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THE CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 23

TORONTO, AUGUST 19, 1892.

No. 4.

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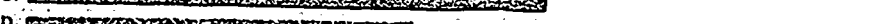

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A. 
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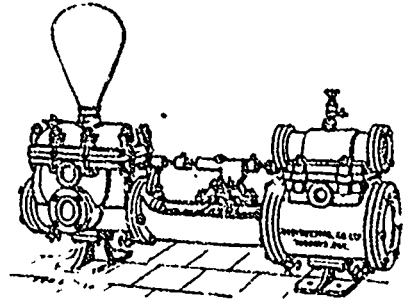
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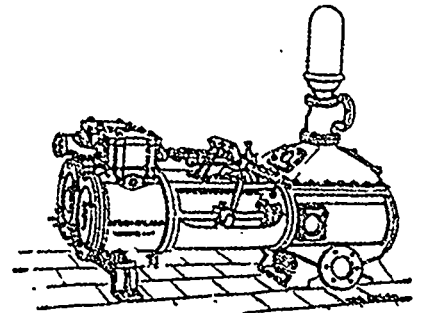
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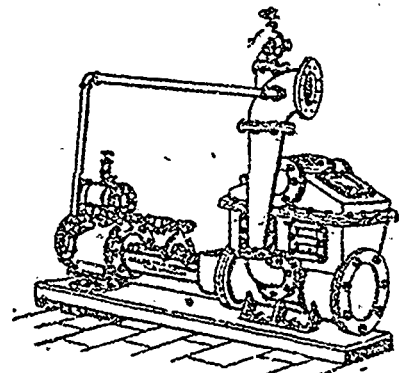


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ESTABLISHED IN 1880.

Published on the First and Third Fridays of each Month

BY THE

Canadian Manufacturer Publishing Co.

(LIMITED)

Room 66 Canada Life Building, King St. West, Toronto.

TELEPHONE - 1274.

FREDERIC NICHOLLS, *Managing Director.* J. J. CASSIDY, *Editor.*
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CANADIAN MANUFACTURERS' ASSOCIATION MEETING.

A SPECIAL general meeting of the Canadian Manufacturers' Association will be held in the Board Room, over the offices of the Toronto Industrial Exhibition Association, on the Fair Grounds, on Wednesday, September 14th, at three o'clock in the afternoon, during the time of the forthcoming Toronto Exhibition. All members of the Manufacturers' Association, and all manufacturers who may desire to do so, are hereby notified and invited to attend.

W K McNAUGHT, *President.* J. J. CASSIDY, *Secretary*

OBSERVE THE SPIRIT OF IT.

In a recent issue of this journal, in alluding to the fact that the Dominion Government had not given due consideration to the oft-repeated requests of the manufacturers for some very much-needed modifications of the tariff, attention was called to the fact that although the Government's supporters in the House of Commons outnumber the Opposition two to one, many of them were elected by very narrow majorities, and that the change of a very few votes in the elections would

have changed the aspect very materially. We also showed that in many cases where Government candidates were elected by these narrow majorities it was through the votes and influence of the manufacturers, and that this element held the power to decide the politics of the member. Our contention was that, particularly in these close constituencies, the manufacturers should inform their members that unless they paid close observance to the necessities of their constituents, on the occasion of another election they would be allowed to retire to the shades of private life. With the complaisant backing of a two-thirds majority in the House the Government felt that they were safe in ignoring the requests of the manufacturers; while if the members whose election had been accomplished through and by the support of the manufacturers, had informed the Government that their votes could not be counted on when divisions were made in the House until the requests of their constituents had received due and proper consideration, no doubt much of the friction which now exists would have been avoided.

In the most friendly and conciliatory spirit towards the Government, and to those supporters of it in the House who were elected by these narrow majorities, we again call attention to the fact that those who make loud professions of loyalty and attachment to the N. P. would do well, while indulging in lofty platitudes and spread-eagle speeches, which may mean much or little or nothing, as the case may be, to understand that the very foundation and corner stone of the policy which has done so much for the prosperity of Canada, must be preserved, and that anything which may tend to its injury and disintegration removed afar from it. The principle of the N.P. is all right. There is nothing whatever the matter with it and those who are the friends of it can best aid its perpetuity by removing anything which may injuriously affect it. The N.P. is the production of human hands. The builders of it did the best they could in its construction, but defects and weaknesses are developed from time to time, and it should be the pleasure as well as the duty of its friends to correct these, not waiting for them to bring the structure to the verge of disaster, nor to allow the disaster to place the country in the political control of those who would bury it beyond the hope of resurrection.

If the Government and its friends think that they are entrenched behind an invulnerable majority that cannot fade away, they would do well to study the facts and figures recently published by Mr. Sandford Fleming, in which he points out the momentous results that may flow from the change of a few votes in a political contest. Alluding to the recent Provincial elections in Quebec, where 73 members were elected, 54 of whom were Conservatives, 17 Liberals and 2 Independents, he shows that it would have been possible for 804 electors, distributed over twenty constituencies, by reversing their votes, to have elected 37 Liberals, 34 Conservatives and 2 Independents; and that if in 32 constituencies 200 Conservative electors had changed their votes, the returns would have shown the election of 49 Liberals, 22 Conservatives and 2 Independents. The facts, as applied in Ontario, would show very similar results, as illustrated in one constituency where the Conservative candidate won his seat by a majority of only one vote.

In the face of the existence of such a condition, it is clear that the manufacturers have it in their power to keep out of the House of Commons so-called N.P. members, who are such by word of mouth only. The spirit of the N.P. must be observed.

CANADIAN-AMERICAN TRADE.

An interesting report on the foreign trade of Canada, in which the commerce of the Dominion with the United States is compared with that of Great Britain, has recently been compiled by Consul Ryder, of Quebec, and transmitted to the American Department of State. It appears from the statistics furnished that more than one-half of the goods imported into Canada came from the United States, exceeding in value by about \$17,000,000 those from Great Britain. On the other hand the Canadian export trade with Great Britain exceeds by more than \$12,000,000 that which is carried on with the United States. This presents a somewhat remarkable state of affairs, for under ordinary conditions it would be natural to suppose that exports and imports, as far as the two countries on this side of the Atlantic are concerned, would tend to balance each other. Attention, however, is called to the fact that the balance of trade in favor of the United States is greater than the figures seem to indicate, for in several branches where the imports from Great Britain exceed those from the United States they include large quantities of partially manufactured goods and raw material admitted at low rates of duty, such as in the case of manufacturers of iron and steel, when there are heavy English shipments of refuse scrap iron, pigs, bars and common black sheet iron, while the imports from the United States are principally of building iron and finished hardware, such as tools, locks, saws and instruments for surgical and other uses. According to this report the United States monopolizes the importation of agricultural implements, musical instruments, printing machinery, electrical supplies, fine papers and papetries, leather and manufactures of leather, rubber boots, shoes and belting, watch and clock movements, field and garden seeds, binders' twine, etc. In manufactures of tin the United States supply ten times as much as Great Britain. Last year that country contributed more wool (washed, not further prepared) than any other country, amounting to \$555,093. The United States furnished fifty per cent. of the total imports of dried fruits, such as currants, raisins, plums, prunes, etc. The importation of gold and silver jewelry from the United States were four times the amount from all other countries combined. While Canada exports about \$11,000,000 worth of unmanufactured product of her forests to the United States, she receives in return nearly \$3,000,000 worth of American manufactured wood, an important item being a fine class of furniture. In drugs and chemicals (free and dutiable) the United States furnishes more than twice the amount of Great Britain. The importation of cotton goods from Great Britain increased last year over \$1,000,000, and there was a decrease of \$23,553 in like imports from the United States. Great Britain controls the Canadian market for woollen goods, yet there was a decline of more than \$1,000,000 in the imports compared with 1890. There was a shrinkage of the imports of rubber goods, which

the consul says, was owing to successful home production, stimulated by a thirty-five per cent. tariff. Among the larger items of import into the Dominion from the United States are coal and coke, which increased about \$500,000, raising the total above \$4,300,000. The exports from Canada to the United States show an increase of \$637,543 in minerals; product of fisheries, \$957,258; product of forest, \$1,488,418; manufactures, \$339,141. There is a decrease of \$650,495 in animals and their produce, \$228,007 in agricultural products and \$33,629 in miscellaneous articles.

This all goes to show, according to the *Philadelphia Manufacturers' Review*, that American manufacturers have it within their power to further extend their trade with Canada, for what has been done in so many branches of industry can certainly be accomplished in others. It thinks that under the favorable conditions by which American manufacturers are now surrounded, it should not be difficult to obtain possession of the Canadian trade in those lines which are now controlled by Great Britain, even without the aid of reciprocity, although, it admits, a reciprocity treaty would immensely further that trade. "The field is open," it says, "to the efforts of enterprising manufacturers in the United States, and it surely presents an inviting prospect to those who may desire to extend their business beyond the supplying of the home market."

This all goes to show something else. It goes to show that the Americans appreciate the value of the Canadian market, and that they are using and will use strong efforts to possess it. If this market is worth so much to them, it is certainly worth something to us. What is it worth? The desire of the United States to trade with Canada is entirely secondary with them to make Canada a part of the American Union. The endeavor to effect this is materialized in the McKinley tariff wherein Canadian products are excluded from the American market. American statesmen think that we can be squeezed into unrestricted reciprocity, or commercial union, or annexation—for these are all synonymous terms—by shutting us out of their market except upon terms to be dictated entirely by themselves, knowing that our assent to such terms would give their manufacturers entire control of our market, to the exclusion of British and foreign manufacturers, and the destruction of Canadian manufacturing industries. Shall we allow ourselves to be thus squeezed? Is it worth our while to resist the pressure?

As things now stand American manufacturers are the strongest and most formidable competitors of Canadian manufacturers in our home market. As Consul Ryder shows, American goods of certain descriptions have driven out British goods, the capture of the entire market being seemingly in sight. And still in view of the fact of this condition—in view of the fact that we do such a large business with the United States which is constantly increasing—we find that generous and benevolent country squeezing us in every possible way. Shall we stand it? An import duty of five cents per dozen on Yankee eggs cannot afford us any relief, and what are we going to do about it? Mr. Blaine has exhibited to us an object lesson, the importance of which we do not seem to comprehend. With the whip handle in his hand he forced the West India Islands and the South American States to grant special privileges in the introduction of American products into their

ports on the pain of the exclusion of their products from American ports. Will we profit by the lesson? Will we impose high duties upon such American products as Consul Ryder shows are fast excluding similar British products from our market, to be abated nevertheless upon such reciprocal terms as will admit our products into the American market? We should do this, and in doing it we might with advantage follow the spirit of the McKinley tariff. We might impose a duty of fifty per cent. on American hardware, brooms, borax, buttons, cartridges, caskets, cordage, etc.; and we should impose an export duty of \$200 per ton on the nickel contained in the ore and matte which they require so much in the construction of their armor plates. This would give us a good grip on the whip handle, and enable us to fight the Yankee devil of meanness and selfishness with good hot Canadian fire.

At the same time we could use this whip handle business quite effectively in convincing British manufacturers of the desirability of preferential trade. Our American contemporary thinks that it should not be difficult for American manufacturers to obtain entire possession of the Canadian trade in manufactured products, even without the aid of reciprocity. Let us demonstrate that this cannot be done

THE INVITATION DECLINED.

ONE of the best arguments in favor of the N.P. which has come under our observation is contained in a recent editorial in the London *Advertiser* in which, in discussing the question of "Wages" it declares that the claim that protection is necessary in Canada, in order that wages may be maintained at a higher rate than is paid in Europe, is "a pretence, a sham and a fraud." It enquires: "If high tariffs are wage-raisers why are their effects not equally marked in every country where they are enforced?" and points to Germany, which has a protective tariff, quoting the language of a correspondent in that country, who gives an interesting though pathetic description of a phase of factory life there. We remind the *Advertiser* that circumstances alter cases—that the effects of protection in Germany may be very different from what they are in Canada, and that if factory life has such a doleful aspect there under protection, it would be infinitely worse if the industry were not protected. We know for a certainty that Canada imports large quantities of just such German goods as are produced in factories operated with such labor as it alludes to; and we also know that such goods are produced in Canada in factories in which the operatives are well paid, who have plenty of the comforts of life, and are incomparably better off than the German women alluded to by the *Advertiser*. Why are they better off? Will the *Advertiser* please explain? Why is it that in Canada the factory employes are well paid, well fed, well clothed, educated and live in comfortable dwellings, while their German sisters are in the condition depicted in the *Advertiser's* editorial? We have no idea that our contemporary will attempt an answer, but we can inform it, quite confidentially of course, that protection does it. Were it not for the duty, all the Canadian demand for that class of goods would be supplied from Germany, and, coming from there, would be the work of the poor wretches so pathetically described. Does the *Adver-*

tiser desire Canadian women and girls, who have to labor in factories, to sink to the level of these German people? Without protection this would be their fate—or worse. No, dear friend, your philanthropy is too universal. It is not adapted to the Canadian climate. It does not meet the necessities of the people. Your theory is beautiful—to talk about, but it is too thin—entirely too attenuated.

