to conduct a general canning business. Messrs. Henry Cox, Albert Foster, E. P. Fox and Alfred Ledger are to be the first directors of the company.

The Port Credit Terra Cotta and Pressed Brick Co., Port Credit, Ont., are applying to have the name changed to the Port Credit Pressed Brick and Terra Cotta Co., the words Terra Cotta having been inadvertently inserted before the words Pressed Brick.

The new steel bridge over Hammond river, at Moncton, N. B., now in course of construction, will be completed in a few days. It is built of steel imported from Belgium and framed by the Record Foundry Co., of Moncton, from plans by the same engineer who made the plan for the British government for the famous tower, 1,600 feet high, at Woolwich, England. Every piece of steel and rivet and joint was cut and fitted under the eye of the government's assistant engineer, who remained in Moncton all the time the bridge was being constructed for the purpose of overseeing the work.

The Toronto Carpet Mfg. Co., of which Mr. J. P. Murray is president, are applying to the city authorities for land upon which to build a much larger carpet factory than that which they now occupy. They ask for a block of land on the Esplanade which comes into the possession of the city in connection with the new agreement, upon which they will erect new and larger factories to carry on their increasing business. The land the company desire comprises nearly two acres. The company's present premises are situated on the Esplanade at the foot of Jarvis street. Mr. Murray's explanations to the committee as to the progress which the company had made in Toronto speak volumes for the enterprise and business capacity of the company. When they began business two years ago they employed nine men. To-day 103 men are employed by the company, while the pay list now numbers 120, footing up \$750 per week in wages. So great have been their strides that the space the company now occupy is altogether too cramped. Mr. Murray also states that his company had made a great success of manufacturing ingrained carpets, and in the World's Fair competition they had secured the gold medal against the manufacturers of the world. The company, in moving, would of necessity have to erect new buildings, which would be of four-storey brick and a credit to the city. What they desired was that the committee should fix a sliding scale of rentals, which would increase as the years went by, making the rental low at the start, while they were under great expense. The committee fell in with this view, and adjourned to meet again after consultation with the assessment commissioner, when a proposition will be made to the company on the lines set out by Mr. Murray.

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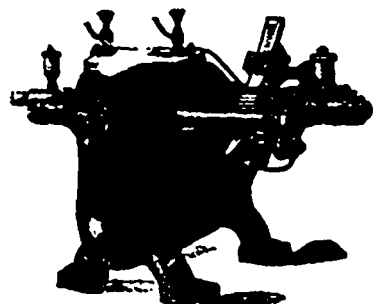
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PACKARD'S MOGUL LAMPS

200, 300 and 500 C.P.

For Lighting Large Interiors

They Cost Less and Use Less Current

Than Smaller Incandescent Lamps for the same purpose, and

Have None of the objections of Arc Lamps

WRITE US FOR PARTICULARS AND PRICES.

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Manufacturers of

The "Packard" High Grade Incandescent Lamp

Any Candle Power, and Any Voltage, to fit any Home.

The Woodstock, N. B., woolen mills are to be enlarged and a specialty will be the manufacture of horse blankets.

Mr. John Routh is building a new woolen mill at Campbellford, Ont., which will give employment to about 80 hands.

Edward Crawford, Guelph, Ont., is fitting up his mill for the manufacturing of shoddy and will commence operations as soon as possible.

Mr. J. B. Ferguson, Innisville, Ont., is having a new fulling machine built for his woolen mill by Messrs. Young Bros., of Almonte, Ont.

Humphrey's woolen mills, near Moncton, N. B., have recently had their capacity increased by the addition of a new twisting machine, a hand loom, and new carding machinery. A machine for drying the cloth was also put in.

The incorporation of the Canadian Cone Carriage Company, limited, at Palmerston, Ont., with a capital of \$50,000, will be announced in a day or two. The company has secured the commodious premises of the Clarke Brewing Company, at Palmerston, and Mr. Wm. Rothwell has been elected Secretary and Superintendent.

At the ship yards of the Montreal Transportation Co., at Kingston, Ont., a large new grain carrying schooner is nearing completion, and another is to be begun at once. It is expected that this barge will be ready to launch some time in July. Outside of barge building, a hundred or so men are engaged repairing barges and doing odd jobs. At present 250 men are in the employ of the company.

W. H. Jagó & Son, the glove manufacturers of Rockwood, Ont., are desirous of moving the tannery department of their business to this city. The firm's tannery business is in a flourishing shape and their process of manufacture is remarkable for its speed and thoroughness. If the tannery is located here it will only be a question of time when the glove works will follow suit.—Guelph Herald.

The prison of isolation now completed at the Kingston Penitentiary will be tenanted in a few days. This building was begun in June, 1889. It is constructed entirely of cut stone, brick and iron, is 209 feet long by 40 feet wide, is three stories high and contains 114 cells. All the work in connection with it has been performed by convict labor. The building is heated by steam and is lighted by electricity, each cell being furnished with a 12-candle power electric lamp. The ceilings are constructed of arched brick, and the building is entirely fireproof. At the northern end there is an elevator capable of hoisting 1,500 pounds and an iron stairway. The prison is the only one of the kind in Canada. The present intention is that only incorrigible criminals shall be confined in the new department.

Port Rowan, Ont., is now lighted by electricity, the plant for which was supplied by the Reliance Electric Co., of Waterford, Ont.

The Guelph hosiery mill, Galbraith & Co., proprietors, Guelph, Ont., manufacturers of hosiery and knitting yarns, report business as having been good the past season, with fair prospects ahead. At present two sets of cards and 14 knitting machines are operated.

Notice is given, that the partnership between Andrew M. Newlands and Adam Warnock, carrying on business at Galt, Ont., as manufacturers of buffalo robes, glove and shoe-linings, etc., under the firm name of Newlands & Co., has been dissolved by mutual consent.

The Dodge Wood Split Pulley Co., Toronto, have recently supplied the Rathbun Co., Deseronto, Ont., with four large Dodge Patent Split Friction Clutch Pulleys complete. The Dodge clutch is something new which the company are putting on the market, and for which they anticipate a large sale in connection with their well known pulleys.

Mr. A. Moyer, of the Palmerston Flour Mills, Galt, Ont., has purchased from the Goldie and McCulloch Co., of that city, a new 75 horse power steel boiler, and the Hanover Furniture Co., Hanover, Ont., have added to their plant a 225 horse power Wheelock engine, with a fly wheel 50 feet in circumference and 20 inch face, also supplied by the Goldie and McCulloch Co. The engine is one of the largest in Western Ontario.

The Sarnia woolen mill, Smith Brothers, proprietors, Sarnia, Ont., manufacturers of woolen goods, are operating two sets of cards, and four broad and five narrow looms. They have recently added machinery and have made other improvements. One set of 40-inch cards have been thrown out and replaced by one set of 60-inch cards. New spinning machinery to take the place of hand jacks and two broad Crompton looms have been added. A fire proof picker room 30x30 feet has also been built.

The Dodge Wood Split Pulley Co., Toronto, are in receipt of a letter from the E. B. Eddy Co., Hull, Que., which explains itself as follows:—Replying to the request contained in your letter of the 9th inst, as to how we are pleased with the rope drive system put into our mills by you, we would say that some four years ago we put in a small rope drive about 20 horse power. A year and a half ago we put in three drives, each 500 horse power, and one 30 horse power, and last year we put in one 400 horse power, one 300 horse power, and one 200 horse power, all of which are giving us good satisfaction. For main drives or long distances, for transmitting power, we think there is nothing to equal these drives, and we would recommend them to any person requiring similar transmission of power.

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14 to 34 King and Queen Streets, : : Montreal

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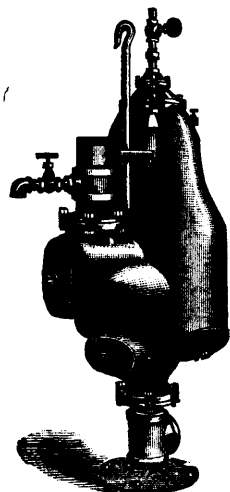
STEAM ENGINES, STEAM BOILERS,
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Circular Saw Mills, Bark Mills, Shingle Mills, Ore Crushers, Mill
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Safety Elevators and Hoists for Warehouses, Etc.

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THE PULSOMETER
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—O—

The handiest, simplest, and most efficient steam pump for general Mining, Quarrying, and Contractors' purposes.

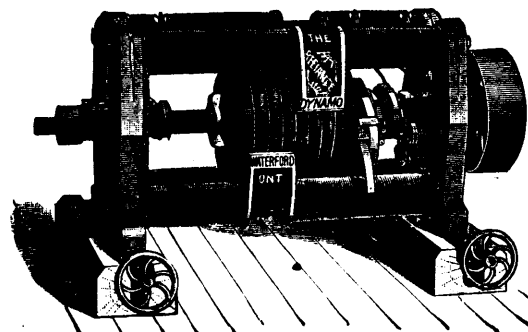
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MUDDY OR GRITTY LIQUIDS
HANDLED WITHOUT WEAR

Descriptive Catalogue, with Prices,
Furnished on Application.

