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CANADIAN MANUFACTURER
AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 24.

TORONTO, APRIL 21, 1893.

No. 8.

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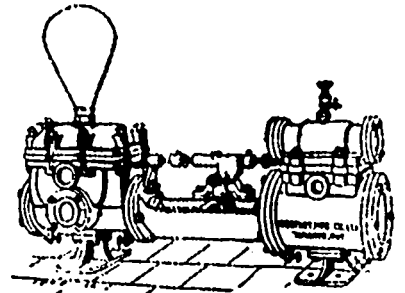
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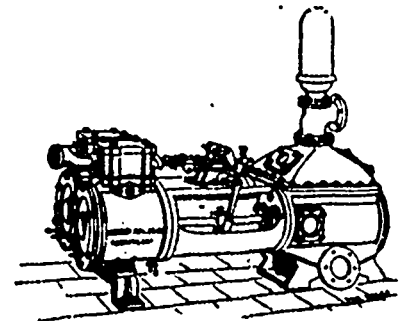
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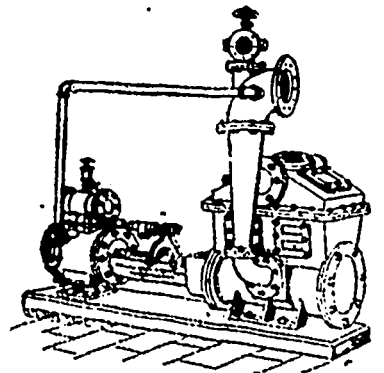


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AS TO PIG IRON.

At the call of the Chairman of the Tariff Committee of the Canadian Manufacturers' Association, Mr. R. W. Elliot, a meeting of that Committee was held in the office of the Association on April 10th, inst., at which it was resolved that a delegation of members of the Association be appointed to wait upon Sir Oliver Mowat, Premier, to memorialize him and the Ontario Government with reference to the granting of some Provincial encouragement towards the establishment of an iron blast furnace industry in Ontario; and the Secretary was instructed to arrange for the interview. In accordance with this, an appointment with Sir Oliver was obtained to receive the delegation on Monday next, April 24th, at 2 o'clock in the afternoon, at his office in the new Parliament Buildings in this city.

It is generally acknowledged that this country cannot attain to the height of prosperity and industrial independence we all desire for it, unless we have a blast furnace industry

which will supply the domestic demand for pig iron. We have hoped for years that the protection afforded by the tariff which imposes a duty of \$4 per ton on pig iron, together with the bonus of \$2 per ton paid by the Dominion Government, on the production of the article in Canada, would have given us this industry in Ontario, but it has not; and it is evident that this much to be desired event will never be realized unless some additional inducement is offered.

There seems to be an awakening to the importance of this subject by many manufacturers, capitalists and others in different parts of Ontario; and already deputations have waited upon Sir Oliver requesting that the Ontario Government render some assistance in this direction. The Manufacturers' Association consider this a fit time to move in this matter, the idea being to ask the Ontario Government to pay a bonus of \$2 per ton upon such pig iron as may hereafter be made anywhere in Ontario; this to be continued for a period of ten years.

The personnel of the delegation will include not only those connected with the iron consuming industries, but those also who are engaged in other important manufacturing enterprises. The influence of the Association in this matter will be exerted for the benefit of Ontario generally—not in the interest of any particular section or locality.

BAR IRON.

THE Montreal papers tell of a meeting held in that city a few days ago at which all the manufacturers of bar iron in Canada were present, and who thoroughly discussed the situation affecting their industry. It was stated that for some time past there had been considerable cutting of prices, and one of the principal matters before the convention was to see if an amicable arrangement could not be arrived at whereby such cutting would cease. As a result, an agreement was drawn up by which all the mills are bound to reduce the price of bar iron by ten cents per hundred pounds. The market reports in the commercial papers state that the base price of bar iron is now \$1.95 per hundred pounds, instead of \$2.05 as before. This is the equivalent of \$39 per ton instead of \$41. Further reference to these market reports shows the price of No. 1 cast scrap iron to be 70 cents per one hundred pounds, or \$14 per ton, and of No. 1 wrought scrap iron to be 50 cents per hundred pounds, or \$10 per ton. This is 40 per cent. more for cast scrap, an article upon which, in the original manufacture, a minimum amount of labor had been performed, than for wrought scrap upon which very much more labor had been bestowed. It should be remembered that the duty upon cast scrap is \$4 per ton, the same as upon pig iron; and that there are hundreds of foundries in Canada where such iron is consumed. The duty upon wrought scrap, however, is 50 per cent. less than upon cast scrap, only \$2 per ton being imposed upon it, while there but very few rolling mill companies in Canada—but one in Ontario—who are purchasers and con-

sumers of wrought scrap. These concerns, however, are manufacturers of bar iron, the duty upon bar iron being \$13 per ton.

Neither cast or wrought scrap iron is the chief product of any manufacturing industry in Canada or any other country. No money is invested anywhere in the world in the manufacture of any sort of scrap iron. It is either a by-product of some industry where iron enters into the production of machinery or some other merchandise; or an accidental product, as for instance, where machinery has become obsolete or useless, and must be broken up. Sources of supply of both wrought and cast scrap iron exist in every portion of the country. If a mill is burned, or otherwise destroyed, the cast iron contained in it finds its way to the nearest foundry, where it is again melted and converted into some useful form. The wrought iron in it, however, cannot be thus utilized, and generally the only purchaser of it is the rolling mill proprietor who utilizes it in the manufacture of bar iron. Another source of supply of wrought scrap is the establishment where steam boilers and engines and machinery of different descriptions are made. A scrap heap is always and most certainly a feature of all such places. Usually this scrap is composed of material upon which the manufacturer has not only paid the full market price in a foreign country, but the duty of \$13 per ton also. In purchasing boiler plates, for instance, the manufacturer knows that there will be an inevitable waste of materials; but he must submit to the drawback involved, both in paying for the portions which he cannot use—the scrap—and also for the \$13 per ton duty paid upon this scrap. We say he must submit to this drawback, for if his raw material—the boiler plates—are subjected to any process of preparation after they are completed in the mill, even to the extent of having rivet holes punched in them, they are liable to a higher rate of duty.

These facts explain why the market price of cast scrap is \$14 per ton, while wrought scrap commands only \$10.