This is what the *Advertiser* says:

Some of the faces are illiads of pain, and the physical misery and industrial servitude is appalling. A girl at the loom weaves sixty yards of cloth and gets \$1.25, it takes her three days. It takes the beauty from her young womanhood, the grace from her form and an inch from her stature. Spinning girls average \$2.50; in the dirty, greasy work of the carding room, toilers make \$2.75. The women who sort the rags grow yellow as parchment and slowly choke to death from the dusty atmosphere in which they work. These poor old hags in their mop caps and wooden sandals are pictures for the "Cave of Despair." Some of them have been in the mill forty years, growing feebler and more resigned all the time. One old creature had served heroically fifty-two long years. Time, the arch traitor, had left one lickerish tooth in her mouth for hunger to mock at, palsied her claw-like hands, put a crack in her voice and bent her almost double. She made \$1.25 with her shears, and by lodging a couple of mill girls, in whom she saw her past and whose future she reflected, she managed to live. The hours were from six a.m. until six-thirty p.m.; there was half an hour for "second breakfast," and an hour for dinner, and one quarter of an hour's rest in the afternoon. The men looked like ghosts, the girls like hags, and the women like mummies. These caste ridden, tradition cursed people are born in the mill and they die in it. They have no chance to find their humanity. Their patience is enduring, their industry tireless, and their lives are filled with the elements that heroism is made of. Pitiless want puts the crushing load on very tender shoulders and the boys are stunted and the girls begin to fade almost before maturity. In a mill where shoddy cloths and yarns are made the earnings of 400 hands averaged 62½c. the year through.

We do not think that Canadians who love their wives and daughters, as the *Advertiser* professes to do, will ever consent to see them brought down to this low German level, but this is what free trade invites them to.

CONVICT LABOR.

It is said that an attempt will shortly be made by the Ontario Government to smash the binder twine monopoly by putting in machinery and manufacturing it in the Central Prison at Toronto. We trust that this report is incorrect, not that we have any sympathy with the monopoly, but we do not consider it fair that labor in outside factories should be pitted in competition against the cheap labor of prisoners who receive no wages. While we would like our farmers to get binding twine as cheaply as possible, we would be sorry if the several hundreds of families of those now engaged at this work, in the existing factories, were to be thrown out of employment by the unfair competition of prison labor in order to effect it. We trust that a fair solution of the difficulty, if difficulty it is, will be secured without resorting to such questionable measures as the one referred to.—*The Trader*.

A deputation from Brantford waited upon the Attorney-General yesterday to ascertain the intentions of the Government regarding the manufacture of binding twine. The gentlemen had intended forming a company for the manufacture of binding twine and agricultural implements, in which capitalists should take \$50,000 and the farmers of the Province, through

the Patrons of Industry, \$150,000 stock. They wanted to know to what extent the Government intended to enter on the manufacture of twine at the Central Prison, and also whether a combination of interests could not be made so as to secure for farmers the blessing of cheap binding twine. After a long discussion Sir Oliver Mowat promised to take their representations into consideration.—*The Globe*.

We do not speak in defence of the binder twine monopoly when protesting against the employment of convicts in the manufacture of the article, but in behalf of free Canadians who may be earning their daily bread, and supporting their families in the industry, and of manufacturers generally. If it is desirable to "crash the monopoly" let it be accomplished in some other way. There is a law which prevents the importation of prison-made goods into Canada; and if it is advisable to prevent the products of prison labor of other countries being brought into competition with the free labor of this country, it is equally important that our free labor be not handicapped by the product of Canadian prisons. If Sir Oliver Mowat and the Ontario Government think it well to attempt to do what the Dominion Government alone can successfully accomplish, they should remember that their effort will be far-reaching, calculated to do more harm than good. They may desire to curry favor with the farmers by giving them cheap prison-made binding twine, but the desire of the farmers is not to obtain it at that price.

This question of the useful employment of convict labor cannot be solved in that way. A free man is of more value to the country than a prisoner; and it is more important to ensure occupation to the free man, and enable him to provide for himself and his family, than to enter the field against him by taking away his occupation and bestowing it upon convicts. Maudlin sentimentality should not prevail in this direction. We recognize the fact that the position of a convict is an anomalous one. He may be an outcast, yet he is a human being, and all due efforts should be made to rescue him, and restore him to society. But to deprive honest men of their means of subsistence for the sake of giving employment to the convict is to aggravate the evil and to multiply criminals. To do so is to destroy homes, break up families, make tramps and vagabonds, and to fill brothels. Honest labor should not be forced to compete with convict labor.

We have heretofore pointed out that a wide and useful field for utilizing the labor of criminals is in building substantial highway roads. To do this would benefit the farmer incalculably, and not only him but the whole community. If Sir Oliver desires to find employment for the convicts and also to benefit the country, let him put them to road making. If the binding twine monopoly is to be broken down, the Dominion Government are the ones to tackle the job.

A TARIFF BLOCKADE.

THE *Montreal Herald* likens our system of tariff protection to the blockading fleet on an enemy. "At very little cost and no risk to themselves," it tells us, "the whole trade of Canada might be effectually stopped," by this hostile blockade, "and by this means our enemy would seek to bring us to terms." This would be a sad state of affairs if it should ever occur, but the *Herald* likens it to the present situation thusly:—

Is it stupidity, ignorance or thoughtlessness that causes us patiently to endure that from pretended friends which we would not for one moment submit to from open foes? It is true we are spared the open shame of seeing a foreign flag flying triumphant in the St. Lawrence, but on all other points what difference does it make to our trade whether merchants have to take the risk of occasional captures of cargoes, or have to submit to being plundered by custom house officers, in the name of the country? The effect is the same. The goods are enhanced in value. Foreign commerce is impeded. The interchange of commodities with other nations is rendered more and more difficult. We are plundered for our protection.

For many years our contemporary has been wont to make flings at the United States because that country did not have a navy. It suggested its helplessness in case of war, and that it would need no great stretch to imagine that sometime or other cause for quarrel might arise, perhaps with one of the smaller European powers, when the whole coast might be blockaded and the foreign commerce of the country destroyed. Our American friends in contemplation of just such an event, determined some time ago to provide against it. They determined to build a navy, but when they were ready to begin they found that they were sadly deficient in machinery with which to build and equip ships. About that time the Democrats acceded to the Government, and Mr. Cleveland, like all other Democrats and Grits, which terms are synonymous, instead of exercising his influence and authority to develop the industry in his own country, considered the propriety of buying ships for the American navy in foreign countries. There were some most excellent ship-building works in the United States, but because he could not have war-ships built in them as cheaply as they could be built abroad, he desired to purchase them in the cheapest market, and would have done so, but for the opposition and remonstrances of the more patriotic personnel of the Republican party. Under the pressure of this patriotic sentiment some contracts were given out for the construction of war-ships in American ship yards, but under the baleful influences of free trade sentiment, Mr. Cleveland and his Government used all their power to prevent and destroy the development of the industry, and did succeed in this to a certain extent. Happily for the United States, Mr. Cleveland was succeeded by a more patriotic man, and the higher and nobler policy of protection to home manufacturing enterprises was inaugurated. Under it immense ship-building plants were developed in different parts of the country, even the far-off Pacific coast being brought within the influence, and at this time we see a rapidly growing navy, in which is included some of as fine and effective war-ships as are owned by any country. Protection has effected this, and not only in the building of war-ships, but the construction of invulnerable armor for them also—armor not excelled, probably not equalled by any made by any other nation.

This is what protection has done and is doing for the United States, and what it would do, what it will do for Canada if our National Policy is not crippled and destroyed, but allowed to be carried out to its full development. What the blockading ships of a hostile Government might have done to the United States under the free trade proclivities of Mr. Cleveland could not now be accomplished under the protection system inaugurated and carried out to its legitimate conclusion by the Republican party.

The mistaken ideas of the *Herald* and the free trade party generally, is that our purchases should be made in markets where they are manufactured the cheapest. In fact, they seem to consider that cheapness is the great desideratum in all commercial transactions; and another great mistake they make is in the contention that the prosperity of a nation is necessarily measured by its foreign trade. Of course, both these propositions are wrong. Of what avail is it that merchandize may be bought cheaper abroad than at home if we do not have the ability to buy? If we do not diversify our industries we are in a bad way. Unlike that of the free traders, the theory of protection is that we should produce and consume at home to our fullest extent, our foreign trade to consist of what we produce but cannot consume, and of what we need but cannot produce. It is not good policy for the farmer to sell his produce in a foreign market if he can dispose of it to good advantage in a neighboring town where woolen shirts are made; and it is not good policy for him to buy woolen shirts abroad when they can be bought to good advantage close to his own door. As the *Herald* suggests, wars may arise and hostile ships may blockade our coasts. Should such an event occur, if we had lived under the system of free trade, we would be helpless indeed. With the exception of breadstuffs, there are very few articles we have daily use for, which cannot be made almost or quite as cheaply abroad as at home. If we depend upon foreign producers for them, because they can sell them cheaper than we can make them for ourselves, we would be in a sad fix with hostile ships blockading our coasts. And of what use would the farmer's store of grain be to him under such circumstances if he could not get it through the blockade to the foreign consumer.

This condition was most strongly emphasized during the war of the Rebellion in the United States. The South had never favored protection. It was an agricultural community, the dominant classes sneering at the suggestion of any necessity for manufacturing anything at home that could be bought at less cost abroad. In fact, the widest and most liberal ideas of free trade prevailed, and were practised as far as possible. But, as the *Herald* suggests, war came to the country, and hostile ships blockaded the coast. Under this distressing condition, the South was entirely helpless. No braver or chivalric people ever lived. They believed that they were fighting for a just cause, but when they found hostile ships standing between them and their base of supplies; when they found that brave soldiers could not eat cotton; when they found that their warriors required food and raiment and medicines; when they found that arms and ammunition, swords, muskets, cannons and gunpowder were necessary in conducting a war, and that they could produce none of these things but the cotton, they found out what a terrible mistake they had made. They had no arsenals in which to construct muskets and bayonets; no foundries and workshops for the manufacture of cannon; no shipyards for the building of war vessels; no flocks from which to shear wool; no factories in which to make clothing and blankets; no appliances for the production of drugs and medicines, and even no paper mills and suitable printing establishments to enable them to even manufacture their vague promises to pay. Their cause was hopeless, and only the wildest enthusiasm could have induced them to continue the struggle.

This is no overdrawn picture of the condition of the South during the Rebellion. Following the teachings of Cobdenism, the political leaders there sought to establish an ideal Government, one of the chief corner stones of which should be free trade. They wanted to carry out to its fullest extent the idea of buying in the cheapest market. Possessing a country of the largest possibilities, and with a burning desire to overshadow what was to be their bordering Northern neighbor, the United States, it was calculated that the South would be the producer of that agricultural staple which all the world must have—cotton—and that the flags of all the maritime nations of the world would be displayed in its ports above shipping engaged in its foreign trade. A most charming anticipation succeeded by a most painful reality. But what other result could reasonably have been anticipated when a country, having the capacity, as regards natural advantages, to have been entirely self-sustaining—to produce every variety of raw materials—failed to put itself in a position to make even cotton shirts.

The lesson of the South is one which Canada should study well. We have seen what it attempted to be under free trade, and how, as a result of the practice of it, that attempt resulted in a most disastrous failure. We have seen, too, that under a different policy, under theegis of protection, the natural resources of the country have become developed and its manufacturing industries encouraged until now in certain articles the South not only rivals but excels the North.

Why not the same for Canada? Aye, why not? If every mile of the American sea coast were blockaded by hostile fleets so that no intercourse whatever could be had with the outside world, the people of the United States could live within themselves and prosper. At present this would not be the condition of Canada, but it would be if protection were allowed to have free course and become glorified.

EDITORIAL NOTES.

THE Canada Life Assurance Company, whose Toronto offices are in the Company's own building in King St. West, inform us that they are the oldest, largest, and among the safest and cheapest life insurance companies doing business in Canada. These are very important considerations and qualifications; and yet this claim, they say, is fully justified by reference to the roll of their patrons.

THE *Pioneer's* suggestion that a 50 ton block of nickel be sent from Sudbury to the World's Fair at Chicago, seems in a fair way of being realized.—*Algoma Pioneer*.

One suggestion that the *Pioneer* has frequently made is that, seconding the motion of this journal, an export duty be laid on nickel ore and matte. But let the Yankees squeeze us as they may, and as desirous as the Canadian Government may be to retaliate, the dream or hope will not be realized. A five cent duty on eggs, in their opinion, just about fills the bill.

PRESIDENT HARRISON is like the spoiled child who whined and cried for something until he got it, and then didn't know what to do with it. He finds that his "retaliation" measure is a boomerang which is likely, when it is thrown, to hurt his

own party and country quite as much or more than it will Canada. He has obtained the privilege to hurl the boomerang, but he doesn't seem to be quite as anxious to use it as he thought he would be.

DURING the period from July 15th to July 28th, inclusive, the Canadian Patent Office issued 169 patents to nationalities as follows:

United States	102
Great Britain	20
Canada	28
Germany	4
Austria	2
Australia	1
Belgium	1
France	1
South African Republic	1
Total	169

CANADA believes she has not violated the treaty with the United States, regarding the use of her canals by Americans on equal terms with her own people. If Mr. Harrison enforces his "retaliation" programme, Canada would do well to appeal to England to intervene. Perhaps this is a matter which might be settled by arbitration. If disinterested arbitrators should decide that Canada is wrong, the wrong should be remedied. If they decided that she is not wrong, then the United States should be required to back water and observe the treaty in all its provisions. Let us arbitrate.

THE *Montreal Gazette* and the *Hamilton Spectator* seem to be irreconcilably at variance regarding whether the Government should or should not charge tolls on grain going through the Welland Canal. The *Gazette* thinks that Montreal would be benefited by an entire abatement of the tolls, while the *Spectator* thinks that it would be to the best interests of the country to exact them. Now let Montreal raise a fund and pay a premium of 18 cents or 20 cents per ton on all grain passing the Welland Canal and shipped abroad from that city, and let the Government cease allowing the rebate.