Pulsometer Steam Pump Co.

NEW YORK, U.S.A.



THE
RELIANCE
ELECTRIC
MANFG.,
CO. Ltd.

Manufacturers of The
Reliance System of Arc
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Lighting

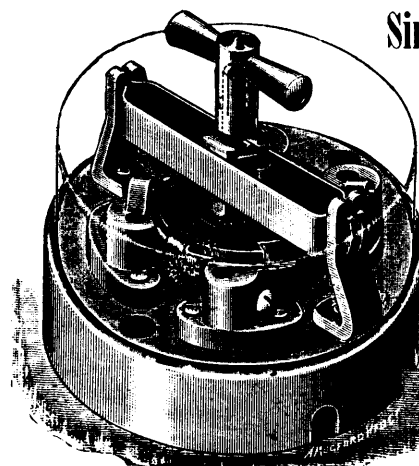
and Power Apparatus. The Rae System of Electric Railway.

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Single and Double

Pole Switches

From 5 to 150 Amperes

DOVETAIL ROSETTES

LAMP SOCKETS

All of Superior
Workmanship and
Design

Manufactured
by the

Perkins' Electric
Switch Mfg. Co.

Hartford, Conn.

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

It is now said to be an assured fact that the Fraser river at Westminster, B. C., is to be spanned by a steel bridge costing \$500,000.

Messrs. J. S. Wilson & Co., manufacturers of knit goods, now operate three sets of cards and expect to put in more machinery at an early date.

W.R. Cahoon, of Marquette, Man., whose mill was almost destroyed by a boiler explosion a short time ago, is fitting up again as fast as possible.

Wm. M. Smith has leased the Portage oatmeal mill, Portage la Prairie, Man., from Jos. Martin, and intends putting in some new machinery and otherwise refitting the mill.

A bill has been introduced in the Manitoba Legislature authorizing the municipal commissioner to issue \$25,000 of debentures for the erection of a new court house at Portage la Prairie, and also \$500 for the erection of an addition to the jail.

Mr. Alva Burrows, of the Curtain & Upholstery Mfg. Co., Guelph, Ont., has just returned from a trip to the United States where he has been purchasing machinery, among which was a chenille cutting machine and a Cop winding machine from W.W. Altamus & Sons, of Philadelphia, Pa.

Messrs. Cossitt Bros., of Brockville, Ont., have secured from the McCormack Harvesting Machine Company of Chicago the right for Canada to manufacture the McCormack "bindlochine" binder, and will proceed at once to equip their present works to supply Canadian trade with that machine.

The Water Commissioners of London, Ont., have decided to accept the tender of the London Machine Tool Company for the pumping machinery at Springbank. The new pumps are to be a duplicate of those manufactured by the George F. Blake Manufacturing Company, of Boston, for the city of Newton, Mass.

The Riverdale woolen mill, D. Graham, Sons & Co., proprietors, Inglewood, Ont., manufacturers of knit underwear, are running the carding and spinning departments day and night. At present two sets are operated. This company have lately put in a 30 horse power engine and 55 horse power boiler. A drying room has been built and other improvements made.

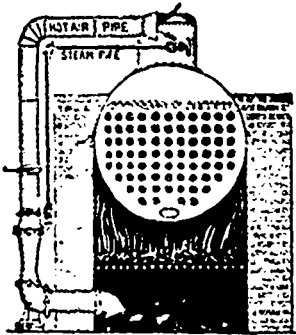
Mr. W. R. Cahoon's new flour mill at Marquette, Man., was badly wrecked by the explosion of the boiler. The boiler and engine room were destroyed and the mill building badly damaged. The end of the mill next the engine room was blown to pieces, and the building generally shattered. John Reid, engineer, was instantly killed. Loss \$11,500.

Wm. J. Matheson & Co., importers and manufacturers of dye stuffs, whose head office is at New York, have sent us a circular which states as follows: The main manufacturing building and two warehouses of our works on the East River, Long Island City, Port of New York, were destroyed by fire on Saturday evening. Our boiler house, two warehouses, laboratory and office, on the same property, were saved, together with sufficient stock to execute all orders until we can rebuild. Any orders you may entrust us with will be promptly and carefully executed.

The Whitman & Barnes Mfg. Co., St. Catharines, Ont., have favored us with a copy of the new illustrated catalogue and price list which they have just issued, having reference to the mower, reaper and binder, smooth and sickle knives, sections, spring keys, cutters, etc., manufactured by them. Eighteen pages of the catalogue having reference to smooth and sickle knives and guards, contain the names of makers of machines, and descriptive of them, with the information that these knives, heads and guards will fit the machines named and are interchangeable with those furnished by the original manufacturers of said machines. The machines alluded to are those of all the Canadian maker and also those of American make which find favor in this country. This concern manufactures to order complete cutting apparatus for all kinds of mowing, reaping and harvesting machines, using a flat or an angle bar. This apparatus includes a finger bar made of cold rolled iron or steel, as desired, fitted with malleable guards, steel lined, and outer shoe with runner or grass wheel; also clips and lifting staple. With each finger bar two complete knives are furnished. No doubt the Company will take pleasure in sending this catalogue to any interested party who may request it.

EARLE'S

STEAM and AIR INJECTORS, .. EXHAUSTERS, ETC.:::



For burning hard and soft coal screenings, run mine and dump coal under steam boilers, exhausting air, and vapors from buildings, ventilating-hops, mills, etc.

Highest Medal and Diplomas given at the World's Columbian Exposition, Chicago, 1893.

The Best Blower in the market for Steam Boilers.

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Wire Drawers, Galvanizers

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MANUFACTURERS OF

Iron Steel **WIRE** Brass Copper

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Steel and Brass Wood Screws, and .. Wire Nails..

Crescent Coat and Hat Hooks, Steel and Brass Jack Chain, 2 and 4 Point Barb and Plain Twist Fencing.

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**==EAGLE BRAND THE BEST==
ROOFING**

It is superior to any other Roofing, and unequalled for House, Barn, Factory, or Out-Buildings. It costs half the price of shingles, tin or iron: it is ready for use, and easily applied by anyone: it is the best Roofing in the market, in durability, to all others. Send for estimates, and state size of roof.

... RUBBER PAINT ...

The best known Paint in the world for Tin, Iron, or Shingle Roofs, Fences, Sides of Barns and Out-Buildings. It costs only 60 cents per gallon, in barrel lots, or \$1.5 for a 5 gallon tub. Color dark red. It will stop leaks in tin or iron roofs that will last for years. It is guaranteed not to peel, crack, scale, nor wash off, and is fire-proof against sparks. TRY IT.

... SHEATHING PAPER ...

300 square feet, \$3: keeps building cool in summer, warm in winter.

EXCELSIOR PAINT AND ROOFING CO., 166 and 167 DUANE ST, NEW YORK, N. Y.

**FOUNDRY ==
== FACINGS**

Core Compound, Ceylon Plumbago
Foundry Supplies and
Moulding Sand

CANADIAN AGENTS FOR

**Root's Positive Blower
Colliau Cupola Furnace**

Hamilton Facing Mill Co.

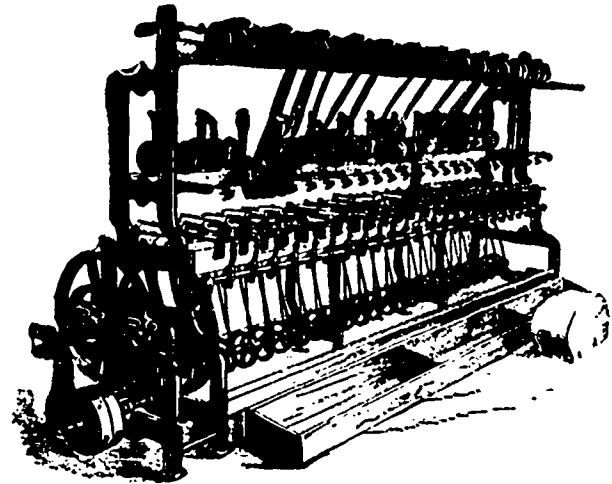
HAMILTON . . . Ontario

The Bloomfield Canning Co., Bloomfield, Ont., are applying for incorporation with a capital stock of \$20,000, to conduct a general canning business. Messrs. E. W. Talcott, Stewart Brown and others, all farmers, and N. B. Cole, are to be first directors of the company.

The Dodge Wood Split Pulley Co., Toronto, in speaking of the growth of their European trade, advise of a shipment to Antwerp, Belgium, during the past week consisting of 130 pulleys of one size and bore, and twenty odd large wheels ranging in size from 78 x 10 inches to 90 x 20 inches, which goes to show that Canadian made pulleys are well thought of and used in some pretty extensive works on the other side of the water.