These facts also demonstrate that a grievous mistake was made in the framing of the tariff. It is of constant occurrence now-a-days that deputations of manufacturers, business men, those who are interested in iron or mines, and of those who would like to invest money in blast furnaces, to wait upon the Government asking that some policy be adopted which would give us a pig iron producing industry. The fact is recognized that the country cannot be as prosperous as it might and should be, without blast furnaces. It is most desirable that we should have them, and in this desire all classes are agreed. But even many students of the question fail to comprehend the fact that a large pig iron industry could not possibly thrive—could not exist if the duty upon scrap iron remains where it is. The furnaceman, to make a success of his business, must have a market in which to sell all the products of his furnace. All furnacemen and all observant workers in iron understand that no furnace has ever yet been built that will deliver a uniform quality of pig iron. If it were possible to attain this—if it were possible to so operate a furnace that some particular quality of pig iron could be produced without variation, the situation would be different. But a furnace will, without known cause, produce several different qualities of iron; and while some of these are well adapted for foundry

purposes, others of them can only be used to advantage in the manufacture of wrought iron. There is a great difference, too, in the amount of labor bestowed upon pig iron in the conversion of it into castings for machinery, etc., and when it is manufactured into rolled or hammered iron. In the first instance, the labor consists in breaking the pigs into convenient chunks to be thrown into the melting cupola, while in the other forms the iron must be puddled and squeezed and hammered and rolled, and the process repeated to some extent according to the quality of product desired. And it is the large amount of labor bestowed upon wrought iron that makes it cost so much more than cast iron. But there are no works in Canada where pig iron is subjected to the manipulations necessary in the production of wrought iron; and, indeed, as we have said, this would be impracticable financially where wrought scrap is admitted at only \$2 per ton duty.

If the duty upon scrap iron were made prohibitory, as it should be, the demand for bars and other forms of wrought iron would, of necessity, have to be supplied either by imports of the foreign article, as is now the case to a certain extent, or from Canadian works. This means that puddling furnaces would be a feature of our rolling mills, and that the pig iron puddled in them would be the product of Canadian blast furnaces. We can never hope to have a prosperous blast furnace industry until a demand exists for all their products, and this demand can never exist in all its fulness as long as a cheaper form of iron is admitted at a nominal duty. With a prohibitory duty imposed upon all scrap iron, the price of castings would not be increased at all, nor would the price of wrought iron. The duty of \$13 per ton would prevent that, and the consumer would not pay one cent more for his iron than he now does. On the other hand, we would have blast furnaces which would give employment to thousands of workmen, and puddling furnaces which would also give occupation to large numbers of skilled workmen, and more rolling mills, which would be required to manufacture all the ordinary grades of iron which we now consume.

HON. MR. BOWELL AT KINGSTON.

HON. MR. BOWELL, Minister of Trade and Commerce, in an address delivered at Kingston a few days ago, speaking of the Government's policy relating to the refining and price of sugar in Canada compared with prices in the United States, stated that since we reduced the duty on sugar a reliable comparison had been made of the wholesale price of the article in New York and Montreal, week by week, covering the twelve months of last year; and he called special attention to the fact that during seven months out of the twelve granulated sugar was cheaper in Montreal than in New York; and he also showed that the Halifax refiners shipped 10,500 barrels of granulated and 4,000 barrels of yellow sugar, and the Montreal refiners 5,000 barrels, to the United States last year. This, he desired to be remembered, was done after paying the American duty of six mills per pound, and leaving a profit to the Canadian refiners.

It is to be regretted that Mr. Bowell did not give us some further light on this sugar question. It is rather misleading to

convey the idea that for seven-twelfths of the year sugar was cheaper in Canada than in the United States, when an average for the whole twelve months, as quoted by the Minister, shows that the price of sugar was higher in Montreal than New York. The difference was not great, only about four cents per hundred pounds, but that difference was against Canada—not in our favor as Mr. Bowell's remarks might lead one to suppose. But what this country is more interested in knowing is, what it really costs the refiners to manufacture granulated sugar from the raw material. Whatever that cost in Canada is, or should be, should indicate the amount of duty that should be placed on the refined article. In the United States the duty is \$10 per ton, while in Canada it is \$16; but we know that the United States actually exports refined sugar to Great Britain, and that last year, according to the commercial statistics of that country, Canada took 2,885,418 pounds of American refined sugar. Our own trade and navigation returns, however, do not correspond with the American statistics, for, according to these latter, in 1892 Canada bought from the United States the quantity mentioned—2,885,418 pounds, valued at \$105,973, and sold to that country 240,644 pounds, valued at \$9,676. On the other hand the Canadian statistics show that we bought from the United States 1,178,864 pounds of refined sugar, valued at \$35,449, and sold there 1,011,152 pounds, valued at \$40,346. According to the American statistics the value of what we imported and what we exported was substantially the same—four cents per pound—while according to the Canadian statistics what we sold was valued at four cents per pound, but what we bought was at only three cents. A noticeable feature of Mr. Bowell's remarks is that he tells of nearly 20,000 barrels of Canadian sugar having been sold to the United States, which at 300 pounds per barrel, would amount to some 6,000,000 pounds, while the Canadian returns limits the transaction to only about one sixth of that quantity, and the American returns to one-twenty-fourth.

Of course Mr. Bowell could not have said that the Canadian exports of refined sugar to the United States paid a duty of six mills per pound. Obviously this is an error of the reporter, for the duty there is only one-half cent.

We cannot but differ with Mr. Bowell in his estimate and conclusions regarding the tariff as enunciated at Kingston. In that part of his address in which he alludes to the apostacy of Mr. McCarthy he says: "I firmly believe that a policy which has been in operation for some forty years in the United States, during which period that country progressed at a rate unparalleled in the history of the world—that a policy which has shown such marvellous results cannot be a bad one for Canada;" and later, in speaking of protection, he said: "It must not be forgotten that in the United States a very high scale of protection has prevailed for some forty years, while a very much lower scale has been in operation in Canada for only thirteen or fourteen years. Give Canada forty years of protection and with the great North-West opened up with a largely increased consuming population, and we should be better prepared to say that our manufacturers might stand alone to just as great an extent as those in the United States."

It would be saying but little for the intelligence of Canadian manufacturers, or the Canadian people, to say that they must struggle through forty years of experiment to reach a position

where they could, under a wise arrangement of the laws, successfully contend against the world. Having eyes we can see what our neighbors have accomplished and where they have failed. Canada wants no forty years of experiment that will result in McKinleyism. We have never attempted to raise our duties to the American standard, and there can be no necessity for our doing so. It is true our tariff has been modelled after that of our neighbors, but quite a distance after. Its average has been only about half as high as theirs, and we do not wish it to become more altitudinous than it now is. What we do want, and what Mr. Bowell and his co-administrators of the Government should give us, is a reasonable rectification of the tariff along the existing lines. Protection must be a distinguishing feature of our tariff for many years to come. But it must be simplified and its incongruities smoothed away. Under such rectification Canada will not require any forty years to stand fully abreast with the United States in industrial greatness and prosperity. Let the Government give the country a blast furnace industry, and steel works, and steel rail plants. It can be done. It must be done. Proper tariff legislation will do it, and that very quickly. Let it give us cheaper sugar, not measuring the price by the Yankee standard, but according to the ethics of protection, and let the duties on cotton and woollens be simplified also.

CUSTOMS TARIFF OF GREAT BRITAIN.

The following table contains a complete list of articles which are subject to import duties in the United Kingdom of Great Britain and Ireland, together with the rate of duty levied upon each article according to the tariff in operation upon May 1, 1890. The duties levied upon articles produced in other countries, to countervail excise and other inland revenue duties imposed upon British production, are given separately. No duties are imposed upon exports.