WILLIAM ROBERTS, a woolen manufacturer, from Bradford England, has just completed a large mill near Passaic, N. J., which will employ 150 hands. The mill and a long row of cottages for operatives have been built under his direction, and improved looms and other machines for the manufacture of the finest grades of woolen goods are being built. Mr. Roberts, according to *The Bulletin*, formerly did a large business with the United States, all his goods being placed directly on the market there. After the passage of the McKinley bill he arranged to transport his entire plant. He intends to greatly enlarge his business, and will employ American labor as far as possible.

THE *Montreal Herald* seems to think that some strange thing has befallen this journal because it criticises the Government in connection with some tariff and customs matters. We assure it our advocacy of the tariff and all that that policy may mean is as strong and determined now as ever. The N.P. is just the thing for Canada, and our strictures are not aimed against that policy, but against the lax administration of it. As far as the CANADIAN MANUFACTURER is concerned, whatever incongruities there may be in the tariff, or whatever laxity

may exist in the enforcement of the Customs laws and regulations, shall be made by the friends of the N.P., not by its enemies. But the reforms are imperative and must be made.

"MR. CHAPLEAU, Minister of Customs," says an Ottawa telegram, "proposes to establish a new customs board composed of expert representatives of various boards whose duty it will be to determine upon all questions of classification, interpretations and valuations. The belief is well founded that the officials at Ottawa are not in touch with modern requirements. Mr. Chapleau discovered many articles appraised ten per cent. more at certain ports than others." There is nothing new in these so called "discoveries." The Customs Department have had this matter presented to them time and again in the last few years until it has become an old song, but the same unvarying result always attends. It is to be hoped that the new Minister will be more considerate of the necessities of the country. If he really intends to be he should surely get a "move" on.

THE *Toronto World*, speaking of the grievance of the millers against the railroads in charging higher freights on flour than they do on wheat, alludes to the stand taken by the millers a few years ago, when the duty was less on flour than on grain. It says: "The millers are imperative in their demands, and if they display the same persistency as they did then, when they had a memorable bout with the Government, the outcome is obvious. Then they were small in numbers and had but little organization; now they are strong, numerically, and well organized." Perhaps Mr. Maclean will embody the millers' complaint into his fight against the railroads at the next session. We hope his energies will be directed in such a good cause. As the manufacturers assisted so largely in putting him in the House, it is to be hoped that he will bear that fact in mind when he is in Ottawa.

THE chief point of our objection to the egg duty is that the great share of the burden will fall on this Province, which imports one-third of all eggs that come into Canada from abroad. If the *Spectator* were disposed to treat the subject in a spirit of fairness it would admit that it is neither fair nor judicious to impose a tax one third of which must fall on less than one-fiftieth of the people of the whole country.—*Victoria, B.C., Times*.

The tariff cannot be arranged to suit every little community in the country. If the egg duty bears hard upon British Columbia she must bear it until she is able to grow her own eggs. Let us talk about salmon—canned salmon. There is a duty of 25 per cent. upon canned salmon. Canada's principal supply comes from British Columbia. How would it do for the rest of the Dominion to make a howl about paying 25 per cent. tax on canned salmon for the benefit of British Columbia? The tariff protects Ontario eggs and British Columbia salmon. If the egg duty is to be thrown off to please British Columbia why shouldn't the duty on canned salmon be thrown off to please the rest of the family? Don't talk nonsense, Mr. Times—start an egg factory.—*Hamilton Spectator*.

The placing of a duty of five cents per dozen upon eggs was a mere freak of childishness. It was not a display of statesmanship. Canadian farmers did not need it nor did they ask for it. It would have been a stroke of statesmanship, however, to have imposed an export duty on nickel ore and matte, and on sawlogs. What's the use of sticking a pin into an ox when it requires sledge hammer blows to affect it?

It is noticeable that many Canadian papers of the Grit persuasion go into ecstasies of ridicule at the returns of the census bureau, which show the number of manufacturing industries in Canada, and the number of persons employed in them. They recognize the fact that the average number of employees to each manufacturing establishment is quite small, and they argue therefrom that the manufacturing industries of the country are too small and inconsequential to deserve the protection afforded them by the N.P. On the other hand, they point to what they denominate trusts and combines of capitalists and capital in manufacturing industries, declaring them to be the result of the N.P. Of course these positions are irreconcilable. Under the stimulus of the N.P. certain lines of manufactures expanded so rapidly as to more than supply the demand, and to prevent disastrous competition combinations were necessary to restrict production. But in these lines, it will be observed, prices were and are at a minimum, for if any undue advances of them should be made, the combine would quickly go to pieces. It is a blessing to the country that the manufacturing establishments generally are of small calibre, for this ensures independence.

THE Colonial vote by Chambers on the Canadian preferential tariff proposal stands thus:—

	For	Against
Canada.....	19	2
Australasia.....	2	9
South and West Africa.....	0	5
West Indies.....	4	1
India and the East.....	1	3
Total Colonial vote.....	26	20

It is thus seen that, granting the vote to be a representative one as far as Colonial opinion goes, the proposal is approved by 26 votes to 20. As a matter of fact, however, the representative character of the vote may well be doubted in the light of such a fact as that whereas the New South Wales delegates present voted against the proposal, the Premier of New South Wales, just fresh from the constituencies, is giving it his most cordial support. The truth probably is that the subject is a comparatively new one to the Colonial public outside Canada. In Australasia and South Africa the minds of statesmen and politicians are more concerned with the difficult problems connected with their own fiscal and political federation among themselves. The British vote by Chambers was, it will be seen: For the amendment, 7; against, 35.—*Canadian Gazette*.

THE *Iron and Steel Trades Journal* of London, Eng., has this account of a plan of profit sharing that has been adopted in one of the large concerns of that country with exceedingly satisfactory results

Mr. A. J. Hills, managing director of the Thames Ironworks and Shipbuilding Company, limited, in evidence before the labor commissioner this week, gave an account of the disputes that had arisen on matters of wages between his company and the workmen during the last few years, and of a scheme of profit-sharing which had been devised for the purpose of putting a stop to these disputes. Under this scheme of profit-sharing a fixed amount was put down for labor in each department under a particular contract. The men were then paid day wages for the work done under the contract, but were told that if the work was done for less than the amount fixed under the contract the difference was to be divided among the men themselves. This scheme, he explained, had only been in operation for a short time, but had so far worked very satisfactorily. The men began to see that if they chose to apply themselves

to their work diligently the profit would go into their own pockets, and, as a matter of fact, monthly dividends varying from 5 to 30 per cent. on the trade rate of wages prevailing in that district had been paid. The result of the working of the scheme had been to entirely revolutionize the feeling of the men with respect to their employers. They began to see that the interests of both parties were identical.

It should be remembered that in Canada and the United States combinations of capital with very large manufacturing industries were preceded by combinations of labor, the claim of both being that their respective combinations were for self-defence. And it should also be remembered that both these combinations were imported from Europe. We find the following conditions prevailing.—The individual workman, the individual employer of labor, the labor organization and the organization of employers of labor. Have the first two mentioned any rights which the others are bound to respect? Has a workman a right to exercise his own vengeance against the decree of any labor organization? Does organized labor exceed the sphere of its usefulness in denouncing the individual who takes a job when a strike is on? The individual employer may find himself ruined by the exorbitant demands of organized labor, and the individual workman may find himself starving through the same influence; and the question is whether the multitude of employers are not acting in the best interests of themselves and also of the individual workman, when they meet combination with combination, and defend themselves against the attacks of combined labor with their combined capital. If such combinations are hurtful, it should be remembered that they did not originate with the employers of labor.

THE Cleveland, Ohio, *Marine Record*, thinks that this journal is unduly worked up on the reprisal-retaliation side of the canal tolls controversy. We assure it we are not; and now that the Dominion Government have taken steps to have all cause of friction removed, it remains with the United States to meet these advances in a proper spirit, and while the matter is being discussed let it be hoped that every point at issue may be investigated and adjudicated. As the present dispute arises out of the treaty which the United States has, to so great an extent, and without the consent of Canada, abrogated, let the whole matter be reviewed by an impartial arbitration. Our opinion is that it is not just the correct thing for the United States to annul all the clauses of the treaty which it deems unfavorable to itself, and insist upon the observance of all those clauses which are decidedly in its favor. It is too much like the handle of a jug—all on one side. Our American contemporaries can talk glibly regarding the Montreal rebate of tolls, and discuss the subject from an ethical standpoint, but they all fail to express any views regarding the discrimination against Canada where an American vessel can load cargo at New York, pass through American and Canadian canals and discharge cargo at Ottawa, and there reload and proceed to New York via Canadian and American canals, while the United States Government prohibits a Canadian vessel from doing the very same thing. Fair play is a jewel. Sauce for the goose should be sauce for the gander. Will the *Marine Record* venture an opinion?

A PRESS telegram from Ottawa, a few days ago, said:—

Mr. J. S. Larko, who is engaged in the work of looking up exhibits of manufactured goods from Ontario for the World's Fair, was in town for a few hours to-day. He says within the past few weeks he has noticed a better disposition on the part of Canadian manufacturers towards the fair, and is convinced that there will now be a representative display at Chicago next year from the Dominion. The cotton and textile manufacturers have decided to make a large exhibit. It is proposed to open an office at the Toronto Industrial and at other fairs next month, in order to afford manufacturers an opportunity for personal conversation with representatives of the Department of Agriculture on World's Fair matters.

There are but few reasons, and they very weak ones, why Canadian manufacturers should put themselves to much trouble or expense to make displays at the Chicago World's Fair. It is a scheme entirely for Yankee glorification, and the hostile and unfriendly legislation of that country towards Canada is not an incentive to brotherly love. The Dominion Government are making some efforts, it is true, to have exhibits there, but it looks to be more in the character of a soft snap for political friends than any exuberant, heart-felt desire to boon Canadian manufactures. The character of Hamlet is being left out of the play. We do not hear of any Canadian manufacturing concerns making engines, or boilers, or shafting or pulleys, with which to put Canadian machinery in motion, nor dynamos and electric plants with which to illuminate what is to be called the Canadian Building. Yankee mechanics will reap all this benefit.

THE consolidation of capital, or rather the combination of consolidated capital, keeps pace with the combinations of labor. Labor has taught capital the advantages of protecting itself against competition, and the latest "combine" is to be found in the important car manufacturers' union, which has just been incorporated as the Michigan Peninsular Car Company. It masses a capital of \$8,000,000, exclusive of \$2,000,000 first mortgage bonds. The companies entering the consolidation are the Michigan Car Company, the Peninsular Car Company, the Detroit Car-Wheel Company, the Michigan Forge & Iron Company and the Detroit Pipe & Foundry Company. The business dates from 1864 for the Michigan Car Company, and from 1879 for the Peninsular Car Company. These two companies are said to be the largest manufacturers of freight cars in the world, and heretofore have been in active competition. The consolidation brings into life a freight-car manufacturing combination on a par with the Pullman Palace Car Company in the way of passenger-car manufacture. An idea of the magnitude of the operations may be gathered from the fact that the several companies have been employing about 5,000 men. The property owned covers about eighty-one acres of ground in Detroit, with buildings seventy eight in number. The working plant, real estate, etc., are valued at nearly \$5,000,000. The capacity of the combined companies approaches 100 cars a day. The net profits have been averaging, it is said, nearly \$1,000,000 a year. The object of the combination is to reduce expenses and competition.

ANDREW CARNEGIE, the millionaire steel king of the United States, has long posed as a philanthropist, and his denunciations of all forms of government, except that by and for the people as set forth in his "Triumphant Democracy," would lead people to believe that he was a man whose sole object in

life was to do good to others. The recent riots and murders at his works at Homestead, which were the direct outcome of his firm's attempt to cut down wages, has however shown him in his true colors, and form a sad commentary on his philanthropic utterances. The public can now size him up at pretty near his true value.—*The Trader*.

This is a rather remarkable item, coming from such a reliable source. It is a mistake to suppose that the Homestead riots were the outcome of any effort to cut down wages. The workmen who quit work did so because some of them would not accept the terms offered, as they had an undoubted right to do. The Carnegie Company undertook to supply their places with other men, as they had an undoubted right to do, and these other men desired to go to work there, as they had an undoubted right to do. But the strikers took possession of the works, barricaded them, and declared that the new workmen should not enter the works, nor should the Company even enter there until their demands were complied with; and when the Company attempted to gain possession of their property, they were resisted by the strikers, in which unlawful act many lives were lost. If the endeavor of the Company to regain possession of their property is an exhibition of "true colors" of Mr. Carnegie, it must be said that the colors were all right. A cowardly sheriff and venal political State Government declined at first to offend the strikers by discharging their plain duty, and the Company were forced to either surrender their property to a lawless and blood-thirsty mob, or repossess themselves of it by force. The method might have been objectionable, but the right was with the Company.

ONE of Canada's leeches has just died a natural death. The Farnham beet sugar factory, in spite of bounties and Government pap, has succumbed to the inevitable, and the works have been taken over by a good Liberal. Mr. Priest, hosiery manufacturer, will turn the old beet factory into a knitting factory, and instead of beating the country of subsidies, it will henceforth be a contributor to the revenue. Mr. Priest is one of those manufacturers who do not want any protection. He is confident in his ability to compete with the world, in his own line, and only asks a fair field and no favor for his product.—*Montreal Herald*.