Captain I. Donnelly, of Kingston, Ont., who has recently visited and inspected the new Canadian ship canal at Sault Ste. Marie, has the following to say regarding that important work:—"There are two points interesting to mariners, especially to large boats coming to Kingston. One is that the span for the drawbridge at the entrance to the lock is not wide enough. On the American side of the canal the draw is 200 feet wide, while on the Canadian side it is 90 feet, with a square abutment that sits right in the centre of the canal. It will be a serious menace to vessels using the canal. Another point that struck me very forcibly was that the entrance to the lock where the vessels first touch the stone work is built of the very roughest stone, instead of being levelled like the Kingston dry dock. This will, no doubt, injure vessels to a great extent. It will be impossible to put a fender between the vessel and stone work. The abutment should be removed and the draw bridge made the full width of the canal. With the exception of these objections the work is the finest mason work I ever viewed. The mason work is 44 feet high and the lock itself 6,800 feet long by 60 feet wide. The gates are iron and are to be swung by electricity, the first experiment ever made on the continent. An experiment was made at the Beauharnois canal last fall in view of adopting it at the Soo. It worked well. The first electric rock drill ever used on the continent is used there, and has turned out to be a great success. It was manufactured by the Peterboro' Electric Light Company. The water will enter the lock through a wrought iron pipe in the bottom instead of coming through by the head gates as in all other canals. The work is the biggest undertaking Canada has ever tackled. When completed Canada will be independent of the American canal altogether, and there will be no more talk of tolls or rebates." The Government has promised the contractor a bonus of \$100,000 if the work is completed by May 1. They are working hard for the bonus, and Capt. Donnelly thinks there is every chance of their getting it.

MEDAL AWARDED AT WORLD'S FAIR



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

The Only Successful Skein Winder

W. W. ALTEMUS & SON

...Textile Machinery...

218 North 4th Street : : : : Philadelphia, Pa.

...Builders of...

- Copp and Bobbin Winders
- Spoolers, Warp Mills
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- Chenille Cutters
- Beaming, Carpet Rolling

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Electro-Medical Apparatus, Fire Alarm Apparatus,

Electrical Gas-Lighting Apparatus, Magnets

for Mills, Burglar Alarms, Hotel and

House Annunciators, Electric

Call Bells, etc.

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OF LONDON, ENGLAND.

Established 1782. Agency Established in Canada 1804

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ASBESTOS DISC BRASS

=:Globe Valves:=

These Valves are provided with Vulcanized Asbestos Discs, composed of the fibre of Asbestos, which cannot be cracked or broken. The Discs are practically indestructible, being composed of a fireproof material, to which is added the waterproof vulcanizing material.

The Discs are furnished all complete and ready for use and may be put into one of these valves by simply unscrewing the bonnet of the valve, slipping off the old disc, replacing it by a new one, and screwing on the bonnet again, requiring only a few moments' time for the entire operation.

The Stuffing Boxes are all packed before they leave the factory with VULCANIZED ASBESTOS PACKING, which is very durable, and cannot be blown or washed out. Only first quality new metal is used.

We invite inspection and trial by all interested in this line of goods. All goods are warranted to give satisfaction.

RICE LEWIS & SON, Ltd.

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Ingot Copper and Tin

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The Tisdale Iron Stable Fittings Co., Brantford, Ont., are applying for incorporation with a capital stock of \$50,000, to manufacture iron stable fittings and to carry on a general foundry business. Messrs. A. B. G. Tisdale, T. E. Aikenhead, S. T. Sheppard and James Aikenhead are to be the first directors of the company.

The Berlin Record, in sketching the life of John C. Breithaupt, who is reeve of that town, says of the Breithaupt Leather Co.: "Some idea of the extent of their business may be conveyed by the statement that the average output of their three plants per week is 3,000 sides of finished sole leather, besides a large quantity of harness and upper leather that finds a ready market in the principal markets of Canada, Great Britain and other foreign countries."

The Hanlan Ferry Co., of Toronto, are applying for incorporation with a capital stock of \$200,000 to carry on the business of ferry, excursion and steamboat owners between the City of Toronto and summer resorts in the vicinity thereof, and more especially between Toronto Island and the main land, and generally to carry on the business of steamboat owners in all its branches at and between the points above mentioned, to establish a hotel or hotels on Toronto Island and any of the summer resorts above mentioned, to carry on at said points the business of hotel or tavern keeper, to construct and carry on all lawful amusements or attractions at said points, to provide refreshments and accommodation, to acquire and operate an electric light and waterworks system at said points, to build wharves, to build and operate dredges and sand pumps, and to own land for the purposes of the Company. Messrs. James Coleman, Morton Keachie and Robert Dickson are to be the first directors.

Messrs. I. Matheson & Co., New Glasgow, N. S., have sent in their new illustrated catalogue of engines, boilers, steel vessels, etc., manufactured by them. In it we are informed that they have recently largely increased their facilities for the prompt and efficient execution of work, and are prepared to furnish of the best materials and workmanship, marine and stationary engines and boilers, girder bridges, and every description of iron or steel plate work, gold mining machinery and general castings, etc. In the manufacture of these lines they have had nearly 30 years' experience, and during that time have furnished machinery to a large proportion of the industrial enterprises throughout the Maritime Provinces. They have recently entered on the construction of steel vessels of moderate dimensions, and are prepared to construct steam launches, tugs, passenger boats and barges, etc. The catalogue furnishes a detailed description, with illustrations, of the leading lines of products manufactured by this concern.

E. LEONARD & SONS

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MANUFACTURERS OF

ENGINES AND BOILERS

(NEW DESIGNS)

STEAM PLANTS EQUIPPED FOR ALL PURPOSES

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

THOS NOPPER, - - - Sales Agent

79 YORK STREET, TORONTO, ONT.

Armington & Sims

AUTOMATIC HIGH SPEED ENGINES

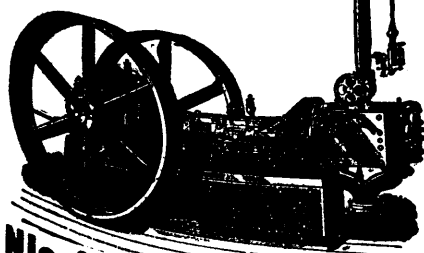
-FOR-
ELECTRIC LIGHTING

-AND-
GENERAL FACTORY PURPOSES

Perfect Regulation and Highest Economy.

Steam Pumps
SHAFTING, PULLEYS

-AND-
General Machinery



Nie & Whitfield - HAMILTON, ONT.

Mr. J. K. Blain's grist mill at Sterling Falls, Ont., was destroyed by fire March 8, loss about \$3,000.

Mr. Alfred Morrill, shipbuilder, Collingwood, Ont., has two tugs on the stocks and two more contracted for. His latest contracts are a tug for Mr. Thomas Driver, Collingwood, and one for Mr. J. W. Needler, of Little Current. The former will be 58 feet in length over all, with 13 feet beam. Her engines will be steeple compound, dimensions 7½ and 12 inches, 10 inches stroke. The latter will be 57 feet long over all, with 47 feet keel, 13 feet beam and 5 feet depth of hold. Her engines are 10 by 12 inches and will be allowed 95 pounds of steam.

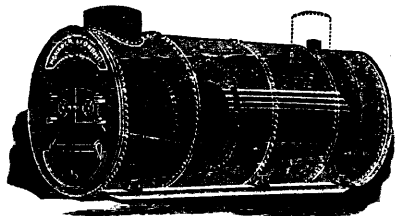
The Wm. Hamilton Mfg. Co., Peterborough, Ont., have recently placed a new machinery plant in the cheese box factory of Mr. S. Bickell, at Ashburnham, which is described by The Peterborough Examiner as follows: Mr. Samuel Bickell, the popular and enterprising proprietor of the Ashburnham cheese box manufactory, which is and has been for several years one of the solid industries of that village, has recently increased the capacity and facility of his factory by putting in a complete set of new machinery. The Wm. Hamilton Manufacturing Company were the manufacturers, and the machinery is of the latest and completest pattern out, and has such a capacity that Mr. Bickell expects to turn out 150,000 cheese boxes this year. The heads of elm-rim boxes are made of basswood and pine, Mr. Bickell having on hand some 160 cords for the coming season's trade. The process of making cheese boxes is rapid, neat and ingenious. The logs are sawed into any length desired for heads by a cutter, with steel saw 40 inches in diameter and provided with a tilting platform. Next the blocks, which are sawed into lengths generally from 15 to 17 inches, are carried to the Perkins shingle machine, where a steel saw 38 inches in diameter and laid horizontally cuts up the blocks into boards or heads one-half inch thick. A sliding platform carries the block to the saw and back. The most complete and modern machine of all manufactured by the Wm. Hamilton Company is what is known as the double edger. The saw is 36 inches in diameter, and on either side are spring platforms, two men being able to work at the same time, thus doubling the capacity. This machine cuts off the rough edges of the boards and so completes the heads. With this perfect machinery about 4,000 heads are completed a day. The hoops of the boxes are manufactured by Mr. Bickell's father in Port Hope and shipped here. All these machines are operated by a line of shafting driven by a 40 inch water wheel, which supplies ample power. Mr. Bickell speaks in the highest terms of the machinery supplied him by the Wm. Hamilton Co. and expects to put out a much larger number of first-class cheese boxes than ever before.