Articles.	Rate of duty			In Canadian money.
	£	s.	d.	
Cocoa, per pound	0	0	1	\$0 02
Husks and shells, per cwt.....	0	2	0	0 49
Or chocolate ground, prepared, or in any way manufactured, per pound.....	0	0	2	0 04
Coffee, raw, per cwt.....	0	14	0	3 41
Kiln-dried, roasted, or ground, per pound	0	0	2	0 04
Chicory				
Raw or kiln-dried, per cwt.....	0	13	3	3 22
Roasted or ground, per pound.....	0	0	2	0 04
Chicory (or other vegetable substance) and coffee, roasted and ground, mixed, per pound..	0	0	2	0 04
Fruit, dried:				
Currents, per cwt.....	0	2	0	0 49
Figs and fig cake, plums, prunes, and raisins, per cwt	0	7	0	1 70
Tea, per pound	0	0	4	0 08
Tobacco:				
Unmanufactured (stemmed or unstemmed), containing in every 100 pounds thereof—				
10 pounds or more of moisture, per pound..	0	3	2	0 77
Less than 10 pounds of moisture, per pound	0	3	6	0 85
Manufactured:				
Cigars, per pound	0	5	0	1 21½
Cavendish and Negro-head, per pound.....	0	4	6	1 09
Snuff, containing in every 100 pounds weight thereof—				
More than 13 pounds of moisture, per pound	0	3	9	0 91
Less than 13 pounds of moisture, per pound	0	4	6	1 09
Other manufactured tobacco and Cavendish or Negro-head manufactured in bond from unmanufactured tobacco, per pound.....	0	4	0	0 97

Articles.	Rate of Duty C. S. D.	In Canadian money.
Wine :		
Not exceeding 30 degrees of proof spirits, per gallon	0 1 0	0 24
Exceeding 30 degrees, but not exceeding 42 degrees, per gallon	0 2 6	0 60
And for every degree or part of a degree beyond the highest above charged an additional duty, per gallon (The word "degree" does not include fractions of the next higher degree. Wine includes lees of wine.)	0 0 3	0 06
Sparkling wine, imported in bottles, per gallon.	0 2 6	0 60
Sparkling wine, imported in bottles, when the market value is proved not to exceed 15s. (\$3.05) per gallon.	0 1 0	0 24
(The duties on sparkling wine are in addition to the duties in respect of alcoholic strength.)		
<i>To countervail excise duty upon British beer.</i>		
Beer and ale, the worts of which were before fermentation of a specific gravity of 1,055 degrees, and so on in proportion for any difference in gravity, per barrel of 36 gallons.	0 6 6	1 58
Beer, called mum, spruce, or black beer, and beer called Berlin white beer, and other preparations, whether fermented or not fermented, of a character similar to mum, spruce, or black beer, the worts of which were before fermentation of a specific gravity—		
Not exceeding 1,215 degrees, per barrel of 36 gallons.	1 6 0	6 32
Exceeding 1,215 degrees, per barrel of 36 gallons.	1 10 6	7 42
<i>To countervail excise duty upon British spirits.</i>		
Spirits or strong waters :		
For every gallon computed at hydrometer proof of spirits of any description (except perfumed spirits), including naphtha or methylic alcohol purified so as to be potable; and mixtures and preparations containing spirits, per proof gallon.	0 10 10	2 63
For every gallon of perfumed spirits, per gallon.	0 17 3	4 20
Liquors, cordials, or other preparations containing spirits in bottle, entered in such a manner as to indicate that the strength is not to be tested per gallon.	0 14 8	3 57
Chloroform, per pound.	0 3 1	0 75
Chloral hydrate, per pound.	0 1 3	0 30
Collodion, per gallon.	1 5 0	6 08
Ether :		
Acetic, per pound	0 1 10	0 44
Butyric, per gallon	0 15 8	3 81
Sulphuric, per gallon	1 6 2	6 36
Ethyl, iodide of, per gallon.	0 13 7	3 40
Soap, transparent, in the manufacture of which spirit has been used, per pound	0 0 3	0 06
<i>To countervail stamp duties on British-made articles.</i>		
Cards, playing, per dozen packs.	0 3 9	0 91

EDITORIAL NOTES.

Wanted—A copy of CANADIAN MANUFACTURER of June 15, 1888. One year's subscription to this journal will be given for such a copy in good order.

A CORRESPONDENT enquires if patterns made of wood, such as are used by founders, and for models, are dutiable and at what rate. Item 506 of the tariff rate such articles as dutiable at 25 per cent. *ad valorem*.

THE Hamilton Spectator works itself into a silly rage over the proposition of this journal to force the manufacturers of rolled iron to supply a really first-class article to consumers. It compares our efforts in this direction to those of the Hamil-

ton Times, which is an avowed advocate of free trade. the Times being opposed to the industry because it is in accord with its free trade theory to do so, and this journal being opposed to it because it is located in Hamilton. The hat that covers the thought-tank of a person who gives utterance to such stuff would not be too large for the head of a walking cane.

WHEN the Mowat Government extend aid to the iron industry they will very properly be giving in their adhesion to the National Policy.—*The Empire*.

Job, as we learn from the Bible, was afflicted with what we now know as "fool friends;" and the National Policy is laboring grievously from a similar affliction, to wit: *The Empire*.

MR. MOWAT's bill, respecting wage-earners, provides in cases where no contract has been made between employer and employee, that the employer shall be responsible for the union or current rate of wage. As the law stands as present the police magistrate is in the habit of refusing to compel employers to pay where no contract has been made; the new law will compel the magistrate to commit the employer in case of default to pay the union scale of wages. The bill also, it is said, provides that liens for supplies used in the construction of a building shall take precedence over mortgages made after the date of the said liens.

THERE seems to be some difference of opinion regarding the effects of the duty on petroleum when used as fuel for manufacturing purposes. Thus we are informed by one concern, who are large users of the article, that if the duty were entirely removed the difference in cost between Canadian and American oil would be only about three-fourths of a cent per gallon. But we have it from another large consumer—one who uses about 10,000 gallons per month—that the cost of American oil at his factory, without duty, would be eighty cents per barrel, while the price of Petrolea is \$1.05, plus forty cents for freight. This is eighty-one and a quarter per cent. more than the cost of the American oil.

WE are informed that a company recently formed and doing business in Ottawa, a feature of their enterprise being electric plating of metals for commercial purposes, have imported a valuable electric dynamo from England upon which no duty was charged. The tariff levies a duty of 35 per cent. upon such articles, but it seems the importers had some sort of a pull with the Government by which they got their dynamo in duty free. There are quite a number of concerns in Canada well prepared to manufacture such things, and it is rather rough on them, who pay duty on much of their materials, to be handicapped by such favoritism on the part of the Government. An explanation from Mr. Wallace is in order.

THE wonderful growth of electric street railway mileage appears in the statistics showing the number of miles of all kinds of street car lines in operation in the United States at the close of 1892. The electric lines total 5,939 miles; horse, 4,460 miles; cable, 646 miles; steam, 620 miles—the electric mileage exceeding the total of all other railways. Between

Oct. 1, 1891, and Oct. 1, 1892, the mileage of electric railways in the United States increased from 3,916 to 5,446, or 1,530 miles. In the last three months of 1892 the increase was 493 miles, or at the rate of 1,972 miles a year.