It is remarkable how closely some people resemble idiots. In what manner was the Farnham beet sugar factory a "leech?" If it received any bounty from the Government it rendered a quid pro quo. Every cent of bounty ever paid to it represented the production of an article which we could make in abundance in Canada. And then that good Liberal, Mr. Priest, who does not want any tariff protection, but who will henceforth be a contributor to the revenue. The *Herald* should publish his portrait. We would like to see the Canadian manufacturer who is able to compete with the world in making knit goods and pay any higher wages to his employes that is paid in Chemnitz, Germany. If it were not for protection Mr. Priest would never have taken over the Farnham factory— would never have invested a dollar in it, and he knows this to be the fact, and the *Herald* knows it too. If Mr. Priest is to be commended as being a contributor to the revenue because of his knitting factory, why are not all other manufacturers to be commended for the same reason? There are hundreds, aye, thousands, of as good Liberals in Canada as Mr. Priest, who are as skillful manufacturers, and more successful, who are the strongest kind of supporters of the N P. It is the unswerving support given

it by good Liberals which keeps the flag of the N P. nailed to the mast-head of the Canadian Ship of State.

SPECIAL ADVERTISEMENTS.

Advertisements will be accepted for this location at the rate of two cents a word for the first insertion, and one cent for each subsequent insertion.

A YOUNG man who has had several years' experience in book keeping, and who for the past three years has had control of the office and assisted in the management of a manufacturing institution, will be open for a situation October 1st. Owns and operates Remington type-writer. Best of references. Address, "Bookkeeper," care CANADIAN MANUFACTURER, Toronto.

"THE Delaware Indian as an Artist," is the subject of a fully illustrated paper by Dr. Charles C. Abbott, to appear in *The Popular Science Monthly* for September. The objects of art which are represented include carved stone gorgets, a wooden spoon-handle, wooden masks, and other carvings, many of them showing much skill. Prof. J. S. Kingsley describes "The Marine Biological Laboratory at Woods Hole," giving pictures of its building and interior arrangements. Something is told also of its neighbor, the laboratory of the United States Fish Commission. Surgeon George M. Sternberg, U.S.A., has a paper on "Infectious Diseases. Causation and Immunity," giving the facts that have been established in this field up to date. "A Farther Study of Involuntary Movements," by Prof. Joseph Jastrow, supplementing a previous paper on this subject, also appears. The article will be illustrated with diagrams.

Onward is a weekly eight-page paper published by the Methodist Book Publishing House, Toronto, and most ably edited by W. H. Withrow, D.D. The number of *Onward* for October 1st will be specially devoted to the memory of Christopher Columbus, the discoverer of America. It will contain a descriptive article by the Editor on the life and times of Columbus, accompanied by several illustrations, poems by Tennyson and Lowell on his character, and an account of the pre-Columbian discoverers of America. The Ontario Minister of Education has directed that a Columbian celebration be held in all the public schools of the country. Every boy and girl ought to have this special Columbian number of *Onward* to enable him and her to thoroughly appreciate and enjoy that celebration. Of this paper the Publishing House will print a large edition, and it will be furnished at the rate of \$1 a hundred in any quantity of not less than ten copies. Let every boy and girl have a copy.

THE August number of *The Illustrated World's Fair* contains a leading article, with portrait, by Lyman J. Gage, the eminent financier; an article, with portrait, by Promoter-General Handy; a beautiful sketch by E. Hough, with his portrait; a large portrait of George Schneider; the poem on which Franklin E. Denton has been engaged for nearly a year, an entertaining article, "From Oklahoma to Paris," by Hamilton S. Wicks, with his portrait; an unusual number of jokes, rhymes, poems, illustrated articles, and a collection of absolutely unrivalled pictures of the Fair. These illustrations are so true that in some places they mirror the buildings in the water, and the picture thus reflected is clearer than the pictures usually shown at first hand in other prints. The scene looking toward the Administration, across the Basin from Lake Michigan, is especially fine, and gives a mortal stroke to the accepted colored "birds-eye view." Among the scenes is one that shows a side of the great Manufactures. These pictures outdo all that has been heretofore achieved by this magazine. The publishers announce an extraordinary dedicatory number for October. John McGovern, Editor, Address Jewell N. Halligan, General Manager, McVicker's Building, Chicago. \$2.50 a year; 25 cents a number.

THE CARTER MOTOR.

The Carter Motor Company, of Stratford, Ont., are applying for incorporation, with a capital stock of \$300,000, the Carter rotary engine, a patent for which has recently been granted. This is the invention of Mr. D. W. Carter, of Palmerston, Ont., assisted by Mr. S.

S Fuller, one of the exploiters of the company being Mr. J. B. Perry, president of the Canadian Mineral Wool Company of Toronto. Following is a description of this motor:

As it has been tried by hundreds before and failed and is still doubted by philosophers and practical machinists as something impossible and out of all rule and mechanical law, that in all cases where tried, to increase power, you lose speed and *vice versa*. The inventor knowing this and recognizing that in all gearing heretofore constructed, the gear wheels when in motion are continually climbing away from each other, thereby losing the leverage or fulcrum power. To overcome this, the inventor has reversed the system of gearing, thereby making use both of the fulcrum and lever, and by that means greatly increasing the power, without losing the same percentage in speed. The partial loss in speed is being made up by the velocity of the machine when in motion, and by driving from a smaller pulley to a larger one.

To accomplish this the first principle of the machine constructed and now running at Whitelaw's foundry in Woodstock, is an internal stationary gear fourteen inches in diameter, through the centre of which passes a shaft, to the end of which is attached a steel cross bar or arm seven inches long, giving it a leverage of three and a half inches each way. On the one end of this is a small gear wheel or pinion, which travels around in the stationary internal gear wheel which is driven by another pinion of similar size, on the other end of the arm which is attached to an oscillating wheel, working on an eccentric similar to the driving wheel of a locomotive, said wheel being five feet in diameter, and geared externally, which is driven by a larger wheel on a shaft, opposite to, but separate from the main shaft in the stationary internal gear; said wheel being geared internally and matching into the oscillating wheel, to which is connected the pinion driving the first pinion which travels in the stationary internal gear. When in motion the two large wheels, one geared internally and the other externally, are continually changing their position, but at all times have at least twenty cogs in gear.

The machine when running seems to gain power and speed with its motion, thereby lessening the work of the engine and taking up lost power and motion in less time with a great saving of fuel.

It is the intention of the company to have a machine on exhibition at the Industrial Fair, Toronto, in September which will be a model of completeness with proper cut gearing and a boiler with engine built proportionably which they expect will make a saving of fifty per cent. of fuel and an increase of over sixty per cent. of power.

ROBERT'S OZONATOR.

The invention of the "Ozonator" a short time ago brought a complete change in many people's ideas about sanitarian measures as regards pure air and absence of germs, microbes, etc.

Up till that date a great drawback in the use of disinfectants was that they were accompanied by a nasty smell. Coal tar and its products, camphor, carbolic acid, jodoform, etc., have an objectionable smell.

It is true they take away or rather hide the still more offensive smell of closets, animals, etc., but they substitute for it their own sharp, disagreeable odor.

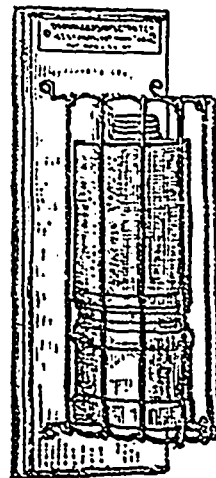
The great merit of the sanitas fluid used in Robert's Ozonator is that it does not overpower but counteracts foul smells by bringing oxygen into the air by the form of ozone, whence the name.

The fluid is an oxidized terpene, containing camphoric peroxide, peroxide of hydrogen, thymol, etc., from the combination of which substances it derives its pine-like odor, whilst its oxidizing characteristic makes it one of the strongest antiseptics and disinfectants known.

The ozonator consists of a glass tube and a perforated tin cylinder, containing a large nick. The fluid is introduced by an opening in the top, and the nick, absorbing the fluid, evaporates it through the numerous little holes into the atmosphere.

The cost of keeping the machine supplied with fluid is quite small, between 10 and 15 cents per month, according to the moisture of the atmosphere.

The Ozonator is patented in Canada, and is sold with the sanitas fluid by the Dominion Disinfectant Company, Montreal.



THE BOSS TURBINE WHEEL.

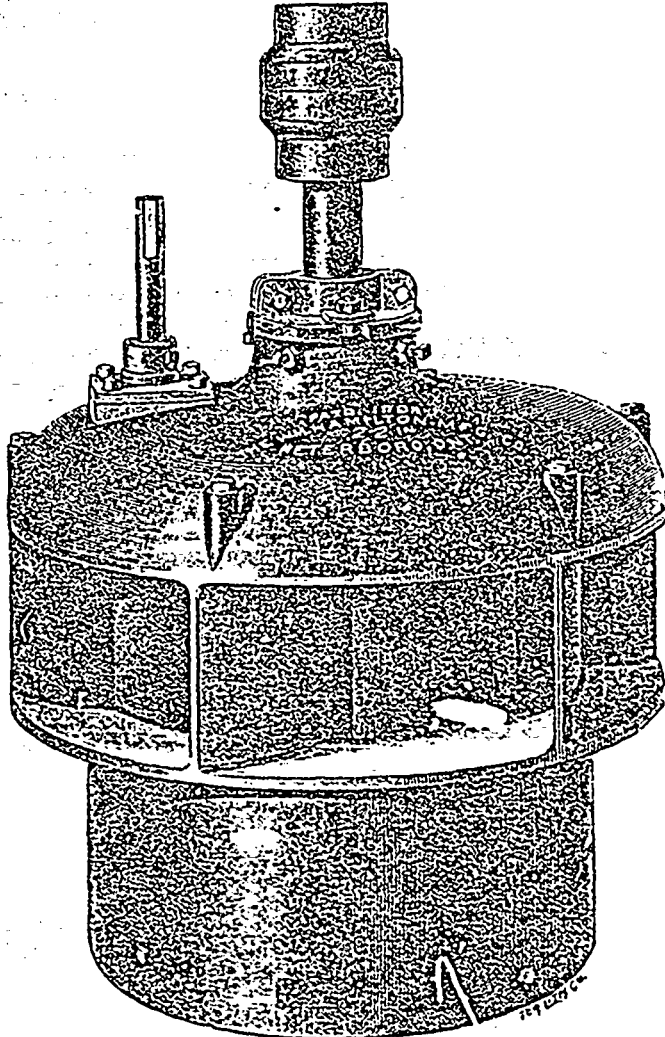
The accompanying illustrations represent a new turbine water wheel recently placed upon the market by The Wm. Hamilton Manufacturing Company (Ltd) of Peterborough, Ontario.

The "Boss" turbine wheel is the outcome of a series of very expensive experiments through a long period of years, and every point evolved, either by practical use or scientific test, has been seized upon to assist in deciding precisely what is the best construction for every part of the wheel.

The results of their experiments and observations is the "Boss" turbine water wheel of to-day.

The prominent features of this wheel claimed by the manufacturers are those of economy, simplicity of parts, and durability.

At no period of our country's history has there been such a demand for a first class turbine wheel as now. Population and wealth have multiplied, but water powers have not, and not only this, but the volume of water in many streams has greatly diminished.



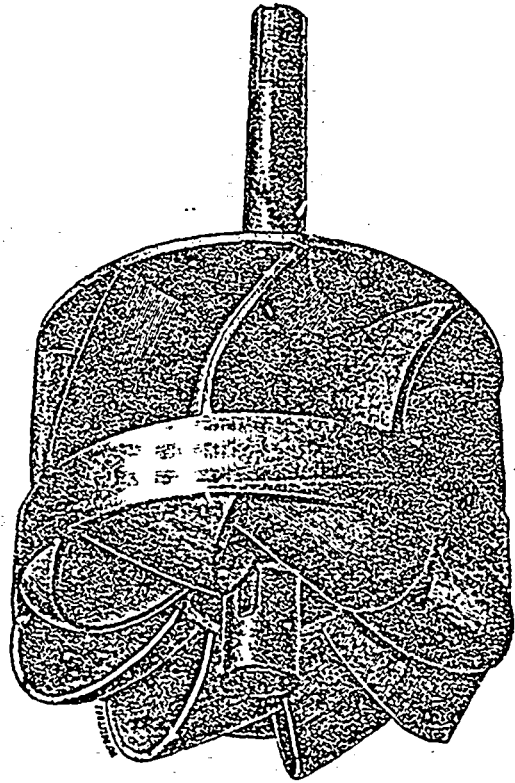
In the "Boss" turbine water wheel the owners of water powers will find a motor not only unsurpassed in its strength and mechanical simplicity, but seldom equalled in its power and percentage when varied from half to full gate. The wheel during the many trials that the different sizes have been subjected to, showed a percentage of useful effect of from 87 to 92 per cent. of that of the water, a percentage we believe that will be hard to beat. This percentage is not only what the wheels tested by the dynamometer showed, and placed under the most favorable circumstances, but what is actually being done by the different sized wheels recently placed by the above firm throughout the Province.

The wheel is simplicity itself, no gates to clog or choke, and all parts liable to injury are under cover and protected. The wheel case and draft tube are of one casting. The case has a series of graduated chutes so constructed as to direct the water upon the

periphery, or outside of the buckets at all points of gate opening. The gate is circular in form and is mounted upon the case, and has a series of balls interposed between top of case and flange of ring, forming the bearing, and by means of the balls the friction between case and gate ring flange is reduced to a minimum.

The gate is placed between the wheel case and the wheel or runner, and revolves horizontally; there being a series of openings on the gate ring to register with the openings or chutes in the wheel case; the gate is opened or closed by means of a rack and pinion under cover of dome and protected from any possible injury. The runner is of one continuous casting, having no bolts or bands to become loose. The illustration clearly shows the construction of the bucket.