High Grade Power Plants

The ...

MONARCH

ECONOMIC BOILER



Combines all the advantages of portable forms with the highest possible economy.

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

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.

A representative of the Dodge Wood Split Pulley Co., Toronto, has just returned from a successful trip among their agencies in Western Ontario, having received large stock orders from Hamilton, Brantford, London, Chatham and Windsor agents, all of whom report an increasing demand for the Dodge pulley.

The Winnipeg City Council has received authority from the Legislature to submit by-laws to the ratepayers upon the question of building four bridges across the Red and Assiniboine rivers, and also to grant \$100,000 to the Dominion Government to assist in the improvement of Red river navigation. The Commercial says there is but little prospect of the by-law being carried.

The Collingwood (Ont.) Dry Dock and Ship Building Co. have contracted with the Messrs. Noble of that place to build a towing tug which will be 110 feet over all in length, 20 feet beam, with a depth of 9 feet. The boiler, which will be of the Scotch type, will be 9 feet and 6 inches in diameter and 11 feet and 6 inches in length. The furnaces, of which there will be two, will be 4 by 6 feet. The engine, for which Messrs. Doty Bros., of Toronto, have the contract, will be a steeple compound, having cylinders with diameters of 15 and 26 inches with a stroke of 22 inches. It is calculated that with 110 pounds of steam, which pressure the boiler will carry, the tug will make 13 miles an hour. The boat will be ready to go into commission about the first of May.

The tug Maud S., being repaired at Collingwood, Ont., is receiving a new boiler 5x7 feet, of the Fitzgibbon pattern. It will supply steam for a new fore-and-aft compound engine, with cylinders 8 and 16 inches in diameter by 10 inches stroke. The work is being done by Doty Bros., of Toronto.

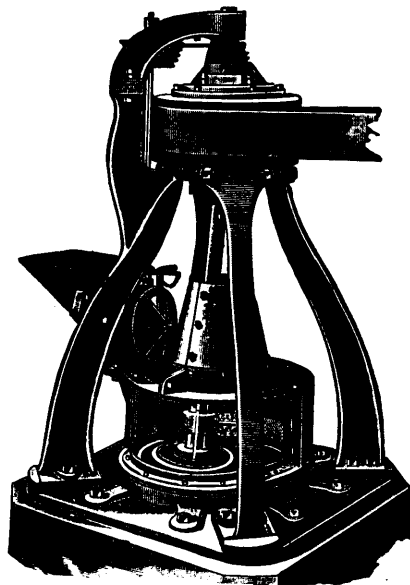
The Buffalo Forge Co., Buffalo, N. Y., have put in operation their heating system in the general office buildings of the East Tennessee railroad, at Knoxville, of which the Knoxville Daily Journal has the following: "The new system is a model of comfort and convenience, its excellent sanitary feature especially commending itself to the numerous inhabitants of the big four storey building. Through the courtesy of General Manager Hudson, a Journal representative was shown the plant of the system, which is located in the basement of the building. An eighty inch Buffalo Forge Co.'s fan draws the air through a heater of 1,800 feet of steam pipe. The fan at normal speed will change the entire air of the entire building every fifteen minutes, and can be regulated at will. It will run or furnish 12,000 cu. ft. of air per minute, and its distribution, after leaving the fan in pipes, varies according to the amount necessary to furnish the various rooms of the building. The steam is furnished from a locomotive boiler. The fan is operated by a gas engine, both of which are located in the basement. This fan's work will be greatly appreciated in the summer for its distribution of refreshing whiffs of air during the sultry months."

Emery Wheels AND **MACHINERY**
Standard Emery Wheel Co., Albany, N.Y.

McLAUGHLIN BROS.
TEASELS
Skaneateles Falls, N. Y.
Business Established in 1832

THE GRIFFIN MILL
The Only Perfect Pulverizer

OF
QUARTZ,
GOLD
OR SILVER
ORES,
PLUMBAGO,
PORTLAND
CEMENT,



OF
PHOSPHATE
ROCK,
FOUNDRY
FACINGS,
And All Other
Refractory
Substances.

Will work either wet or dry, and deliver a finished product. Capacity, 3 to 4 tons per hour on Phosphate Rock, 1½ to 2 tons per hour on Portland Cement, Quartz or Ores, depending on hardness of material to be pulverized and fineness of product. Grinds from 30 to 250 Mesh with equal facility.

NO JOURNALS IN GRINDING CHAMBER. BALL RIGHT ON SHAFT HAVING DIRECT POSITIVE ACTION ON MATERIAL. MINIMUM POWER PRODUCES MAXIMUM AMOUNT OF PRODUCT. IT IS ABSOLUTELY GUARANTEED IN EVERY RESPECT, BOTH AS TO CONSTRUCTION AND CAPACITY. FIRST COST, WEAR, AND OPERATING EXPENSE MUCH LESS THAN STAMP MILLS. LARGE NUMBER OF MILLS IN USE ON DIFFERENT MATERIALS WITH POSITIVE SUCCESS IN EVERY INSTANCE.

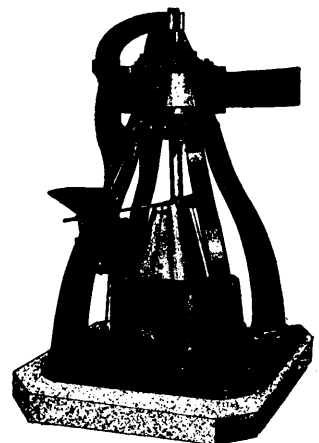
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Have Had More to do
with Manufacturing Companies than any other class of work, am open for a regular audit for one or two large concerns.
A. C. NEFF, Chartered Accountant, Auditor, Assignee, etc.
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CANADIAN PATENTS.

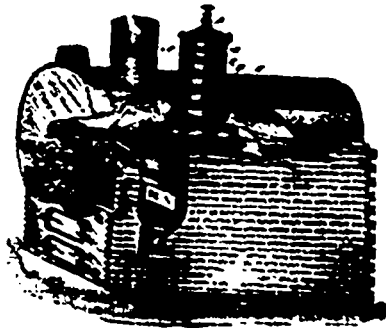
The following patents have been issued from the Canadian Patent Office, from January 2 to January 17, 1894, inclusive.

Information in regard to any of these patents may be had free on application to THE CANADIAN MANUFACTURER, or copies of American patents corresponding to these, where the American patent has been previously granted, can be procured through us for the sum of twenty-five cents.

- 44,090 Pulley, Edward F. Gordon, Concord, N.H., January 2.
- 44,091 File for documents, The Felise Furniture Co., assignee of William O. Gottwails, Ottawa, January 2.
- 44,092 Switch lock, Samuel E. Burtet, Red Bank, and Benjamin B. Marhews, Round Brook, N.J. January 4.
- 44,093 Heater, Curt J. Balhassar and John W. Fryer, St. Louis, Mo., January 4.
- 44,094 Electric motor, William H. Longsdorf, New York, N.Y., assignee of Gardner Hewett, Jersey City, N.J., January 4.
- 44,095 System of electrical transmission, The Fowden Telegraph Co. Trenton, N.J., assignee of Job A. Davis, and Robert A. Fowden, Philadelphia, Penn., January 4.
- 44,096 Refrigerator for ice cream, Frank W. Merrill, Deering, Maine, January 4.
- 44,097 Pulverizer, Thomas Parker, John Douglas Wright, Francis Farquharson Stuart, and Alexander Maxwell Colquhoun, Toronto, Ont., January 4.
- 44,098 Stretcher for insoles, Johann F.A. Miethling, Louis Simo, and Otto Bombou, Berlin, Germany, January 4.
- 44,099 Cooking utensil, George Habberton Nicholls, and Meyer M. Levey, Galveston, Texas, January 4.
- 45,000 Tire for vehicle wheels, Robert Scott Anderson and John Thomas Beatty, Toronto, Ont., January 4.
- 45,001 Washing machine, E. Blanchard, Israel P. Jacobson, and Albert Hendricks, Logan, Utah, January 4.
- 45,002 Tobacco pipe, George G. Kerr, and John L. Kerr, Toronto, Ont., January 4.