By a new combination of the telegraph, telephone and typewriter, the cost of telegraphy is to be reduced one-third and the messenger boy done away with permanently. To the average business man there should be a good deal of comfort in the thought that two such priceless boons, so long considered entirely without the pale of possibility, are at last to be made a part of the work-a-day world.—*Farm Machinery.*

We note the carefulness with which our St. Louis contemporary rejoices at the prospect of the elimination of the messenger boy from business offices, and also its avoidance of the possibility, or even desirability, of a like elimination of the typewriter. No doubt "Eli" finds great comfort in the thought that whatever else may occur, dispensing with the "priceless boon" of an attractive typewriter is entirely without the pale of his possibility; and he a grandfather, too.

In recent issues of this journal in discussing the use of cements in public works in Canada, we stated that in certain of these works only Canadian-made cements were used. We are in receipt of a letter from Messrs. W. McNally & Co., Montreal, in which we are informed that they supplied for the St. Clair tunnel thousands of casks of English Portland cement during the whole period covered by the construction of that work; that they supplied thousands of casks of similar cement last season for the work on the Sault Ste. Marie canal; that they now have orders for thousands of casks more for that work for the approaching season, and that it is a fact that English Portland cement was largely used in the construction of the Ontario Parliament buildings. *Fiat justitia ruat cælum.*

"Reform the tariff on protection lines," is one of the many policies springing from a vague perception of fiscal evils without any clear idea of wrongs or remedies. The tariff cannot be reformed on protection lines. Protection is the evil. It gives financial advantages to one class to the injury of all others. And the system can be reformed only by departing from protection lines.—*Toronto Globe.*

To reform the tariff by departing from protection lines would be an undertaking much easier in the suggestion than the performance. To thus reform it would be to adopt either a tariff for revenue only policy, or an absolute free trade policy, which amounts to about the same thing. And this would mean the destruction of nearly every manufacturing industry in the country. Instead of being industrially independent of the world we would become but producers of a few raw materials and agricultural products.

The Supreme Court of New York handed down a decision, a few days ago, which states as law a proposition which seems too self-evident to need special promulgation by such a tribunal. The case was one in which a non-union stationary engineer, who had lost his position through the action of the union, solely because he was not a member of the order, sued the president of the working-men's local assembly for damages. The justice who delivered the opinion said: "The defendants had a perfect right, as we have seen, to unite with this or any

other organization, but they had no right to insist that others should do so, and when they made plaintiff's refusal to join it a pretext for depriving him of his right to labor, they interfered with his personal liberty in a manner and to an extent the law will not countenance, and their action, instead of affording a protection to, operates as a restraint upon honest labor."

It is stated that the Richelieu and Ontario Navigation Company propose registering in Canada their new vessel, the *Carolina*, just purchased in Baltimore. The company claim they will not have to pay duty. There has been no change in the law to warrant this course, and the company has no alternative but to register in Newfoundland in order to avoid paying duty, as they did with the *Columbia* purchased last year. The question of amending the customs law so as to enable vessels bought outside the Dominion to be registered in Canada duty free, will doubtless be brought to the attention of Parliament next session, when the Government's tariff reform measure comes down. If any such law is passed it would mean the closing down of Canadian shipyards, and the transference of the Canadian ship-building industry to American lake ports. Cleveland, Buffalo, Detroit and Bay City would at once enlarge their ship building facilities so as to supply the Canadian demand.

A Toronto trade journal that might be expected to sometimes know something of which it speaks, offering an illustration of the work being done by the Toronto Advancement Association, tells us that the Association reports the receipt of applications for establishing industries in Toronto not already in operation here, such as tinware, iron foundries, willow ware, etc.; and suggests that an oil cake and linseed oil mill would also pay well. Of course, any parties who may desire to invest in such industries would be well received and generously treated; but it should be well understood that we already have large establishments in Toronto for the manufacture of tinware, one of them being probably the largest in Canada: that we have perhaps a dozen or more iron foundries where all classes of cast iron work are produced; that the largest willow ware factory in Canada is in Toronto; and that we also have a linseed oil mill. In discussing such questions some knowledge of the situation is desirable.

MR. STAIRS, M.P., President of the Consumers' Cordage Company, is in favor of the abolition of specific duties. If all the ideas in favor of improving the tariff, which are floating through the minds of the Tory members, could be added together and crowded into the cabinet, they would make, considering their source, a fair measure of tariff reform. Specific duties enable the ministry to conceal a policy of discrimination against the buyers of cheap goods.—*Toronto Globe.*

Mr. Stairs, M.P., is not only an officer of the Consumers' Cordage Company, but he is also an officer of a sugar refining company which is included in the Canadian sugar combine, which combine has sufficient "pull" with the Government at Ottawa to maintain a specific duty of \$16 per ton upon all imported sugar above No. 14 Dutch standard. Now, if Mr. Stairs is so much in favor of the abolition of specific duties, let him give an exhibition of his soul-consuming desire by ad-

vocating the reduction of the duty on refined sugar to the American standard, and to put raw sugar of No. 10 standard on the free list.

THE Canadian Parliament wisely refused to pay any attention to the scheme for a canal in Canadian territory between Lakes St. Clair and Erie, which would entail an enormous expense and at the best would simply parallel the present St. Clair and Detroit river route, the gain being only fifty-seven miles. Whatever may be the question regarding Canada's claims to channels in the St. Clair and Detroit rivers, her rights are fully protected by treaties, and the people of the United States are just broad-minded enough to rejoice in seeing the Dominion apply any spare money it may have to completing the work so long delayed on the St. Lawrence.—*Cleveland Marine Review.*

Canada's rights in the St. Clair and Detroit rivers fully protected by treaties, indeed. The United States Government pay no more attention to the "rights" conferred by treaties affecting the use of those waterways than they do the blowing of the south wind, whenever it suits them to ignore them. The Canadian Parliament made a mistake when it declined to consider a scheme for a canal through our own territory, which would have retired Detroit to the position of an interior town.

There is a good deal of a legislative pandemonium going on in the country, and it is simply astonishing to learn how devoid of common sense is the average legislator. It would seem as though a community would naturally send its best men to the halls of Legislature, but either the reverse is the case or else the fellows are demagogues of the dishonest type. For instance, Missouri has introduced a resolution asking Congress to fix the price of binding twine; two States have passed laws forbidding the stipulation in contracts that gold shall be paid; and several have tried the scheme of arranging the tariffs on railways. Perhaps Missouri does not know that you cannot make a man sell his goods for so much, although even New York is in the same boat, in trying to fix the price of coal. In fact, this is demagoguism pure and simple. Again, those States which are fighting for silver will learn that such a law as they have passed will only end in the withdrawal of capital from their States, as Europe is doing now from the whole country. Then the true way to fight railways is to induce more railways to come with you, and it cannot be done by crushing those you have. The Western communities are going at this thing left-handed, and will be many years further off in the solution of the question a year hence than when they began.—*New York Hardware.*

In discussing the question of the inferior quality of some of the rolled iron made in Canada, we stated in a recent issue as follows:

Regarding the rolled iron made in Canada, we know that for the more important uses to which such iron is put the home made article is not utilized. The makers of it cannot claim that it is equal to similar iron made of muck or puddled iron; and no railroads in Canada, when having bridges built, but what specify for a quality of iron which Canadian mills do not make.