The wheel is completely covered in by the dome, upon the neck of which is carried the stuffing-box, by means of which the wheel is aligned true. The construction of the stuffing-box is a departure from the old time method, requiring no hard wood blocks, being made in two parts bolted together and held upon neck of dome by means of screws. The operation of aligning the wheel shaft is done by means of the screws shown on side of neck of dome. To remove the wheel for examination or repair occupies very little time, the flume being empty and admittance to the wheel being gained by the removal of the bolts, as shown on dome or cover, the wheel is then ready for removal. One feature, and a desirable one,



is that the wheel is removed from the top instead of through the bottom, thereby saving much time and annoyance to the mill-wrights or others who may for any reason require to remove the wheel, or put it in place.

The wheel consists essentially of six castings; there are no gate rods or bolts to get out of order.

From the illustrations it will be conceded at once that the design of the wheel and the arrangement of parts are such as to receive the commendation of all who have the care of or who may use water wheels.

The wheel is manufactured in fourteen sizes, from 6 up to 62 inches. All who contemplate the improvement of water powers are invited to correspond with the above named firm, who will furnish plans and estimates or other information upon all forms of water wheel work, including wheels erected upon horizontal as well as vertical shafts.

This wheel is highly suitable for woolen mills, grist mills and electric light plants requiring steady motion and to be easily controlled by a governor; and is strong and substantial for saw mills and mining or other heavy work.



INVENTIONS.



This department of THE CANADIAN MANUFACTURER is devoted to the interests of inventors, of patentees of inventions, and of manufacturers of patented articles. Patents are granted in Canada for fifteen years, the Government fee for which may be paid by instalments. Arrangements have been made by which the issue of all patents by the Canadian Patent Office and all renewals and extensions thereof will be promptly noticed in this department, and a brief description thereof given. Enquiries on these subjects are invited and will receive prompt attention. No charge will be made for answers by mail when return postage is sent. Information given free regarding patent laws and the obtaining of patents in Canada, United States, Great Britain and all foreign countries. Claims for inventions, as embodied in Letters Patent, also the illustrations of them, will be inserted in this journal at moderate charges. The attention of manufacturers is specially directed to the opportunities for lucrative business which may be acquired by close observation of what may appear in this department.

CANADIAN PATENTS.

THE following patents have been issued from the Canadian Patent Office from July 15th to 28th, 1892, 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.

NOTE.—The new Canadian Patent Law has come into effect, whereby the life of Canadian patents is for the term of eighteen years. Patent numbered 39,264 and all subsequently numbered are granted for the longer term.

MECHANICAL.

- 39,351 Gloves, S. Frankenbach, July 15th.
 39,353 Dies for forming the threads of screws by rolling, Nettlofold, Limited, July 15th.
 39,354 Horse shoe calk, J. C. Higgins, et al, July 15th.
 39,355 Temperature regulator. The Consolidated Car Heating Co., July 15th.
 39,356 Partition, H. A. Wells, July 15th.
 39,357 Baking plates for pies, etc., Keen & Hagery, July 15th.
 39,358 Hot air furnace, Kelsey Furnace Co., July 15th.
 39,359 Wax thread sewing machine, Wardell Sewing Machine Co., July 15th.
 39,360 Pill machine, J. R. Witzel, July 15th.
 39,361 Pump, H. Field, July 15th.
 39,362 Plate printing press, S. P. Steen, jr., July 15th.
 39,363 Engines to be worked by hot gases, such as air or products of combustion with steam, E. Field, July 15th.
 39,364 Hydraulic motor, W. H. Robnett, July 15th.
 39,365 Emergency Car brake, J. J. Cassidy, July 15th.
 39,366 Drag for sleigh, H. Bunker & J. McKeggie, July 15th.
 39,367 Anti-rattler for thill coupling, H. Bunker & J. McKeggie, July 15th.
 39,368 Paper box, F. P. Birley, in trust, July 15th.
 39,369 Receptacle for corns, General Patents Co., (Ltd.) July 15th.
 39,370 Stationary tire set, J. W. Cuthbertson, et al, July 15th.
 39,371 Automatic brake mechanism, C. G. Emery, July 15th.
 39,372 Air and gas compression pump, C. G. Emery, July 15th.
 39,373 Relief or exhaust valves for automatic brakes, C. G. Emery, July 15th.
 39,374 Engineer's valve for automatic brake mechanism, C. G. Emery, July 15th.
 39,375 Thrashing machine, J. Aboll, July 15th.
 39,376 Lamp, J. Knapper, et al, July 15th.
 39,377 Bed protector, J. P. Duval, July 15th.
 39,378 Tiro or binder, A. G. Blincoe, July 15th.
 39,379 Sowing of carpots, F. Ames, July 15th.
 39,380 Automatic car coupling, J. Giroy, July 15th.
 39,381 Bale tie, J. Y. Rankin, July 15th.
 39,382 Fish hook, C. A. Haviland, July 15th.
 39,383 Game, J. Prendergast, July 15th.
 39,384 Thill coupling, G. L. & F. S. Blackman, July 15th.
 39,385 Cut-off valve for steam engines, G. V. Potlan & L. Caten, July 15th.
 39,386 Locomotive driver brake, C. G. Emery, July 15th.
 39,387 Mining machine, S. S. Brown, July 15th.
 39,388 Timber blasting plug, M. L. Finley, July 16th.
 39,389 Clamp, G. Doddrell, July 16th.
 39,390 Road cart, D. A. Maxwell, July 16th.
 39,391 Artificial denture, J. J. Stedman, July 16th.
 39,392 Steam and air injector, S. R. Earle, July 16th.
 39,393 Moulding machine, N. Lewis & H. Gosselin, July 18th.
 39,394 Nut lock washer. The Eclipse Patent Nut Lock Washer Co., (Ltd.) July 18th.
 39,395 Car truck, V. D. Beach, July 18th.
 39,396 Car coupler, R. M. Woodard, July 18th.
 39,397 Mode of drying fish, C. Thomson, July 19th.
 39,398 Green bone cutter, H. A. Hannum, July 19th.
 39,399 Explosive cartridge, J. C. Butterfield & I. C. Batchelor, July 20th.
 39,400 Metal post or pole, J. H. Huntress, July 20th.
 39,401 Valve for pump. The Canadian Road Drill Co., July 20th.
 39,402 Aluminium alloys, J. W. Langley, July 20th.
 39,403 Transom separator, G. W. Hamilton, July 20th.
 39,404 Hose coupling. The Consolidated Car Heating Co., July 20th.
 39,405 Temperature regulator. The Consolidated Car Heating Co., July 20th.
 39,406 Car heating apparatus. The Consolidated Car Heating Co., July 20th.
 39,407 Do., July 20th.
 39,408 Hot water heating apparatus for railway cars, do., July 20th.
 39,409 Temperature regulator, do., July 20th.
 39,410 Do., July 20th.
 39,412 Car heating, do., July 20th.
 39,413 Dumping car, M. O'Connor, July 21st.
 39,414 Compound engine, C. H. Batchelor, July 22nd.
 39,415 Two-wheeled vehicle, D. Snyder, July 22nd.
 39,416 Mowing machine, J. Phillips, July 22nd.
 39,417 Type writing machine, W. B. Kuller, July 22nd.
 39,420 Extension table, G. W. Montgomery, July 23rd.
 39,421 Match box, E. G. Sinclair, et al, July 23rd.
 39,422 Clothes drier, W. A. Allan, et al, July 23rd.
 39,423 Chain belt, C. L. Vigol, July 23rd.
 39,424 Fire escape, G. C. Foose, July 25th.
 39,425 Reel, A. Dobson, July 25th.
 39,426 Egg crate, C. C. Tilghman, July 25th.
 39,427 Depurator, J. Nixon, July 25th.
 39,428 Stopper for bottles, jars, etc., W. P. Bonwick, July 25th.
 39,429 Steam muller, E. S. Hildebrandt, July 26th.
 39,431 Embossing or ornamenting wood, G. Staber & H. Abbey, July 26th.
 39,433 Heating apparatus, E. F. Edgar, July 26th.

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| 39,434 Puzzle, E. H. E. Eddis, July 26th. | 39,463 Device for synchronizing clocks, W. F. Gardner, July 27th. |
| 39,435 Conveying apparatus, J. C. Martin, July 26th. | 39,464 Display device, M. F. Connett, July 27th. |
| 39,436 Clay pulverizer, J. Evans, July 26th. | 39,465 Separator, J. M. Bradshaw & W. E. Meek, July 27th. |
| 39,437 Washing machine, J. H. Carriger, July 26th. | 39,466 Printing device, J. S. Foley, July 27th. |
| 39,438 Filter, H. Roeske, July 26th. | 39,467 Sewing machine, C. B. Hunt, July 27th. |
| 39,439 Steam boiler furnace, M. E. Herbert, July 26th. | 39,468 Slide rule, W. Cox, July 27th. |
| 39,440 Furnace, E. F. Edgar, July 26th. | 39,469 Producing mixture of steam and air, E. Field, July 27th. |
| 39,441 Type writer, S. A. Dean, July 26th. | 39,470 Metal screw machine, S. L. Worsley, July 27th. |
| 39,442 Account book, R. R. Barton, July 26th. | 39,471 Stamp battery, C. Raleigh, July 27th. |
| 39,443 Handle for files, etc., J. W. Paylor, July 26th. | 39,472 Rescue of persons buried in a trance, A. Kwiatkows, July 27th. |
| 39,444 Fastener for boots and shoes, J. H. Markle, July 26th. | 39,474 Holding together the various parts of doors, etc., F. Carpenter, July 27th. |
| 39,446 Sash fastener, L. C. Walker, July 26th. | 39,475 Camera mechanism, W. F. Greene & M. Evans, July 27th. |
| 39,447 Sizing and cleaning coal, S. Thomas, July 26th. | 39,476 Sashes and sash frames for windows, W. R. Williams & G. Gregory, July 27th. |
| 39,448 Baggage truck, W. M. Gordon, July 26th. | 39,477 Ventilator, W. S. Laycock, July 27th. |
| 39,449 Stand for holding bottles, G. L. Rands, July 26th. | 39,479 Hydrocarbon motor engine, H. Lindley & T. Browett, July 27th. |
| 39,450 Chemical engine, hose and reel combined, W. Morison, July 26th. | 39,480 Spring motor for sewing machines, D. M. Pfantz, July 27th. |
| 39,451 Adjustable whiffletree. The Iron Adjustable Whiffletree Co., July 26th. | 39,481 Gas lamp, T. C. J. Thomas, July 27th. |
| 39,452 Automatic brake, G. Bowler, et al, July 26th. | 39,482 Signalling apparatus for railways, J. H. A. Child & J. Emery, July 27th. |
| 39,453 Pocket lamp. The Lester Mfg. Co., July 26th. | 39,483 Packing cheese for exportation, O. J. Allen, July 27th. |
| 39,454 Permutation lock, L. E. Schneider, July 26th. | 39,484 Vending apparatus, J. A. Williams, July 27th. |
| 39,455 Thill coupling, A. Fultz & A. W. Bauer, July 26th. | 39,485 Friction clutch, H. W. Hill, July 27th. |
| 39,456 Milk pail and strainer combined, F. & G. W. Ausley, July 26th. | 39,486 Buckle, J. Mulcair, July 27th. |
| 39,457 Packing for rods, valve stems, etc., F. P. & J. T. Martin, July 26th. | 39,487 Grass catching attachment for lawn mowers, J. L. Bieder, July 27th. |
| 39,458 Stove pipe, J. F. Ross, July 26th. | 39,489 Charging metallic cartridge cases with liquified carbonic acid gas, P. Giffard, July 27th. |
| 39,459 Tackle block, F. X. Ronssam, July 26th. | |
| 39,460 Vehicle running gear, G. B. Caldwell, July 26th. | |
| 39,461 Keel for vessel, J. Grothgler & J. M. Garfield, July 26th. | |
| 39,462 Type-setting machine, J. J. P. Odell, July 27th. | |

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H. J. HILL, Manager, Toronto.

- 39,450 Knitting machine, R. W. Scott & L. N. D. Williams, July 27th.
 - 39,491 Baking oven, W. Morton, July 27th
 - 39,492 Apparatus for conveying ships, W. R. Knipple, July 27th.
 - 39,493 Stitching horses, H. Doering, July 27th.
 - 39,495 Harness, L. Dannhauser, July 27th.
 - 39,496 Injector, R. G. Brooke, July 27th.
 - 39,498 Manuf. of boats, W. Heslop, July 27th.
 - 39,499 Manuf. of boots and shoes, P. Bonder, July 27th.
 - 39,501 Making twine, G. A. Lowry, July 27th.
 - 39,503 Screw press brick machine, J. D. Bain, July 27th.
 - 39,504 Screw propellor, C. Myers, et al, July 27th.
 - 39,505 Drying of salt, Dr. S. Pick, July 27th.
 - 39,509 Evaporating liquors containing salts, Dr. S. Pick, July 27th.
 - 39,510 Paper feeder for printing machine, T. R. Johnston, July 28th.
 - 39,511 Adjustable lamp shade, H. Schloerb, July 28th.
 - 39,512 Hot air furnace, W. Thuener & P. Herchenbach, July 28th.
 - 39,513 Machine for drilling grain, P. Renwick, July 28th.
 - 39,514 Wagnal syringe, W. B. Spencer, July 28th.
 - 39,515 Drag or grapple, A. W. Covell, July 28th.
 - 39,516 Fog signal, W. R. Closs, July 28th.
 - 39,517 Steam vacuum pump, G. E. Nye, July 28th.
 - 39,518 Book binding, A. C. Bansman, July 28th.
 - 39,519 Copying and duplicating letters, etc., M. Sommer, July 28th.
- ELECTRIC.**
- 39,352 Electrical conductor, P. H. Holmes, July 15th.
 - 39,411 Coupling for electric wires. The Consolidated Car Heating Co., July 20th.
 - 39,418 Com.-fired dynamo motor, C. A. & A. Barrett, July 23rd.
 - 39,419 Automatic or do., do., July 23rd.
 - 39,430 Electric semaphore, F. Stitzel & C. Weniodel, July 26th.
 - 39,432 Electrically operated stringed musical instrument, W. H. Gilman, July 26th.
 - 39,445 Electric semaphore, F. Stitzel, July 26th.
 - 39,478 Galvanic battery, W. A. Crowds, July 27th.
 - 39,488 Electricity motor, C. P. Elieson, July 27th.
 - 39,494 Electric piano player, J. D. Case & C. W. Evans, July 27th.
 - 39,502 Portelectric, J. T. Williams, July 27th.
 - 39,506 Electric heater, T. Ahearn, July 27th.
 - 39,507 Electric water heater for cars, do., July 27th.
 - 39,508 Heating an automatic water supply electrically, do., July 27th.
- SCIENTIFIC PROCESSES.**
- 39,473 Manuf. of hydrogen gas, W. B. Lewes, July 27th.
 - 39,497 Production of hydrogen, W. B. Lewes, July 27th.
 - 39,500 Treatment of sulphuretted ores, S. H. Emmens, July 27th.