- 45,003 Box, Joseph Taylor Crow, Jersey City, N.J., and Nicholas W. Schenock, Brooklyn, N.Y., January 5.
- 45,004 Nut dock, Thomas D. Jones, Algernon S. Osgoode, and John Early, Chicago, Ill., January 5.
- 45,005 Ribbon needle, Gustavus G. Weigand, Des Moines, Iowa, January 5.
- 45,006 Aid for shot guns, Andrew E. Veon, and Allen F. Ferris Brauerd, Minn., January 5.
- 45,007 Thill coupler, Ansel W. Fisher, Charlotte, Maine, January 5.
- 45,008 Propeller wheel, Nicholas Wagner, Baltimore, Maryland, January 5.
- 45,009 Method of desulphurizing oils, Otto Paul Amend, New York, and Josiah Henry Macy, Harrison, N.Y., January 8.
- 45,110 Wrench, Morgan Williams, Aspen, Colorado, January 8.
- 45,011 Machine for making cigarettes, Albert Leroy Munson, New York, N.Y., January 8.
- 45,012 Cash register and account check, John Tyler Hicks, Boston, Mass., January 8.
- 45,013 Method for correcting drawings, Anson K. Cross, Boston, Mass., January 8.
- 45,014 Bracket for shade rollers, George Cook, Newark, N.J., January 8.
- 45,015 Horse-shoe, Myron Levi Chamberlain, Boston, Mass., January 8.
- 45,016 Device for destroying insects, Dennis O. Tuttle, North Haven, and Lucien Sanderson, New Haven, Conn., January 8.
- 45,017 Sharpener for calks, Frank F. Gokey, Winoski, Vermont, January 8.
- 45,018 Hydrocarbon engine, The Daumler Motoren-gesellschaft, assignee of Carl Spiel and Adolf Spiel, Cannstatt, Wurtemberg, Germany, January 8.
- 45,019 Process of and apparatus for drying brewers' grain, Binney C. Hatcheller and William M. Crampe, Philadelphia, Penn., and Spencer D. Schuyler, New York, N. Y., January 9.
- 45,020 Cider-mill and press, Daniel F. Brunney, Lancaster, Ohio, January 9.
- 45,021 Electric cable, Theodore Guilleaume, Mulheim-on-the-Rhine, Germany, January 9.

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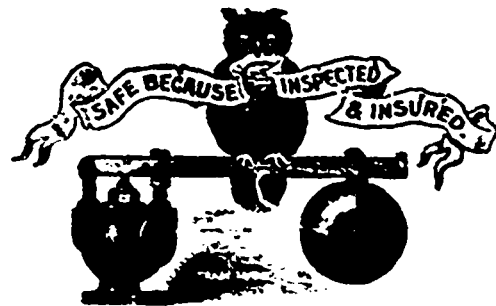
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- 45,022 Cowl for chimneys, Henry Iwan and Louis Iwan, Streator, Illinois, January 9.
- 45,023 Combination lock, James D. Craig, Chicago, Illinois, January 9.
- 45,024 Cooking utensil, Alexander Dom, Mount Healthy, Ohio, January 9.
- 45,025 Steam boiler, Miles L. Clinton, Ithaca, New York, January 9.
- 45,026 Package for pulverulent material, David H. Greene, Charleston, South Carolina, January 9.
- 45,027 Means for connecting draught animals to vehicles, Thomas Hargreaves Briggs, Bradford, Yorkshire, England, January 9.
- 45,028 Means for connecting draught animals to vehicles, Thomas Hargreaves Briggs, Bradford, England, January 9.
- 45,029 Harness, Benjamin F. Baker, Ballston Lake, New York, January 9.
- 45,030 Valve, Charles R. Schmidt, Baltimore, Maryland, January 9.
- 45,031 Electric device for operating doors, Oliver Hewlett Hicks and Robertus Francesco Troy, Chicago, Illinois, January 9.
- 45,032 Method of making marble, Pierre Aignan Moreau, Meung-sur-Loiret, France, January 9.

- 45,033 Hydraulic ram, William Alexander Rife, Waynesboro, Virginia, January 9.
- 45,034 Horse hitching and checking device, Louis House, Syracuse, New York, Jan 10.
- 45,035 Method of making hollow articles of plastic material, Clemens Schnell, Paterson, New Jersey, January 10.
- 45,036 Can, Albert Richard Whittall, Montreal, Quebec, January 10.
- 45,037 Grain drill, Samuel W. Rowell, Beaver Dam, Wisconsin, January 10.
- 45,038 Method of refining oil, Lawrence George McKam, Toronto, James McMillan, George Sanson and Nicholas Ransberry, Petrolia, Ont., January 10.
- 45,039 Support for vehicle shafts, Chipman A. Steeves, assignee of Whitmore Irving, Moncton, N. B., January 10.
- 45,040 Machine for measuring wall paper, Sinclair Gray Lundy and Charles H. Knight, Elizaville, Kentucky, January 10.
- 45,041 Die for rolling screw threads, The Wire Goods Co., assignee of William Oscar Bement, Worcester, Mass., January 10.
- 45,042 Support for bicycles, August Beck, assignee of Max F. Hertel, Chicago, Illinois, January 10.
- 45,043 Electric cable, Henry Hirst Bentley, Philadelphia, Penn., assignee of Thomas Jefferson Dewees, Palmyra, New Jersey, January 10.
- 45,044 Machinery for rolling glass, Peter V. Pettier, Ottawa, Illinois, January 11.

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- 45,045 Truss, William C. Wetmore and John M. Cullis, Buffalo, New York, January 11.
- 45,046 Apparatus for the propulsion of ships, Ewald Bellingrath, assignee of Gustav Zeuner, Dresden, Germany, January 11.
- 45,047 Means for manufacturing rail joints, The Heath Rail Joint Company, assignee of Frederic H. Heath, Minneapolis, Minnesota, January 11.
- 45,048 Excelsior cutting machine, John Pratt, Chatham, Ont., January 11.
- 45,049 Freezer for ice cream, Leonard Roberts and Hedley George Roberts, London, England, January 12.
- 45,050 Sled shoe, Robert Harvey Gordon, Jefferson, Penn., January 12.
- 45,051 Car coupler, John Evans, Toronto, Ont., January 12.
- 45,052 Pianoforte action, James Harper Phelps, Sharon, Wisconsin, January 12.
- 45,053 Lubricator, Benjamin A. Burgess, Hamilton, Ont., January 12.

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- 45,054 Door Spring, George W. Mallory, Harwich, Ont., January 12.
- 45,055 Rotary plough, Lafayette D. Railsback, Indianapolis, Indiana, January 12.
- 45,056 Churn, Isaac Key and Peter H. Hammer, Winamac, Indiana, January 12.
- 45,057 Threshing machine, William Taylor, Carman, Manitoba, January 12.
- 45,058 Sewing machine, Victor Witte, London, England, January 12.
- 45,059 Method of and apparatus for separating volatile metals from other commingled gases, Fessenden C. Butterfield, Minneapolis, Minnesota, January 12.
- 45,060 Vegetable cutter, John F. Henlein, Richville, Michigan, January 12.

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WA FLEMING

- 45,061 Sifter for ashes, Emil W. J. H. Divenger, Greenwich, Connecticut, January 13.
- 45,062 Potato cutting machine, Carvin V. Jones, Chillicothe, Ohio, January 13.
- 45,063 Stove, Clement James Griffiths, Harefield, Westwood Park, Southampton, County of Hants, England, January 13.
- 45,064 Measuring vessel, William H. Bastin, Murphysboro, Illinois, January 13.
- 45,065 Hydraulic elevator, Cofran J. Hall, San Francisco, Cal., January 13.
- 45,066 Brake apparatus for vehicles, etc., John G. A. Kitchen, Ardwick, Lancaster, England, January 15.
- 45,067 Wheel, John Bell, Toronto, Ont., January 15.
- 45,068 Cultivator, Edward A. Cardinal and James Love, Newcastle, Washington, January 15.
- 45,069 Needle for Grain Binders, Charles Paul, Sidney, Ohio, January 15.
- 45,070 Bridle bit, Robert Sears, Newark, New Jersey, January 15.
- 45,071 Furnace, Milton Walter Keene, Dallas, Texas, January 15.
- 45,072 Art or process of manufacturing leather ropes and belts, Harry Ellis, St. Catharines, Ont., January 15.
- 45,073 Hoe, Menzo A. Smith, Cooperstown, New York, January 15.
- 45,074 Machine for raking and cocking hay, Andrew G. Park and William A. Dexter, Wesley, New York, January 15.
- 45,075 Automatic fire escape, Isaac Mills and John Youngson, Hamilton, Ont., January 15.
- 45,076 Machine for forming turn-down linen collars, Adelbert Warren Cummings, Dunkirk, New York, January 15.
- 45,077 Machine for squeezing the starch out of collars, Adelbert Warren Cummings, Dunkirk, New York, January 15.
- 45,078 Straps for trousers, Walter Harland Smith, Toronto, Ont., January 15.
- 45,079 Nail for fastening hides, Theodore L. Baumgarten and Farand C. Pringle, Hornellsville, New York, January 16.
- 45,080 Boiler for ranges, Septimus Robert Campbell and William Coulter, Toronto, Ont., January 16.
- 45,081 Piston valve, Samuel Otis Jones and George Henry Atwood, Stillwater, Minnesota, January 16.
- 45,082 Curtain fixture, Charles E. Goodrich and James B. Wheeler Pioche, Nevada, January 16.
- 45,083 Electric heating apparatus, Mark W. Dewey, Syracuse, New York, January 16.
- 45,084 Machinery for the manufacture of shells, vessels and tubes, Benjamin Hewitt and Robert Wootton, Birmingham, England, January 17.
- 45,085 Pilot for street railways, Charles W. B. Lyall and Walter H. Avis, Toronto, Ont., January 16.
- 45,086 Gate, James Woods, Newtonbrook, Ont., January 16.
- 45,087 Plough, Hugh Johnston, Toronto, Ont., January 16.
- 45,088 Permutation padlock, William H. Bolthoff, Denver, and William Preston Smith, Aspen, Colorado, January 16.
- 45,089 Sharpener for horse-shoe calks, Sidney R. Brooks, Alleghany, New York, January 17.