The *Hamilton Spectator* does not approve of our criticisms re rolled iron, chiefly because a Hamilton concern is operating rolling mills, and because THE CANADIAN MANUFACTURER is published in Toronto. But it seems to lose sight of the fact that one of the mills of the Hamilton concern is located almost within the bounds of this city. As a further answer to what

we have said it goes into ancient history and quotes quite extensively from scientific authorities as to what constitutes puddled rolled iron. But it fails to inform us that railroads in Canada, when having bridges built, specify for a quality of iron which Canadian mills do not produce.

THE McKinley Bill, the culmination of protection, has been rewarded by a greater decrease in American exports than was recorded under the previous tariff. Of course this was a natural result of the restriction of imports, but a part of the protection creed is that a restraint on imports does not restrict exporting. They who could not learn by reason have learned by experience.—*Toronto Globe.*

Here's richness. The *Globe* does or should know that the production of such goods as are usually exported from the United States was not decreased in consequence of the McKinley tariff. The exports of them may have decreased, but not the production. If the exports decreased and the production continued, it is evident they were consumed at home. Who consumed them? Others than the producers, of course. Who were they? They were those who, instead of being producers of exportable goods were consumers of them—those employed in manufacturing articles the production of which was made possible by the operation of the McKinley tariff. What had been exportable products were consumed at home—in the home market. The home demand was more valuable than the foreign demand, or else the goods would have been exported. See?

THE development of the manufacture of iron and steel in the Southern States is the subject of a bulletin lately issued by the United States Census Bureau. In the decade ending with 1890 this industry made much advancement. In the blast furnace business capital increased nearly 96 per cent., and production increased more than 423 per cent. In rolling mills and steel works the capital increased 50 per cent., and the production nearly 78 per cent. The earnings of laborers in the industry increased in the same period about 34 per cent. The increase of tonnage in the rolling mills was confined wholly to steel products. The exact figures representing the development are as follows:—

	1880.	1890.
Blast furnaces.		
Capital.....	\$18,964,207	\$33,207,370
Production, net tons.....	350,436	1,834,586
Rolling mills and steel works.		
Capital.....	\$11,665,260	\$17,528,098
Production, net tons.....	290,324	515,775
Wages in whole industry.....	\$6,261,334	7,628,343
Per capita wages.....	304.02	408.19

In 1824 the great American statesman, Daniel Webster, of Massachusetts, in a speech delivered in the House of Representatives, endeavored to illustrate the folly of protection by bestowing ridicule upon the attempts then making in France to manufacture sugar from beets. He declared that it would be as reasonable to try to extract sunbeams from cucumbers as to endeavor to obtain sugar from "a common kitchen vegetable." To-day nearly two-thirds of the sugar supply of the world is obtained from beets, and the manufacture of beet-sugar has put down the price of all-sugar to a figure which would have astonished Mr. Webster and his contemporaries. This splendid result was secured through a

system of protection and bounty-giving of precisely the kind that our modern free traders so fiercely denounce; and it is one of the most striking examples that can be found anywhere of the value of the application to a new industry of what our free traders call an artificial stimulus.

THE Ontario Government having gone extensively into the manufacture of binder twine in Central Prison, Toronto, using convict labor, the Dominion Government, not to be outdone in this noble endeavor to deprive free labor of an opportunity to earn an honest living, have determined to start a binder twine factory at Kingston Penitentiary, also using convict labor. At the last annual meeting of the Canadian Manufacturers' Association the following resolution re convict labor, moved by Mr. A. E. Kemp, and seconded by Mr. Robert Watson, was unanimously carried:

Whereas, according to the ethics of protection and of the National Policy, while it is the duty of the Government of Canada and of the different Provinces to always legislate in favor of domestic interests and of home industries, it is also, and always, the duty of these Governments to refrain from enacting any legislation which will in any manner injuriously affect any of these interests. And whereas free Canadian labor, especially when employed in manufacturing industries, is injuriously affected when brought into competition with convict labor; therefore, resolved that this Association deprecate, and protests against the employment of convict labor in any manufacturing industry where the product of the labor is brought into competition in the open market with the product of free labor.

In recent articles in these pages we intimated that certain rolling mills in Ontario did not produce a really first-class iron; that the proprietors were enjoying a very soft snap, and that it would be in the interest of the country to have the duty on wrought scrap advanced. Our argument was that with an absolute monopoly of the business, and the low rate of duty of only two dollars per ton on scrap, the rolling mill men would never improve the quality of their products. If what we have said in this matter were erroneous, no doubt it would have been contradicted by the *Hamilton Spectator*, showing wherein we were wrong; but it is an evidence of our correctness when that journal declines argument and resorts to utterances that present it in a most ridiculous light. What the Toronto city authorities may or may not have done in the matter of purchasing or declining to purchase water pipe from a Hamilton manufacturer, has nothing whatever to do with the question whether the Ontario Rolling Mill Company make a really first-class rolled iron. If the *Spectator* desires to discuss the question from a Billingsgate standpoint, we decline to participate. If it desires to discuss it on facts, we are prepared to enter the contest. Now let the *Spectator* jump into the arena.

THE Standard Oil Company have been awarded a contract to supply all the fuel to be used in generating steam at the World's Fair, at Chicago, it having been determined that no other fuel shall be used. Receiving tanks will be erected in the grounds into which the supply will be delivered from the oil company's station near Chicago. Eight tanks, with a total storage capacity of over 112,000 gallons of oil, will be erected.

The fuel will be pumped from these tanks to the boilers from stations where the necessary apparatus will be placed for its proper distribution and the maintenance of a uniform pressure. The arrangement for feeding these boilers is an especially ingenious one, the delivery of oil being automatically controlled in unison with the requirements. Thus, if the demand on the boiler line is 5,000 horse power per hour, the machinery in the pumping station automatically arranges itself to deliver only the requisite quantity of oil, while the starting up of additional boilers, creating a demand for increased power, will be quickly indicated at the pumping station and automatically responded to by increased speed and pressure in the machinery, and an increased flow of oil. The burners under the boilers are connected with a pressure gauge on the boiler, so that any rise or fall of pressure will open and close the burner.

SOME days ago the Toronto morning papers gave a list of additional subscribers to the fund for the erection of a monument of Sir John Macdonald in this city; and stated that the sub-committee, to whom was entrusted the ordering of the commencement of the work by Mr. Hamilton McCarthy, had given the necessary instructions to him. From this it might be supposed that arrangements had been perfected with Mr. McCarthy for prosecuting the work. It was announced as long ago as last October, we believe, that the model submitted by Mr. McCarthy had been accepted, and that the financial terms of the transaction had been agreed upon with him. But still, if we are correctly informed, the committee having this matter in charge have not yet come to an understanding with the artist which will admit of the work being proceeded with. If the arrangements had been perfected last October, as announced, it would have been possible to have had the monument ready for unveiling on the approaching Queen's birthday; but, owing to some unfortunate hitch, no work is being done upon the statue, and no site has yet been selected. This is very much to be regretted. If the monument is to be erected the work should be proceeded with, for the delay is not caused by lack of money. If it is not to be erected the money should be returned to the subscribers.