MEASURING ELECTRICITY.

THERE is no doubt that consumers of electric light and others interested have frequently wondered how the ingenuity of man has succeeded in measuring the amount of electricity used in stores and private dwellings.

Open one of the meters of the Edison Company and you will find that it consists of two compartments; in the upper you will find a thin piece of German silver running in a zigzag line across the compartment; in the lower compartment, separated from the upper by a bar, the latter being part of the cast-iron construction of the meter, there is a spool of copper wire and a bottle; in the latter there are two pieces of zinc, separated from each other by means of a piece of rubber. These three things constitute the meter. Some meters contain two of each kind, and are called double meters, being capable of doing double the work done by a single meter.

The principle underlying the measuring of electricity is that of electroplating. The latter is done by means of an electric battery, a piece of copper being placed in battery on the positive pole or wire, and the object to be plated being placed on the negative wire;

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by the action of the electricity the copper is eaten away from the positive wire and deposited on the article fastened to the opposite wire. In the electric-light meter two pieces of zinc are used—this zinc must be chemically pure, in order that the measurements may be perfectly correct. These two pieces of zinc are separated by rubber and joined by rubber bolts, so that they may be near each other and still not permit of passing of the electric current.

One piece represents the positive pole, the other the negative pole. Now, the more electricity passes through these pieces of zinc the more zinc will be taken from the positive to the negative pole, so that if enough electricity is used, in course of time all the zinc would be on one pole. Here you have the principle of measuring electricity. After the pieces of zinc have been in operation for some time one will weigh more than the other, and it is just a matter of mathematical calculation how much is charged, the charge being relative to the amount of zinc decomposed.

But if the bottle were all that was used for the measuring of electricity, it would require a bottle the size of a house to measure

Lawson Non-Explosive Boiler

We have arranged with Daniel T. Lawson for the manufacture of his Non Explosive and Self-Cleaning Steam Boilers, under patent issued September 12, 1889, by the Dominion of Canada, for improvements in Steam Boilers. These Boilers are proven by actual tests to be absolutely non-explosive, to yield greater power with less fuel than any other, and to be entirely exempt from incrustation with the use of the worst water.

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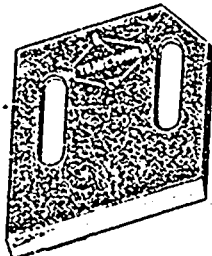
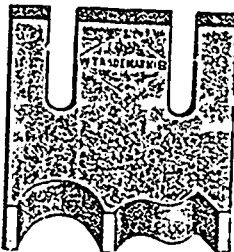
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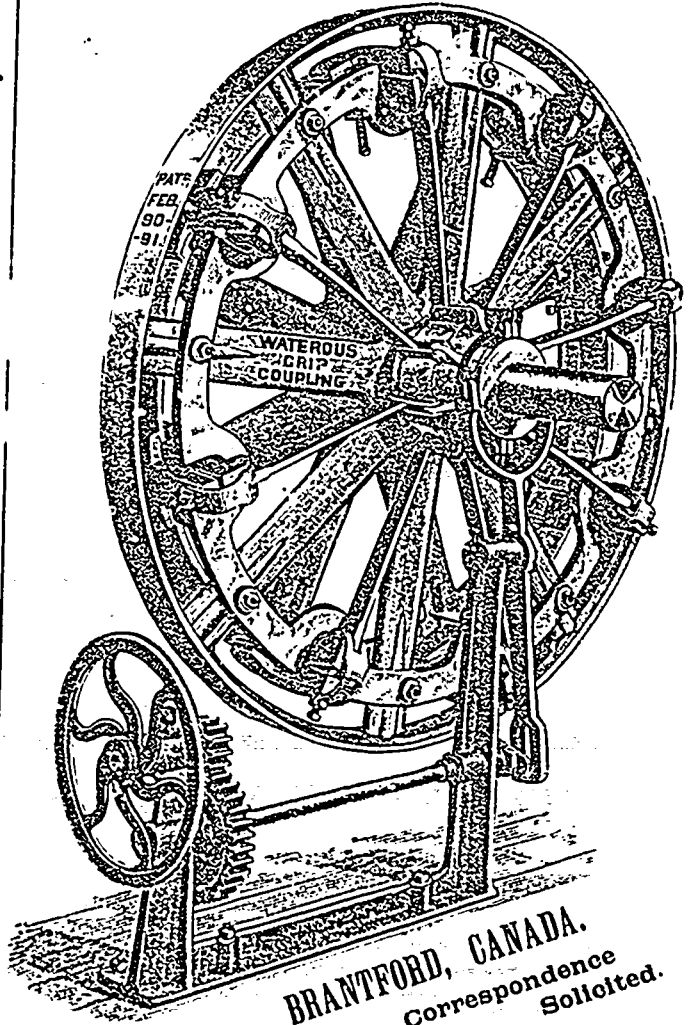
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the electricity used in the average residence or store, and the consumption of zinc would be something enormous. It is for this purpose that the piece of German silver is used, this metal being selected as best fitted for the purpose. This piece of metal is called a shunt, because it shunts off most of the electricity and prevents it from going through the bottle. This piece of metal is so accurately adjusted that it takes just 999 parts of electricity to one which passes through the bottle; the electricity from the electric light wire, before it goes to the lamps, passes through the meter; here one thousandth part passes through the bottle with its piece of zinc, the rest being shunted off through the German silver. It is on this account that the size of the bottle may be reduced to small dimensions.

The spool of copper wire is fixed between the wire and bottle. When the solution of sulphate of zinc contained in the bottle gets too warm it permits more electricity to pass through it than the one-thousandth part of the whole, at the same time the increase in the temperature would have an opposite effect on the German silver, and less would pass through; this would result in a very heavy registering, the amount of zinc consumed being proportionally large, and would be an injustice to the consumer. In order to avoid this the spool of copper wire is used, when the bottle gets too warm the copper wire is similarly affected. The copper does not permit the bottle to gobble up all the electricity it would like, and thus acts as a regulator.

It will be seen that the measuring of electricity depends on the most carefully adjusted mechanism, as a matter of fact, the weighing of the zinc negative plate is the more delicate. During the last days of the month employees of the Edison Company go about among the customers of the company, gathering in all the bottles and replacing them by others. These bottles are all carefully marked and taken to the office of the company. Here the pieces of zinc are separated, and negative pieces, which are indicated by being opposite to where the head of the rubber bolt is, are carefully washed and then permitted to dry.

After this their record is looked up, and the operator knows just to a milligramme how much each piece of zinc weighed before it left the works and was put in the meter. On one of the most nicely adjusted scales the zinc is weighed, and the difference in its weight is noted down. This decrease of weight is multiplied by a figure known as the constant, and the result is the bill of the consumer in dollars and cents. Of course the zinc removed from the positive pole is deposited on the negative, and the amount of electricity used might be ascertained by weighing the negative piece and noting the increase in weight; but this would not be accurate, as some of the zinc in process of being transferred from pole to pole is lost in the solution. Besides that, to determine the amount of electricity used in this way would give way to fraud on the part of a few consumers who understand electricity. There is no likelihood of their scraping the positive pole, for the more they scrape it the higher would their bill be.

It is but natural that only the most nicely adjusted scales can be used in the weighing of these pieces of zinc. In the first place, before the weighing is done, every door and window is closed, although the weighing is done in an inside room, the least bit of air would add several dollars to some consumer's bill. Then the scales are covered with glass, and it is only when the piece of zinc has been placed on the scales and the glass lowered that the weighing is proceeded with.—Paterson (N.J.) Press.

ELECTRICAL DEVELOPMENT.

We of to-day are very apt to think that whatever of advancement and progress has been made is due to our own inventive ability, but as a matter of fact there are very few of the inventions of the present time that can be called new, except in the details of their construction and use.

The development of electricity began centuries ago, its adaptation to mechanical uses being the only part for which we can claim any credit.

Electricity has always existed since the beginning of time, and can only be considered as in the light of a discovery, invention being only applicable to the uses to which it has been put in connection with mechanical and other devices.

Neither are we able to trace it to the original discoverer or his time, which may have been and probably was many years before the time of which we have any authentic history on these subjects; but the first man of whom history tells in connection with its discovery was Thales, about the year 600 B.C., who first relates of the action of amber when rubbed, in showing the properties of electri-

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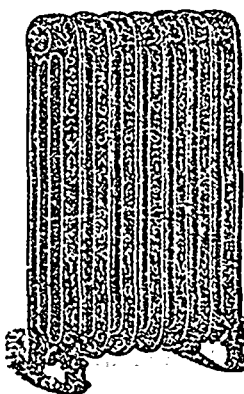
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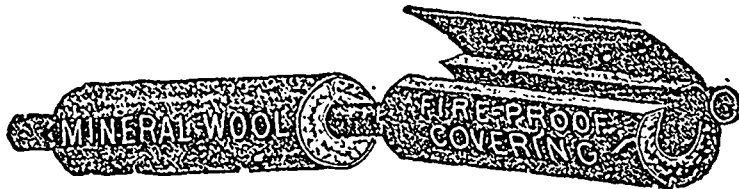
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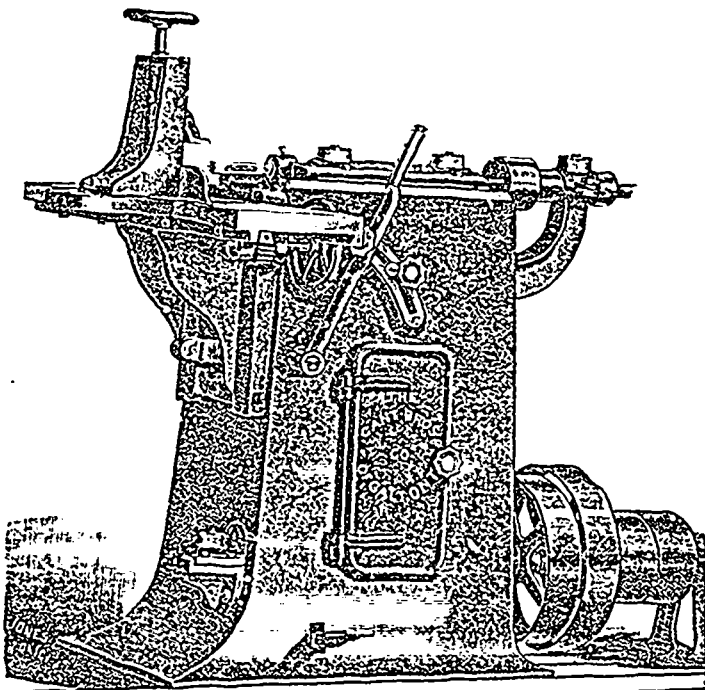
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city as known at the present time. Thales made many experiments and began the development, which was followed up by Theophrastus 321 B.C., and Pliny 70 B.C., each of whom succeeded in still farther developing its properties, and they speak of the power of rubber amber to attract dry leaves and straw. In following up the subject they also found other objects possessing the same powers. Among these were tourmaline and the torpedo. Both Pliny and Aristotle speak of the power of the torpedo on animal matter, and of the effects by contact with it.

This power was known to the ancients, a proof of which was given in the fact that there are accounts of wonderful cures effected by this agency. Anthero, a freedman of Tiberius, was cured of the gout by contact with and shocks received from the torpedo, and there are many other instances in ancient history of a similar nature.



Hollow Square Chisel Morticer

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Malineer, king of the Greeks, seems to have been a wonderful character, and if alive at the present time would be considered quite in the line of a "curiosity," as he was able to emit sparks of electricity from his body.

We believe that Dr. Gilbert, of Colchester, is acknowledged as being the founder of the science, he having made it a study, and experimented with different substances to determine if they possessed the same properties. He wrote several treatises upon the subject and did much to bring it more prominently into notice, and to lay the foundations for further developments.

Robert Boyle was another of the earlier experimenters and workers upon this subject, who assisted extensively in developing this active agent and applying it to man's usefulness.

It is impossible in so brief a space to mention all the wonders accomplished, in the experiments made with this force, or even to trace many of them to their originators, as for instance the first discovery or production of the mariner's compass, dating back over 2,000 years B.C., and having its origin probably among the Chinese.