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45,090 Seed drill, William A. Sims, Stonewall, Manitoba, January 17.
 45,091 Reflector for gas, Thomas Gill, Cleck, London, York, England, January 17.
 45,092 Coin controlled toy, A. Leroy Burke, Hamilton, Ont., January 17.
 45,093 Stop-block for hay carriers, Mitchell T. Buchanan, Ingersoll, Ont., January 17.

UNITED STATES PATENTS.

GRANTED TO CANADIAN INVENTORS

The following patents have been issued from the United States Patent Office, from January 7 to February 28, 1894, inclusive. Reported especially for the CANADIAN MANUFACTURER by Glasecock & Co., patent attorneys, Washington, D. C. Printed copies of these patents can be obtained from the CANADIAN MANUFACTURER for 25 cents each.

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 John Beli, Toronto, ball-bearing axle.
 Jules E. Fortin, Quebec, assignor to Edmond Pare and Joseph P. Roy, same place, leather measuring machine.
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 Alexander R. Lamb, Fenelon Falls, reversing gear for steam engines.
 Ernest A. LeSueur, Ottawa, electrolytic cell.
 John Marrisett, Vancouver, car-brake handle.
 Robert Slater, Winnipeg, folding bag-holder.
 Alex. Saunders, Goderich, hot water generator for stoves.
 Alex. Saunders and John Story, Goderich, wood-carving machine.
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 Art. W. Keen, Montreal, belt fastener.
 Robt. B. Ormiston, Winnipeg, planter.
 Louis Primeau, Beauharnois, hay press.
 Daniel K. Slawson, Manitou, car coupling.
 George A. Cline, Toronto, game apparatus. Case withdrawn.
 Frederick S. McKay, Hatley, Ont., clothes line.
 William E. Ward, Kingston, Ont., lamp shade.
 Austin S. Hatch, Windsor, Ont., electric heater.
 Andrew B. McKay, London, Ont., vehicle tongue.
 Francois E. Nadon, River Desert, Ont., ice velocipede.
 Walter W. Peay, Toronto, street car fender.
 George V. Martin, Whithy, Ont., trace buckle.

Robert H. Laird, Toronto, assignor to W.H. Laird, New York, N.Y., furnace.
 Robert J. Laidlaw, Hamilton, Ont., machine for graining.
 Edwin Pope, Quebec, telephone exchange system.
 Edwin Pope, Quebec, telephone system.
 Robert H. Guthrie, South Dumfries, trap for flies or animals.
 William Bonnar, Bolton, Ont., wheel for vehicles.
 George Booth, Toronto, Ont., range boiler.
 William Christie, Toronto, Ont., biscuit making machine.
 James H. Jackson, Keady, bob sleigh.

TRADE-MARKS.

John James McLaughlin, Toronto, the word "Hoptone" applied to carbonated beverages.

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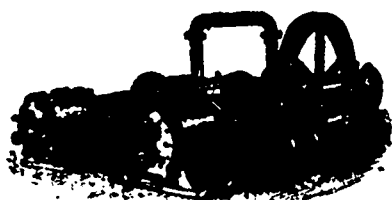
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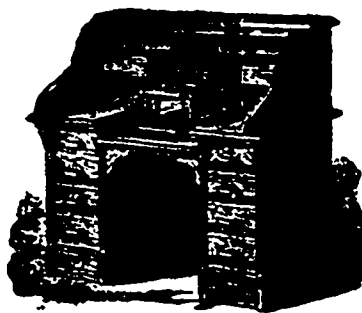
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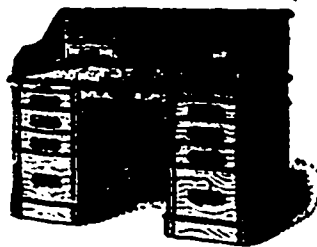
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1 3/8	1 3/8	5.01	"	3	2 13/16	22.59	"
1 1/2	1 1/2	5.94	"	3 1/4	3 1/16	26.60	"
1 3/4	1 11/16	7.46	"	3 1/2	3 1/8	30.94	"
2	1 13/16	9.83	4 cts.	4	4	42.33	5 cts.
2 1/4	2 3/16	12.53	"	4 1/2	4 1/2	53.57	"
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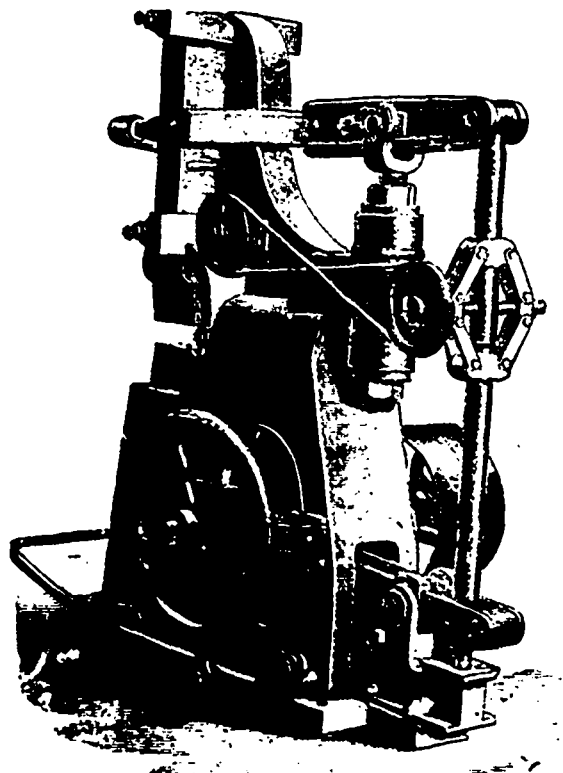
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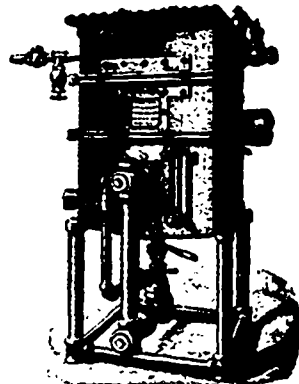
St. Clair Tunnel Co.	10,000	Barrels
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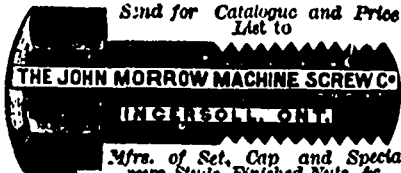
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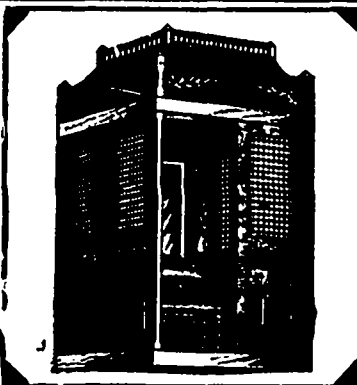
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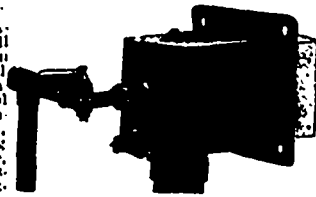
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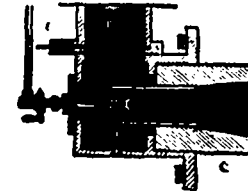
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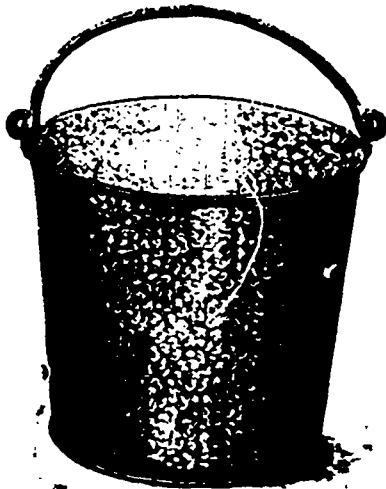
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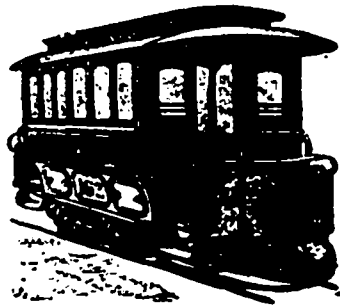
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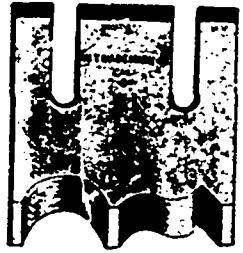
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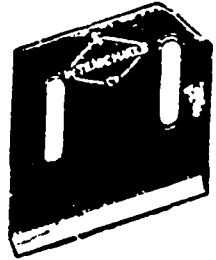
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Besides achieving such result, we now also have, over all liabilities—including a re insurance reserve (based on the Government standard of 50 per cent), a cash surplus of 133 per cent, to the amount of risk in force.