THE *London Advertiser* has made the astonishing discovery that the soap used in the House of Parliament is not made in Canada—"every cake used is made in Chicago!" Well, what would the *Advertiser* have? Would it have the Government put money into the pockets of Canadian soap kings by buying Canadian soap, when it can put money into the Dominion treasury, and reduce the taxes of the people, by buying Chicago soap?—*Hamilton Spectator*.

If it is really a fact that whoever is the purchaser of the supplies for the Parliament ignores the soaps made in Canada, giving the preference for a foreign product, that person should be dismissed from his position, unless he is endorsed in what he does by higher authority. The facetiousness of the *Spectator* is overpowering. We have an impression that the servants in the employ of the Government at Ottawa are, many of them, dudes, who entertain the idea that nothing made in Canada is good enough for them, especially if their requirements are supplied by the Government; and that some of the members are of similar description; but it is unfair to those whom the *Spectator* calls "Canadian soap kings," that in the purchase of

soap the products of foreign soap kings should be given the preference. But who ever hears of members, who are always loud in their professions of loyalty to the National Policy, standing up in their places and demanding that Canadian-made goods, when of equal value, should always be given preference above those manufactured elsewhere. They don't do it.

It is announced that as the result of the establishment in Manitoba of one or two barb wire factories, the manufacturers of barb wire in Ontario and Quebec have decided to in future pay the freight on all such goods sold to dealers in Manitoba. Heretofore the manufacturers have paid the freight on all shipments made to points in Ontario and Quebec, but not to points in Manitoba and the North-West. This is one of the benefits the country receives from the National Policy. If there had been no National Policy there would have been no barb wire factories in Canada, and the consumers of the article would have had to depend upon obtaining their supplies from the United States. Under the National Policy factories have sprung up in different places in Ontario and Quebec; and the rivalry between these has been so great that the manufacturers were glad to sell their goods delivered at competing points throughout these Provinces at same prices as at factories. Manitoba, observing the benefits to be derived from the existence of barb-wire factories, has established one or more such works at Winnipeg, and now the competition is such that Ontario and Quebec manufacturers are glad to extend as favorable rates to dealers in the West as to those nearer points of production. In other words, the farmers of Manitoba and the North-West can now buy barb wire as cheaply as can the farmers of Ontario and Quebec. This would have been impossible without the stimulus to the business imparted to it by the National Policy.

In the House of Commons, during the late session, the Finance Minister, in reply to a question asked him for certain statistical information regarding certain Canadian industries, made the following statement:—

Capital invested in cotton industries.....	\$13,208,121
Divided—(a) land.....	\$376,980
(b) building.....	2,884,348
(c) machinery, etc.....	6,468,719
(d) working capital.....	3,478,074
	\$13,208,121
Number of hands employed.....	8,502
Amount of wages paid.....	\$2,102,603
Capital invested in woolen industries.....	9,365,158
Divided—(a) land.....	\$637,450
(b) buildings.....	1,532,077
(c) machinery, etc.....	3,088,683
(d) working capital.....	4,106,948
	\$9,365,158
Number of hands employed.....	7,470
Amount of wages paid.....	\$1,941,483
Foundries and machinery shops, capital invested..	\$14,396,503
Divided—(a) land.....	\$1,714,356
(b) buildings.....	2,427,735
(c) machinery.....	2,613,432
(d) working capital.....	7,640,980
	\$14,396,503
Number of hands employed.....	12,604
Amount of wages paid.....	\$5,122,257
Rolling mills, capital invested.....	1,106,500
Divided—(a) land.....	\$78,500
(b) buildings.....	78,000
(c) machinery and tools.....	265,000
(d) working capital.....	595,000
	\$1,106,500

Number of hands employed.....	831
Amount of wages paid.....	\$335,000
Raw material used.....	575,000
Value of output.....	1,750,000

Up to August 1, 1888, the beet sugar industry in Germany had been promoted by Government by means of large bounties granted on exports of raw and refined sugars, and by heavy import duties on imported foreign sugars. On August 1, 1888, a great deduction of the bounties went into effect, the new rates to continue to August 1, 1892. The present bounty depends a good deal upon the quality of the beets worked and the successful working of the sugar factories. The factories pay a certain tax upon the beets, and on exporting sugar are allowed a stated drawback. The difference between these two forms the bounty. It is estimated that the present bounty accruing to the manufacturer amounts to 2.12 marks per 100 kilograms, equal to, per 100 lbs. of 90° raw sugar, a little under 23 cents. From August 1, 1892, to July 31, 1895, the drawback is reduced to 1.25 marks per 100 kilograms, on raw sugar, not under 90° 13½ cents; refined (loaf, etc.), 99.5° 2.00 marks, 21½ cents; refined, 98° 1.65 marks, 18 cents. From August 1, 1895, to July 31, 1897, the rebates are still further reduced to 11 cents, 19 cents and 15 cents per 100 lbs. After 1897 no bounty will be paid. The success of this industry in Germany has been marvellous. So far from the frequent but gradual reduction of the bounties having checked or retarded the expansion of the industry, there has been a continuous increase. During the season 1891-92, the total quantity of raw sugar produced was 1,144,750 tons, or 200,000 tons more than were made five years previously. This immense industry could never have succeeded except through liberal Government aid for its early experience.

ALREADY there is evidence of Tory trimming toward McCarthyism, as there was toward the "Equal Rights" platform during that spasmodic movement. But by the next election Mr. McCarthy's position on the tariff question will be so widely separated from that of the Manufacturers' Association that even Mr. Coatsworth will not be able to straddle the chasm.—*Toronto Globe*.

If there is nothing more tangible to "Tories" in McCarthyism than what Mr. McCarthy has thus far made apparent, there will be nothing whatever for them to turn to. Mr. McCarthy has not defined any tariff planks in his platform upon which he stands, and of course none towards which "Tories" might trim. If Mr. McCarthy intends inserting any planks in his platform on the tariff question which have any semblance of stability, to be used in the next election, he should have materialized them before this time; but all that he has said is entirely diaphanous and intangible. He has not even suggested any deviation in the character of the tariff planks of his platform from that of the platform occupied by the Manufacturers' Association. We have no knowledge of Mr. Coatsworth's platform, and therefore are unable to tell whether that gentleman will be able or not to straddle any imaginary chasm between Mr. McCarthy and the Association. Who is Mr. Coatsworth, anyway? It is evident he has never put himself in touch with the Manufacturers' Association. But then there are quite a number of politicians

who are always anxious at election time to have the support of the manufacturers, and who, if elected, ignore them until voting time again approaches. McCarthyism and Coatsworthism are but intangible elements in the practical politics of the day.