Coming down to the time of Galvani and Sir Humphrey Davy in the 18th century, we find more correct accounts, and how it was more generally understood. Between Galvani and his friend Volta the discovery of a new element in electricity was made and developed, each of whom gave their names to their discoveries and by which they are known to-day.

Sir Humphrey Davy was undoubtedly the first to attempt lighting by electricity. By the aid of 2,000 Voltaic cells he succeeded in producing a light. The excitement and strain upon his mind, caused by this and other successful achievements, is said to have thrown him into a fever, which came near proving fatal.

The scientific men of those times had, by experiments, arrived at the conclusion that there was some connection between magnetism and electricity, and this missing link was at last discovered by the son of a Danish apothecary by the name of Oersted, and on this discovery rests the entire theory of electro-dynamics. This opened up a new source for experiments and inventions.

The discovery of the lines of force surrounding magnetic bodies was made by Michael Faraday, an English blacksmith. This was the greatest discovery yet made, and on this discovery rested the theory of dynamical electric machines. Faraday brought out many new ideas, and made for himself a lasting name.

This brings us down to the time, since which most of us are familiar with the wonderful developments of the past few years, and the various devices which have been made to utilize this powerful agent.

There has been no discovery ever made which has developed into such magnitude, or proved more successful than that of electricity, and yet it is apparently only in its infancy so far as what it is capable of, as every-day results show, and we may yet live to see it the great motive, lighting, heating and mechanical agent of the world. —Manufacturers' Gazette.

RECIPROCITY IN PATENTS.

We observe in a number of our exchanges remarks upon a scheme indicated by the heading above. It means that for patents in the United States, we shall charge foreigners for patents just as much as their respective governments charge citizens of the United States.

This is called reciprocity, the idea being that foreign governments will thereby be induced to adopt our system of granting patents.

The scheme is based upon erroneous promises throughout and will never be copied, or if adopted will fail to work any benefits. In the first place it is a plan which we used to practice, and it was abandoned some thirty or more years ago because it produced no satisfactory results. We used to charge an Englishman \$300 for a patent because that was the English charge to an American. Canada refused to grant patents to citizens of the United States and we taxed her citizens \$500, if I remember rightly, etc. The number of foreigners who took patents here was correspondingly small and if any valuable improvements were made abroad we got but little benefit from them.

Canada excluded us from the privilege of taking patents upon the theory that they would get the Yankee inventions for nothing. We charged them a prohibitory price, upon the ground of retaliation. Both discovered their mistake. Inventions, however good, will not travel themselves, and without the protection of a patent no one will risk money in developing and introducing new inventions, and the Canadians discovered that in excluding patentees, they also excluded inventions. We discovered that the purpose of the patent law is to create new inventions and give them to the people of the United States, and that the policy of retaliation hurt us more than it hurt the foreign inventors, because it excluded useful inventions which we would like to have. So the Canadians amended their law and ceased to discriminate against us, and we amended our law so as to admit foreigners on equal terms with our own people. While in some countries the costs are much higher than with us, our citizens do not pay any more than the citizens of those countries. We have no just cause of complaint, because we have no right to dictate a policy to any other people. We may if we choose say to them, put down your charges, and more of us will come to see you, and they have an equal right to say your company is not desired. From our standpoint that is a great mistake on their part.

For a protectionist to advocate reciprocal free trade is incongruous at best. It may be excused upon the ground that he only wants reciprocity where it will do us more good than harm, but viewed from the standpoint of a protectionist, this reciprocity in patents can only be productive of harm to America, because it is only by

reason of her multitude of labor-saving inventions that it has been and is possible to pay higher prices for labor and material and still produce at less cost than can our neighbours. This advantage would disappear if foreign patents were so cheap that all our inventors would take their inventions abroad, and we would find ourselves reduced to the world's standard by competition on even terms. —Power and Transmission.

TERRA COTTA for fire-proofing does not appear to be as extensively used in England as has been the case here, observes *Architectural and Building*. We note that special mention is made of an experiment made last month at Bishop's Waltham, Hants. The experiment was made in a little building of the dimensions of one room of an ordinary house, with brick sides and a terra cotta floor above, the pieces being so dovetailed as to render it almost hermetically sealed. This floor was reached by means of a wide staircase, with an ornamental balustrade, resembling that of carved oak. In the room below faggots of wood were piled up to the ceiling. Round these at the bottom were placed tar barrels, with a layer of straw. The mass was set on fire, and the fire burnt with great intensity. While this was going on most of the visitors ascended the staircase and stood on the floor, feeling the slabs from time to time to see if the heat was making any impression on them, but throughout the whole trial they maintained almost the same temperature, being quite cold. By-and-by the fierce flames lapped themselves round the staircase, cutting off retreat by that way, and had it been constructed of wood short work would have been made of it. However, beyond being slightly blackened by smoke, it remained as impassive as the floor above. The room was one mass of white heat, resembling in color molten lead. Had the floor fallen in at that time cremation would have been the fate of those on it. The party remained on the roof from half to three-quarters of an hour—a sufficient period to put the experiment to the severest test—and so little had they felt the heat below that many shivered with cold. Immediately the visitors descended, a large number of the workmen and boys ran up the stairs and jumped about on the floor, which apparently had not in any way been affected by the great heat, though the fire continued to burn for a considerable time afterward.

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THE POLSON IRON WORKS CO., ESPLANADE, TORONTO

Captains of Industry.

This department of the "Canadian Manufacturer" is of special value to our readers because of the information it contains. With a view to sustaining its interesting features, free of charge, we are glad to contribute any items of information coming to their attention regarding any Canadian manufacturing enterprises. Be explicit. State facts clearly, giving correct name and address of firm alluded to, and nature of business.

MR. JOSEPH WOODRUFF is building a flour mill at Millarney, Man., of 75 barrels per day capacity.

The capital stock of the Hamilton Brass Manufacturing Company, Hamilton, Ont., has been increased from \$3,000 to \$60,000.

The town of Woodlands, Man., will grant a cash bonus of \$4,000 towards building a grist mill at Marquette Station, near that place.

The Dominion Electric Company has been incorporated at Montreal with a capital stock of \$30,000 to manufacture electrical goods, machinery, etc.

The capital stock of the Canadian General Electric Company will be increased to \$2,000,000, and the general offices removed from Montreal to Toronto.

The Imperial Manufacturing Company, Toronto, has been incorporated with a capital stock of \$3,000 to manufacture bonnets and hats, and bonnet and hat shapes, etc.

The works of the Morse Soap Company, in this city, of which Messrs. John Taylor & Co. are proprietors, were badly damaged by fire on August 11th; loss about \$20,000.

The Dominion Electrical Manufacturing Company is being incorporated at Toronto with a capital stock of \$40,000 to manufacture thermostats, electrical annunciators, fire alarms, etc.

The Kingsville Preserving Company has been incorporated at

Kingsville, Ont., with a capital stock of \$40,000 to manufacture pickles, preserves, canned fruits and vegetables, etc.

The Ontario Chemists Manufacturing Company is being incorporated with a capital stock of \$100,000 to manufacture drugs, medicines, etc. Place of business will probably be in Toronto.

The Eric Glass Company, whose works at Port Colborne, Ont., are to be shortly put in operation, using natural gas as fuel, have established their office in Toronto at 8 Wellington street west.

The power house and machine shop of the National Tramway & Electric Light Company, Victoria, B.C., together with their contents, were destroyed by fire August 7th; loss about \$200,000.

The Burlington Pressed Brick and Terra Cotta Company, Burlington, Ont., has been incorporated with a capital stock of \$30,000 to manufacture brick, tiles, terra cotta, for building purposes, etc.

The Heat, Light and Power Company of Newmarket, has been incorporated at Newmarket, Ont., with a capital stock of \$40,000 to manufacture electrical apparatus, and to sell electric power for commercial purposes.

The Arnprior Electric Light and Power Company, Arnprior, Ont., has been incorporated with a capital stock of \$30,000 to furnish electricity for commercial purposes, and to manufacture electrical apparatus and machinery, etc.

The External Journal Loose Pulley Company, Toronto, has been incorporated with a capital stock of \$50,000 to manufacture wood split driving pulleys, shafting, coupling, hangers, etc. Mr. C. T. Brandon is at the head of the concern.

MR. M. B. BERRY, City of Quebec, has purchased the machinery contained in the mills of the Quebec Worsted Company, that city, and has removed the same to his asbestos factory, where he will engage in the manufacture of woolen yarns, guernseys, flannels, etc.

Messrs. DAVID MANN & Co., whose woolen mills at Peterboro', Ont., were recently destroyed by fire, have located their new factory at Lakesfield, Ont., and are again in full operation. Their new mills are thoroughly equipped with new and most improved machinery.

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The Strongest and Purest Form of **SODA ASH** in the market, and the most Economical Form of **SODA** for the Manufacture of



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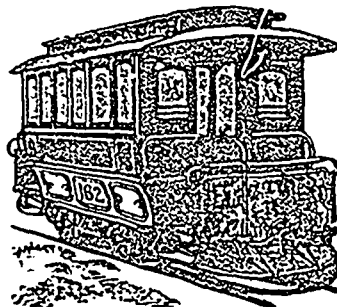
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SPECIALTY



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MANUFACTURERS OF

Horse and Trail Cars

OF

EVERY DESCRIPTION

THE Ontario Power and Flats Company, Toronto, has been incorporated with a capital stock of \$175,000 to erect and rent factories and power for the same. Mr. F. B. Polson, of the Polson Iron Works Company, and Dr. T. F. Chamberlain, of Toronto, are interested.

MR F HOOD, manufacturer of hosiery, knit underwear, etc., Queen street west, Toronto, has purchased the entire outfit of knitting machinery contained in the mills of the Magog Hosiery Company, Magog, Que., and is removing the same to Toronto, thereby doubling his capacity of output.

THE Page Wire Fence Company of Ontario has been incorporated with a capital stock of \$40,000 to manufacture wire fencing and other wire goods, and to make machinery for the manufacture of the same. Messrs. W. Clement and C. F. Clement, of Adrian City, Mich., H. W. Clement, of Rutland, Vt., wire fence manufacturers, and E. C. Walker, of Walkerville, Ont., are the chief investors in the enterprise.

MESSRS. F. J. WESLEY & Co, Toronto, have begun the manufacture of an extensive line of wooden goods, including children's sloighs, rockers, baby swings, parlor wagons—something entirely new boys' double coasters, fitted with steering apparatus and brake; household requisites, games, toys, and about all the standard lines of wooden goods. Their factory at Perth avenue and Bloor street is equipped with new machinery of best make, the business being under the management of Mr. F. J. Wesley, who was for several years superintendent in the wooden-ware factory of the Brandon Manufacturing Company, Toronto.

THE Eastern Townships Corset Company, Sherbrooke, Que., are operating their works to full capacity, giving employment to 150 hands. They have accepted an offer of a cash bonus of \$15,000 and ten years' exemption from taxes from the town of St. Hyacinthe, Que., to remove their business to that place. Their new factory at St. Hyacinthe, now being built, and to be ready for occupancy by October, is 200x50 feet, two stories high, and will afford accommodation for 300 hands, the intention of the company being to employ that number. They control the Canadian patents for the Jackson waist and the Watch Spring corsets, for which they are enjoying a very large demand.

THE Polson Iron Works Company, Toronto, announce that they have built the equivalent of 12,000 horse power of their Brown automatic steam engines for use in electric stations in Canada. They build these engines single or in double or in triple expansion,

as desired. They are the Canadian manufacturers of the Caldwell water tube boiler, which, they inform us, produces the maximum quantity of steam with a minimum quantity of fuel. The immense pumping engines which this concern have recently constructed for the water works of Toronto have been placed in position and have just been put in operation, giving entire satisfaction. They have just placed the necessary engines and boilers to supply 700 horse power to the Toronto Street Railway Company for their electric system.

KAY & Co., of Georgetown, the well-known manufacturers of power and hand-knitting machines and hosiery supplies, have a standard automatic machine, which is a model of ingenuity, simplicity and utility. It is the invention of Mr. Kay, and it does him infinite credit. The advantage it possesses over the ordinary power machine is that it saves an enormous amount of labor. One girl can manage from five to seven of these machines, each capable of producing from ten to a dozen knitted articles in a day. The invention has overcome a difficulty that has hitherto been an insurmountable obstacle in the way of perfecting the knitting machines—the making of provision for the automatic knitting of the heels of stockings. The Standard Automatic is so constructed that it adjusts itself when the time has arrived for the knitting of the heel, and when this part of the process is completed it continues the knitting of the sock without any direction from the person operating the machine. *Journal of Fabrics.*

"THE making of sleigh bells is quite an art," says a manufacturer. "The little iron ball is too big to be put in through the holes in the bell, and yet it is inside. How did it get there? The little iron ball is called 'the jingler.' When you shake the sleigh bell it jingles. In making the bell the jinglet is put inside a little ball of mud, just the shape of the inside of the bell. Then a mould is made, just the shape of the outside of the bell. This mud ball with the jinglet inside is placed in the mould of the outside, and the metal is poured in, which fills up the space between the ball and the mould. When the mould is taken off you see a sleigh bell, but it will not ring, as it is full of dirt. The hot metal that the bell is made of dries the dirt so it can be shaken out. After the dirt is all shaken out of the holes in the bell, the little iron jinglet will still be in the bell and will ring. It took a good many years to think out how to make a sleigh bell."

President, W. K. McNAUGHT

Secretary, J. J. CASSIDEY

Treasurer, GEORGE BOOTH

The Canadian Manufacturers' Association

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 enterprises 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.