Such results emphasize more strongly than any words I could add the very gratifying position this Company has attained. I, therefore, with this concise statement of facts, have much pleasure in moving the adoption of the report.

The report was adopted and the retiring Directors unanimously re-elected. The Board of Directors are now constituted as follows: James Goldie, Esq., pres.; W. H. Howland, Toronto, vice-pres.; H. N. Baird, Toronto; Wm. Bell, Guelph; Hugh McCulloch, Galt; S. N. St. Catharines; Geo. Pattinson, Preston; W. H. Story, Acton; J. L. Spink, Toronto; A. Watts, Brantford; W. Wilson, Toronto.

JAMES GOLDIE, Pres.

W. H. HOWLAND, Vice-Pres.

T. WALMSLEY, Treas.

HUGH SCOTT, Man. Dir.

Applicants for insurance and other information desired

Please address MILLERS' AND MANUFACTURERS' INSURANCE CO., No. 32 Church Street, Toronto.

Manufacturers Life Insurance Company



RESULTS FOR 1893

New Business Issued	\$2,498,210
(Increase over 1892)	3487,900
Assets 31st December, 1893	\$873,738
(Increase over 1892)	3137,671

Gross Cash Income	\$287,340
(Increase over 1892)	345,525
Surplus on Policyholders' acct.	\$164,598
(Increase over 1892)	330,922

Insurance in Force 31st December, 1893, - - \$8,937,834

GEORGE GOODERHAM,
President.

JOHN F. ELLIS,
Man. Director.

PULLEYS

MACHINE
MOULDED
STEEL RIM
AND GRIP

Steel Rim Pulleys are practically unbreakable, are lighter and easier on shaft, and cost same as cast pulleys.

ANY STYLE FURNISHED SPLIT

SHAFTING

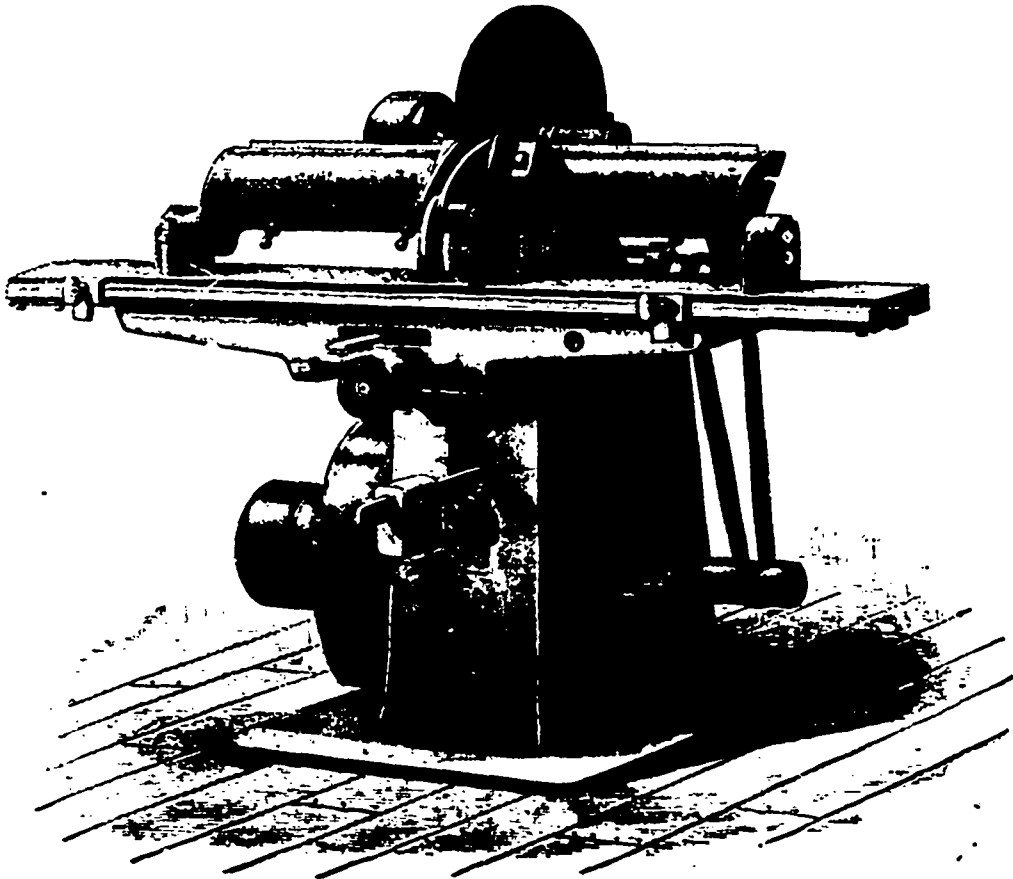
TURNED IN ANY LENGTHS UP TO 28 FEET.
SAVING COUPLINGS. STEEL OR IRON.
PERFECTLY TRUE AND POLISHED.
KEY SEALED WHEN DESIRED.

HANGERS

RING OILING AND RESERVOIR OIL BEARINGS. STANDS FOR BEARINGS. WALL BOXES. SPECIALLY HEAVY PATTERNS FOR ELECTRIC WORK. OUR SPECIAL FACILITIES SECURE YOU LOW PRICES AND PROMPT SHIPMENT.

(BRANTFORD,
CANADA)

WATEROUS



Improved Automatic

KNIFE

GRINDING

MACHINE

Cowan & Co.

CALT, ONTARIO.

SAMUEL FUGE

436 Richmond Street, London, Ont.

Sole Agent for Canada and the United States for JOHN C. TAYLOR & CO.'S Ltd., BRISTOL, ENGLAND. LIQUID ANTI-SCALE

VEGETABLE BOILER COMPOSITION

For the prevention and removal of Incrustation, Corrosion and Pitting; also for Preserving the Plates, and for Preventing Leakage.

OBSERVE THE FOLLOWING:

THE CANADIAN OIL REFINING CO.,

Mr. S. Fuge, LONDON, ONT. PETROLKA, ONT., August 22, 1893.
Dear Sir, -Replying to your letter of the 19th inst. we would say that the term of "Anti-SCALE" which we purchased from you gave us good satisfaction. We have found it very efficient in removing the scale, and keeping the boiler clean, without injury to the steel. Yours truly,
THE CANADIAN OIL REFINING CO.
(Signed) T. WOLFE, Manager.

SOMETHING NEW

The COAL SAVING & SMOKE CONSUMING CO, Ltd

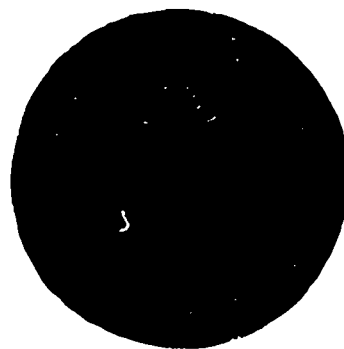
TRADE MARK
Saves from 15 to 40 per cent. in FUEL ALONE
J.C.C. 394 COMPOUND
Patented Feb. 21, 91.

No Smoke! No Gas! No Clinkers! No Change in Furnaces, Grates or Machinery! Preserves Iron! Purely Chemical!

Endorsed by the highest Chemical authorities at Cornell University, New York. A Boon to Manufacturers. Gets us steam in one fourth the time; keeps it with Dampers and Ash Pit Doors closed. Send for particulars.

Factory: 344 St. Paul St., MONTREAL. Toronto Office 36 KING ST. W.