It is pleasant to talk of taxing foreign goods, and it would be a most profitable operation had we power to perform it. The trouble is that we cannot tax the goods until they have become our own. If we could tax them while they remained foreign there would be truth in the reluctantly abandoned contention that the foreigner paid the duty.—*Toronto Globe*.

The philosophers and political economists of the whole world will stand rebuked when they discover that the *Globe* has propounded this remarkable theory. They will, without doubt, retire to their woodsheds and kick themselves because they had not thought of it before. But there are some people who will not view the question in the *Globe's* light. It seems to forget that to have foreign goods become our property we must first purchase them; and this implies that the foreign manufacturer must be a party to the transaction—to the sale of them. But these goods would be of no value for consumption in Canada until they were imported into the country; and under our system they cannot be imported unless duty is paid on them. The value of the goods in Canada, then, is regulated somewhat by the duty; and, of course, the original transaction between the foreign manufacturer and Canadian buyer is also affected by the prospective duty. If the price demanded by the the foreign manufacturer, plus the duty, is greater than the market value in Canada, of course the transaction does not eventuate. But if the foreign manufacturer, in his desire to sell his goods, abates his price to a point where it is possible for the would be importer to purchase, it is plain that he is the one who pays the duty. The duty, then, stands as a sentinel at our ports of entry to prevent the over-production of foreign manufacturers being slaughtered in our market to the great injury of our home manufacturers.

We have before us a letter from a correspondent at Brussels, Ont., in which he speaks some very plain truths about how some Canadians, who are such only in name and not at heart, insist upon patronizing American manufacturers for such goods as gymnasium supplies, when such goods of equal quality and price can be obtained from Canadian workshops. His idea of a remedy for this condition of things is to institute a reciprocity of tariff as against the United States—that is, to observe the golden rule of doing to them just as they do to us in tariff matters. He thinks it is the duty of our legislators to carry out this idea and thus put a stop to the commercial and moral injury Canada is now suffering. He says that it is sickening to think that our people should be forced to submit to the disadvantages now imposed upon us, and that we should at once endeavor to have reciprocity in tariffs with the United States. We quite agree with our correspondent in denouncing the unnational spirit, prevalent in some quarters, which gives the preference to Yankee products simply because they are such, and rejecting Canadian goods for the same reason. There is a vast and fertile field for missionary work among the heathen of this land who entertain such views. The good book tells us that the hearts of such people are

"desperately wicked," and that they are as prone to such wickedness as the sparks are to fly upward. The kind and appreciative words of our correspondent cheer us greatly in the missionary work we are doing in inculcating a sound national sentiment into the minds of our readers; and we suspect that those who differ with us in our views in this matter do so through ignorance. They must be either sinful beyond the hope of redemption, or unable to read the exhortations and wholesome lessons we serve to them regularly in these pages.

An examination of the reports made by English manufacturing firms in reference to their business during the past year is recommended to those who have held that big profits are made only in the United States. One of our English contemporaries in a recent issue gave the returns made by about 100 establishments engaged in the iron and coal business. A number of these report no dividend, but the profits which in some cases were quite small were applied to reduction of debit balance. The lowest dividend mentioned is 1 per cent. Quite a number of the firms placed on record report large dividends, the largest being 25 per cent. declared by Brown Bayles Steel Works, Sheffield. The Tinsley Rolling Milling Company, of Sheffield, declared a dividend of 20 per cent., as did also the Birmingham Small Arms Company. Henry Briggs, Son & Co., Ltd., of Whitwood Collieries, for the year ending June 30, 1892, declared a dividend of 17½ per cent. The Staveley Coal and Iron Company reports a dividend of 15 per cent., as do Samuel Fox & Co., Deepcar, Sheffield. Quite a number of firms reports 12½ per cent. dividends and a large number declared dividends of 10 per cent. The Wigan Coal and Iron Company declared a dividend of 7 per cent. for the second half of 1891 and a like amount for the first half of 1892. In the entire list given, only three firms report the year's business as a loss. One of the concerns presenting an unfavorable report is the Otis Iron and Steel Company, of Cleveland, O., in which English capital has been invested. The report states that profits were only sufficient on debenture interest and half the interest due on preference shares. The entire showing is a refutation of the oft repeated statement that English iron and steel manufacturers are content with much smaller profits than are made in the same line of business in the United States. It is doubtful whether one iron or steel firm in this country has made 25 per cent. during either 1891 or 1892, on the entire capital invested. No close examination is required to show that capital in free trade England fares just as well, or better, than does capital in the United States under protection, but the same cannot be said of labor in the two countries.—*American Manufacturer*.

The *Empire* publishes lists of the goods imported from Great Britain and the United States with the duties collected, and, pointing to the preponderance of luxuries, claims that farmers and workers are not thereby injured. Farmers and other workers are injured by the duty on the goods not imported—the duty which is added to the price of home products and pocketed by the Canadian manufacturers.—*Toronto Globe*.

It is not a fact that farmers and other workers and consumers generally are injured by the duty on the goods not imported, neither is it a fact that the duty is added to the price of home products and pocketed by the Canadian manufacturers. Take wool blankets for instance. Blankets are an article of prime necessity in Canada; and yet Canadian-made blankets are sold at both wholesale and retail in Canada at as low prices as British-made blankets of equal quality are sold for in Great Britain, although the duty approximates

forty per cent. In fact no merchant imports British blankets for the general trade, simply because he can purchase quite as good blankets made in Canada at as low or lower price as would have to be paid in England. So, too, as regards tweeds and other textiles for both men's and women's wear. Canadian tweeds can be and have been frequently sold at profit in the British market, and, therefore, such goods are not bought in England for the general Canadian trade. Whatever is bought abroad of these lines of textiles is to meet the demand of a class of buyers who think that domestic goods are not good enough for them, and who, therefore, must have imported foreign goods. Therefore, consumers who use such Canadian goods are not charged with the duty, nor do they pay it. The *Globe* knows this to be a fact, and the *Empire*, if it had been aware of the situation, might have shut out the *Globe* from making such a silly assertion.

PRINT it in the newspapers; shout it through the fog horn; letter it upon the fences and rocks; paint on the clouds, and proclaim it from pole to pole that several long-headed, experienced American business men looked at Toronto and Hamilton with a view of establishing smelting works; that they examined Toronto's marsh, tasted her awful water, studied the "To Let" literature in her silent streets, waded through her mud in her streets, and sized up her porcine citizens; and that they then offered to come to Hamilton for less than half the inducement held out by Hogtown! Let the drummer drum; let the hew-gag hew: the clarion clar, the bassoon bass, the cannon can, the rocket rock, and the great gyasticutus gyasticute! Hogtown has been fairly judged by impartial people, and the palm of victory, and, incidentally, the smelting works, have been offered to Hamilton the great—Hamilton of the Mountain and Gore—Hamilton Beautifully Situated on the South Bank of Glorious Hamilton Bay—Hamilton the Peerless—Hamilton, the nearest approach to heaven that this great world affords! Gosh!—*Hamilton Spectator*.