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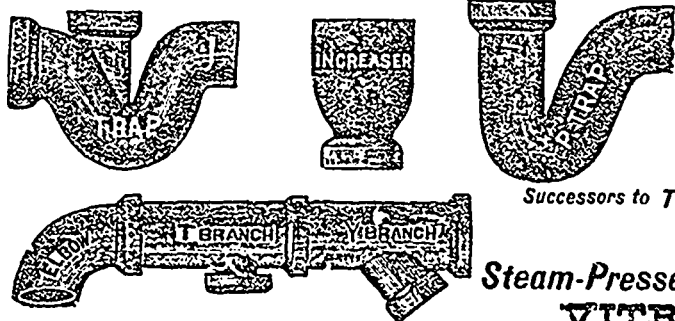
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All risks will be inspected by a competent officer of the company, who will make such suggestions as to improvements required for safety against fires, as may be for the mutual interests of all concerned.

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The most perfect method of insurance must, in the nature of things, be one in which the self interest of the insured and the underwriters are identical, and this has been the object aimed at by the organizers of this company.

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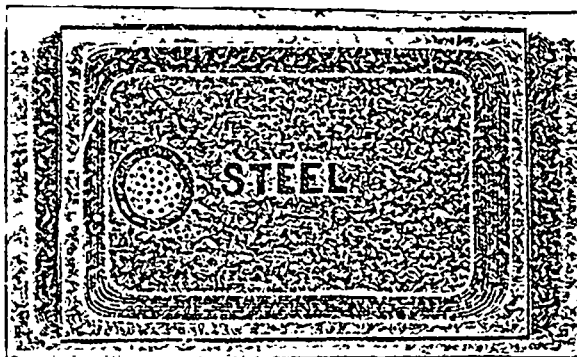
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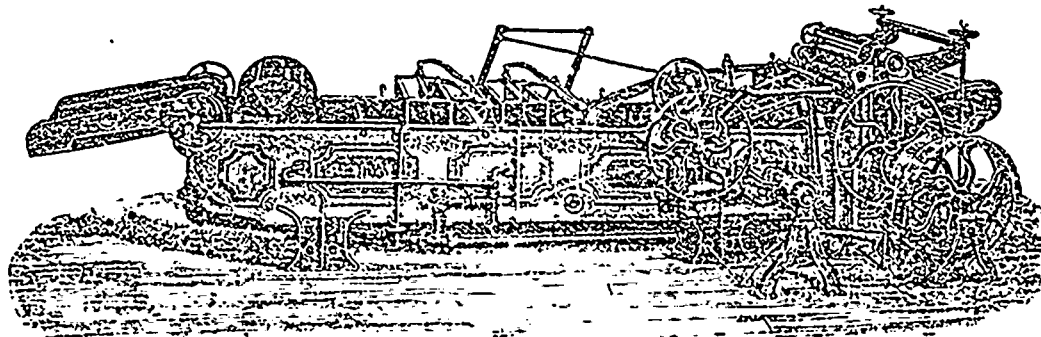
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Builders of Wool Washers.
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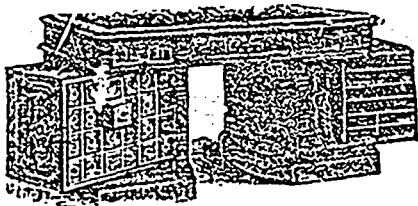
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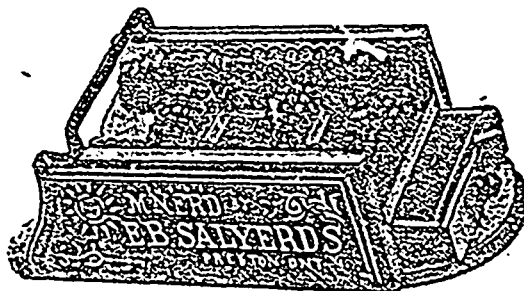
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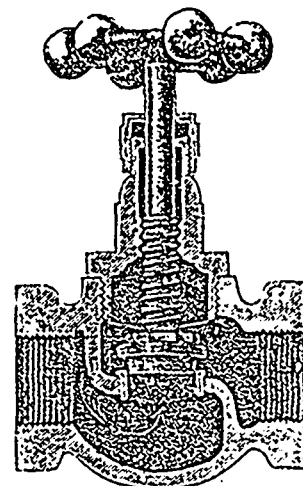
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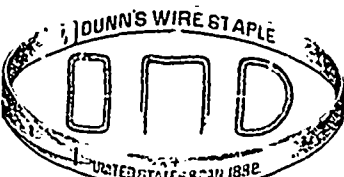
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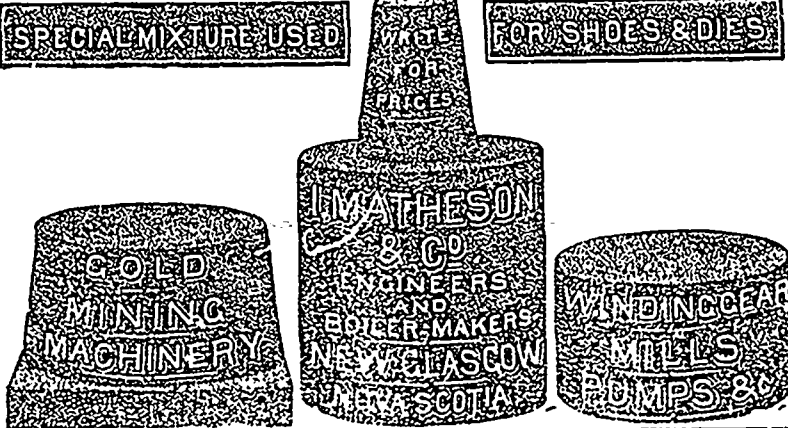
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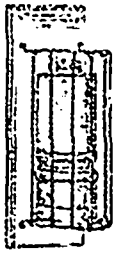
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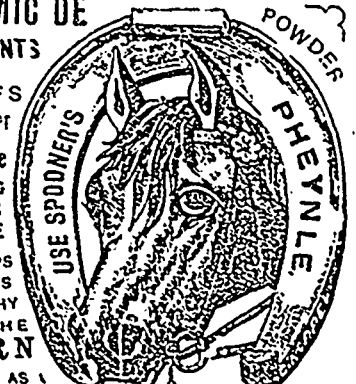
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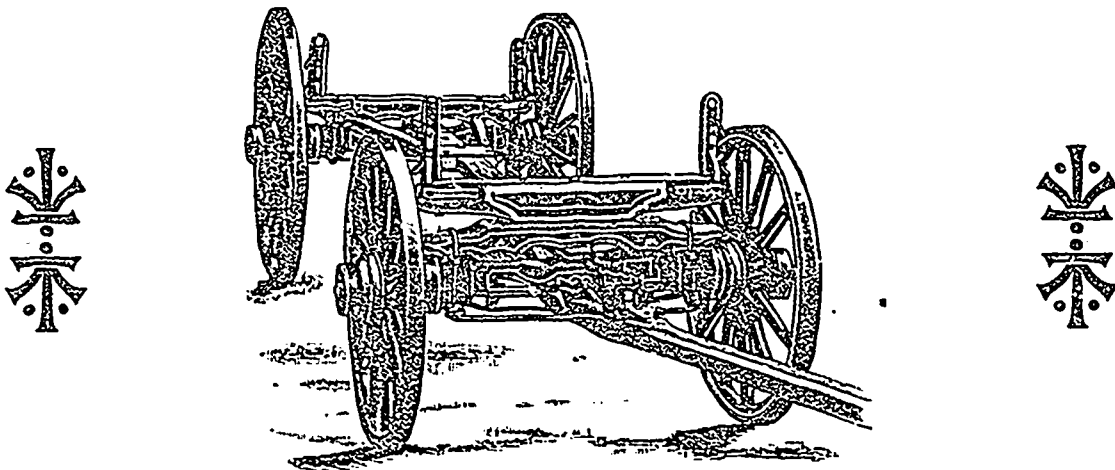
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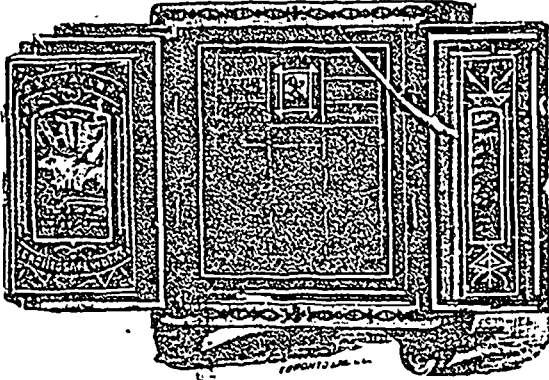
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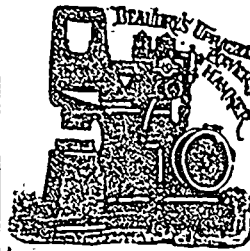


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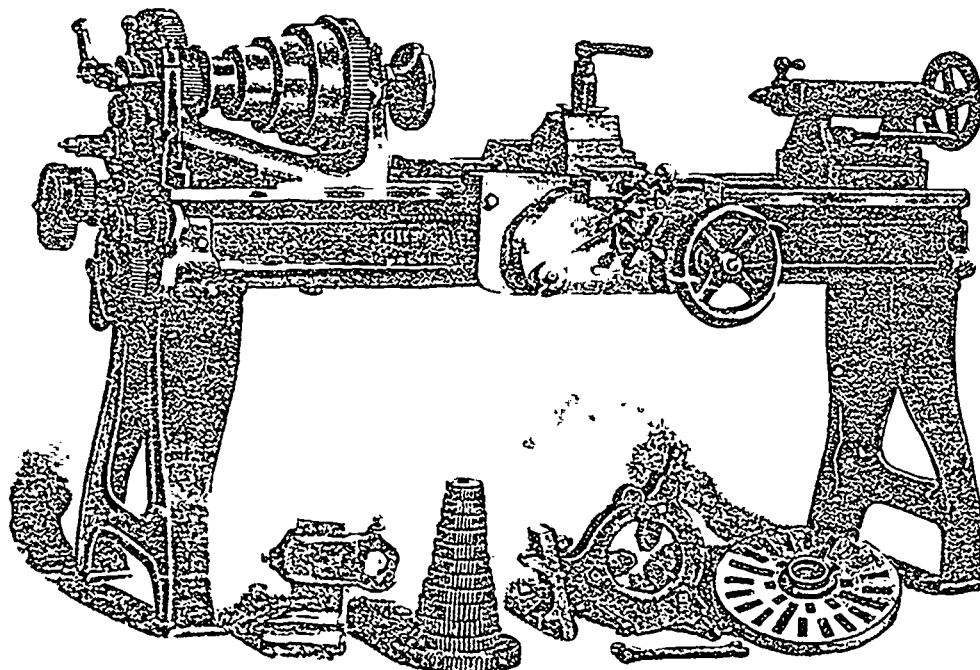
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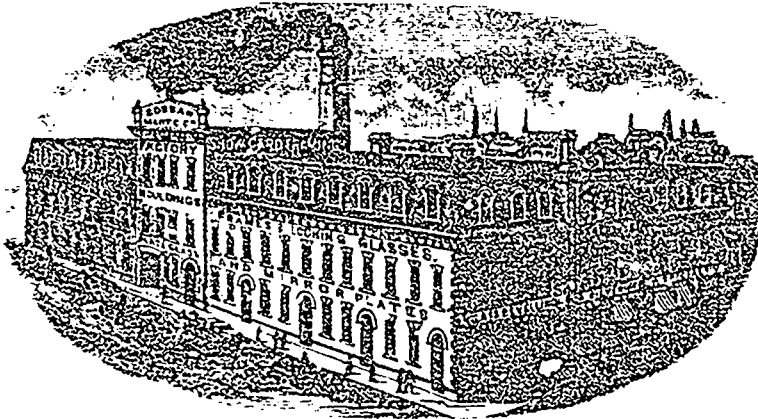
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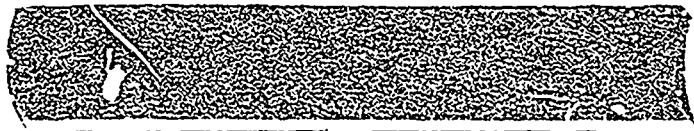
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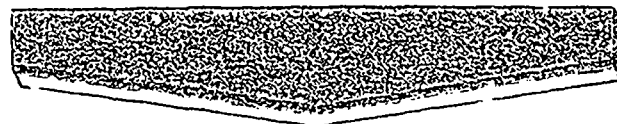


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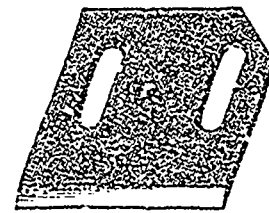


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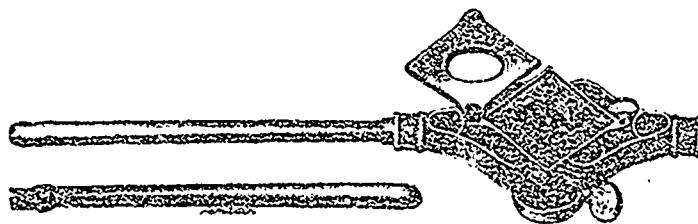
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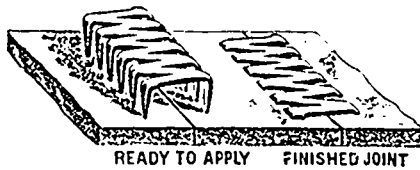
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