The CANADIAN MANUFACTURERS' ASSOCIATION



W. H. LAW, President. GEORGE BORTH, Treasurer. J. J. CASSIDY, Secretary.

Office, Room 66 Canada Life Building

KING STREET WEST, TORONTO. TELEPHONE 1273

THE OBJECTS OF THIS ASSOCIATION ARE:

- To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.
- To enable those in all branches of manufacturing enterprise to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.
- To maintain Canada for Canadians.
- Any person directly interested in any Canadian manufacturing industry is eligible for membership.
- Manufacturers desiring to hold meetings for the promotion of their business, are invited to avail themselves of the Board Room of the Association for the purpose, which is offered to them free of charge.

J. J. CASSIDY, Secretary.

A. ALLEN, *President.*

J. O. GRAVEL, *Secretary-Treasurer.*

F. SCHOLES, *Managing Director.*

J. J. MCGILL,

Manager.



THE CANADIAN RUBBER CO. OF MONTREAL, TORONTO and WINNIPEG.

Capital, - \$2,000,000

Manufacturers of First Quality Rubber Boots and Shoes. Superior Quality Rubber Beltings, including The Forsyth (Boston Belting Co.) Seamless Rubber Belting for which we are Sole Agents and Manufacturers in Canada.

Hard and Soft Rubber Goods for Electrical Purposes, including Rod, Sheet, Tube Telephone Receivers, Battery Cells, Etc. All Sorts of Rubber Tapes for Insulating Purposes. All kinds of Rubber Hose, Packings, Etc.

Head Office and Factory: **MONTREAL**

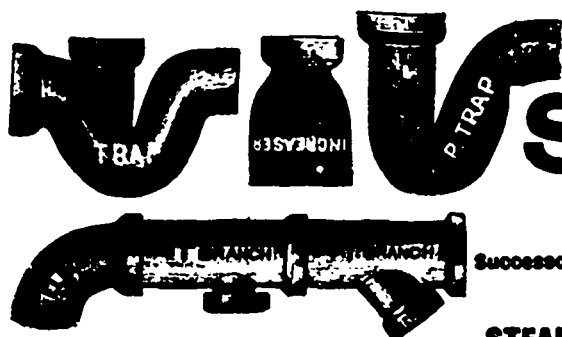
Western Branch: Cor. Front and Yonge Sts., Toronto

J. H. WALKER, MANAGER,

HENRY NEW, Pres.

J. H. NEW, Vice-Pres. TORONTO.

A. E. CARPENTER, Sec.-Treas.



THE HAMILTON AND TORONTO

Sewer Pipe Co.

HAMILTON, CANADA.

Successors to The Campbell Sewer Pipe Co. and the Hamilton Sewer Pipe Co.

MANUFACTURERS OF

STEAM PRESSED, SALT GLAZED VITRIFIED SEWER PIPE

FLUE PIPES, CHIMNEY TOPS AND SMOKE PREVENTIVES.

ESTABLISHED 1860.

...CHAINS...



Coil, 7 sizes; Trace, Halter, Tie-Out, Post, Heel and Cow Ties Tie Weights, Evener Chains, Etc.

Manufactured by

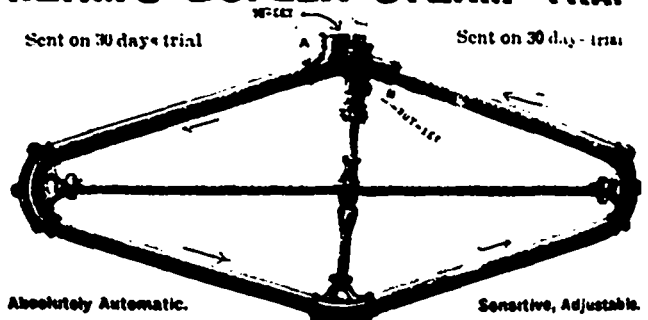
The B. Greening Wire Co., Ltd.

HAMILTON, ONT.

REHM'S DUPLEX STEAM TRAP

Sent on 30 days trial

Sent on 30 days trial



Absolutely Automatic.

Sensitive, Adjustable.

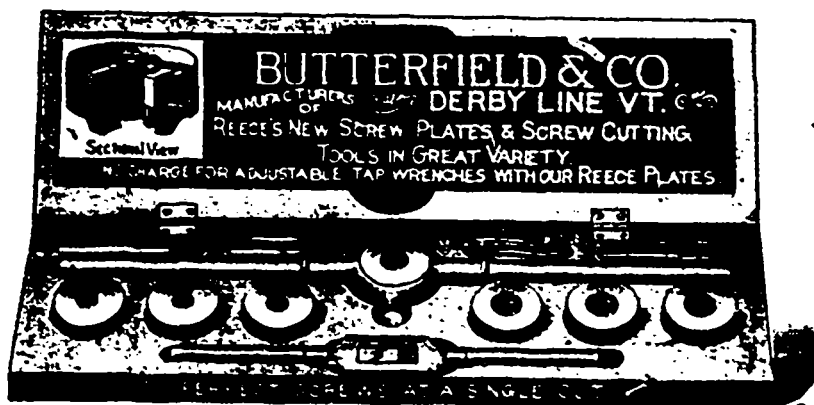
THOS. DOWN & CO.

Sole Manufacturer for the Dominion

28 AND 30 DALHOUSIE ST., TORONTO, ONT.

FINE BRASS CASTINGS.

A Trial Order Solicited.



...FROM OR ADD TO THE OFFICE OF THE MANUFACTURER. PROPRIETORS, WHO WILL RETAIN THEIR RESPONSIBILITY FOR THE BUSINESS MAN'S BEST INTERESTS.

...ONE OF THE MODERN INVENTIONS

There is no Business so small that advertising will not help it, none so prosperous that it can afford to ignore its aid!

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GRAND . . .
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THE BELL ORGAN AND PIANO CO., LIMITED

MANUFACTURERS OF...

CABINET

and CHURCH

Pipe Organs

THE CELEBRATED

BELL

UPRIGHT

Grand
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Factories and Offices :

GUELPH, ONT.

Send for Catalogues

ESTABLISHED 1866

TAYLOR'S FIRE and BURGLAR SAFES

HAVE MANY PATENTED IMPROVEMENTS NOT FOUND IN OTHER MAKES

That will well repay an investigation by those who desire to secure

... THE BEST SAFE ...

J. & J. TAYLOR,

Toronto Safe Works,

TORONTO

MONTREAL, VANCOUVER, WINNIPEG, VICTORIA

GALT MACHINE KNIFE WORKS

Planing Machine Knives...



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All Work Warranted



Moulding, Tenoning, Mitreing

Shingle Jointer

AND OTHER IRREGULAR SHAPES

Cheese-box and Veneer, Paper Cutting, Lath Splitting, and any special work made to order.

PETER HAY, GALT, ONT.

The PRESTIGE

which Wide and Well-directed Advertising

GIVES TO A BUSINESS HOUSE IS A FACTOR WHICH HAS A MATERIAL BEARING UPON ITS CREDIT.

NONE OF THE MODERN INVENTIONS which have so much changed ancient methods, have been safe to take from or add to the efficacy of advertising. Printers' Ink and type retain their supremacy as the business man's best coadjutors

L. H. G. D. H. G. L. Once mastered it is a valuable addition to his capital. every intelligent business man.

HOBBS MANUFACTURING CO.

London,
Ont.

OUR...
SPECIALTIES

Sand-Paper in car load lots
Excelsior in car load lots
Glue in car load lots
Turpentine in car load lots

..USE.. / ICOLL'S Cylinder and Engine VILS = OILS :: ARE MANUFACTURED BY TORONTO

Bellhouse, Dillon & Co.

30 ST. FRANCOIS XAVIER ST.,
MONTREAL

CHEMICALS

Dye Stuffs and Acids

SPECIALTIES:

Aniline Colors, Alizarines,
Dry and Paste Benzo Colors, Etc.

INDIGO, Direct Importations.



**The Ontario
Malleable Iron Co.**
Limited

MANUFACTURERS OF

MALLEABLE
IRON

Casting
Order for
Kinds of

AGRICULTURAL
IMPLEMENTS

AND

Miscellaneous
Purposes : : : : :

OSHAWA - - - ONT.

SCALES

PLATFORM,
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ROLLING MILL
HOPPER,
COAL,
Track Scales,
Etc., Etc.

MANUFACTURED BY

The Gurney Scale Co.
HAMILTON, ONT.

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BRISTOL'S PATENT

Steel Belt Lacing



READY TO APPLY FINISHED JOINT

... a grand success. Try it and see
for yourself.

Saves Time, Saves Belts, Saves Money

SAMPLES SENT FREE

The BRISTOL CO.

Waterbury, Conn.

SMITH'S FALLS

Malleable..
Iron....
Works..



Capacity

2,000 Tons..

WILLIAM H. FROST

Proprietor

SMITH'S FALLS : Ontario, Can.

Consumers' Cordage Co.

(LIMITED)

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Binder Twine, Jute and Cotton Bag

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