No one doubts that our esteemed contemporary made a frantic effort to be funny and witty in what we have quoted, and that it has made a monumental exhibition of itself. This journal would be very glad indeed to learn that Hamilton was to be the site of an iron and steel industry; and if any effort of ours would help to produce such an event, we would willingly put it forth. The *Spectator* professes to be devoted to a policy which would build up manufacturing industries in Canada, including Hamilton, but excepting Toronto. The reason for its excepting Toronto can be attributed to the vacuity of its intellect. It would much prefer that the smelting works it alludes to should not be established in Canada if the chosen location were to be Toronto. It does not appear that Hamilton is quite certain of obtaining the prize, but the *Spectator's* recherche literary production goes as far as it knows how to go towards disgusting the foreign gentlemen who were desirous of establishing an important industry in Canada. There is an asylum for idiots in this city that can supply more sensible editors than some of those Hamilton is afflicted with.

THE Secretary of the Montreal Board of Trade has received a letter from Hon. Mr. Foster, Minister of Finance, expressing a desire to meet representatives or delegates from the different sections of the Board in order to discuss the state of the country, and receive suggestions regarding the operations of the

tariff. This seems to be the beginning of what the Minister promised during the session of the House of Commons, that during the recess he and other officers of the Government would visit different places throughout the country to learn personally the views of the people regarding the tariff. We do not understand that Mr. Dalton McCarthy will be associated with the Government in this inquiry. Mr. McCarthy seems to be very much in earnest in his desire for tariff reform, but evidently no more so than Mr. Foster and Mr. Bowell. He seems to think that antagonizing the Government is the better way of obtaining expressions from the people on the subject. We do not agree with him in this; and we cannot say that we think the method adopted by Mr. Foster is the better one. We think that a commission should have been appointed, and in the failure of Mr. Foster to demand one, it was an opportunity that Mr. McCarthy should not have lost to do so. If Mr. McCarthy had asked for a commission to do just what Mr. Foster proposed doing no doubt it would have been granted. Such a commission would necessarily have been composed of members of different shades of political opinion, and, being vested with authority to take testimony under oath, whatever facts might have been elicited by the commission would have been much more valuable and reliable than any that can be obtained by the informal plan that Mr. Foster is now about putting into operation. If Mr. McCarthy had asked for this commission the Government could not very well have refused it; and being but a reasonable request, a refusal would have been considered an act of weakness on the part of the Government. If the request had been made and granted, and a commission appointed, the gentlemen of it, entertaining such widely divergent views regarding the tariff as would inevitably have been the case, would have brought out from witnesses every fact necessary in the formation of just conclusions in so important a matter. And herein Mr. McCarthy lost a great opportunity, and not only Mr. McCarthy, but the Opposition also. If, when Mr. Foster was promising to associate the Minister of Trade and Commerce, and the Controllers of Customs and Inland Revenue with him in his peripatetic investigation, Mr. Laurier had asked that the arrangement be amended by the appointment of a commission which would have included ultra-protectionists, if any such there be, moderate protectionists, of which there are plenty, tariff reformers, such as Mr. McCarthy, and free traders, no doubt his views would have been respected. It is to be regretted that this investigation had not been committed to a commission.

MESSES. LEITCH & TURNBULL, elevator manufacturers, Hamilton, Ont., will take Mr. W. G. Leitch into partnership with them. Mr. Leitch has been in the same line of manufacturing, under the name of Leitch & Company.

CANADIAN manufacturers repudiate the dog-in-the-manger policy of the *Empire* in endeavoring to prevent the Ontario Government from granting a bonus on the production of pig iron in this Province simply because it does not wish its political opponents to be credited with having done so wise a thing.

NEARLY 250,000 cars passed through the St. Clair tunnel of the Grand Trunk railway last year, and the business for the current year will probably reach 275,000. The traffic eastward and westward is about equal, 111,193 freight cars having moved east and 110,004 west; the passenger cars numbering 10,768 east and 10,891 west.

WITHIN a six-mile radius of Charing Cross, London, England, there are 270 miles of railway and 255 stations; within a twelve-mile radius, over 400 miles of line and 301 stations. The average number of passengers carried on a week-day by the public conveyances of London, including omnibuses, is 2,500,000. The total for last year was 777,000,000.

NEVER were the United States bonded warehouses so full of imported goods as they are now. At this time the custom house holds the bonds of importers to an aggregate of \$21,699,041. These bonds are given to guarantee the payment of duties on goods held in warehouses. The aggregate is the largest in the history of the New York custom house.

THERE is a strong antipathy in the Australian colonies against the importation of foreign immigrants of the pauper or other objectionable class. "General" Booth's rescued "submerged tenth" of England's population, which he proposed to ship thither, was barred, and now the agitation has turned against the threatened immigration of Russian Jews.

THE total tonnage of vessels launched in Great Britain in 1892 was 1,300,142 tons; about the same as in 1891 and 1890, but 46,000 tons below 1889. Excluding war ships, the merchant tonnage floated was 1,131,816 tons, considerably less than in 1891. A larger proportion of the total is sailing tonnage—22 per cent., as against 15½ per cent. in 1891. As to material, 98 per cent. of the shipping built was of steel. There was a decrease in the proportion of tonnage built for foreign orders, which has been falling off for several years.

UNITED STATES Commercial Agent Washburn, of Magdeburg, Germany, in a report on wages and cost of living in Germany, states that in Prussia, from 1876 to 1888, the average income of 94.4 per cent. of those paying an income tax was not over \$217.53; 41.36 per cent. received only \$99.96. Reckoning three persons to be supported by the latter sum, this means annually for 12,000,000 souls, about seven cents a day, with which to supply all the wants of body and mind. Nor are the statistics for Saxony much more favorable. There 42 per cent. receive \$119 or less, while 78.08 per cent. incomes ranging up to \$226.10.

MR. WILLARD A. SMITH, chief of transportation department of the World's Columbian Exposition, has arranged for an exhibit of what is generally known as the trolley system of transporting freight and passengers. The system consists of a series of cars suspended on overhead wires and propelled by electricity. The exhibit will be operated between the bridge in the central court of the transportation building and the north gallery. Another line to be used for transporting passengers will be erected in connection with the street railway track exhibit, south of the Pennsylvania Railway building.—*The Railway Science*.

IN these days of rapid improvement, it is hard to predict what will come to pass in the field of electrical science, as so many things once pronounced impossible have been made not only possible but invaluable. The field of electric lighting is one but half developed, as far as the methods are concerned. Many of our readers will live to see the day when those useful and ornamental fixtures of every furnished house or office, electric lights, will have been banished forever, and the same will be lighted by a clear white light which pervades every nook and corner as does the daylight. This thing is not only possible but very probable, as the experiments of Nikola Tesla go to prove.—*Practical Electricity*.

CONSUMPTION of certain forms of iron in Ontario, estimated on the basis of two-thirds of the imports as shown by the Trade and Navigation Returns for years ending June 30th:—

	1878.	1883.	1888.	1892.
Pig iron, tons.....	20,000	45,000	33,000	45,000
Steel and iron rails, tons.....	24,700	40,000	27,000	40,000
Bar iron.....	20,000	20,000	9,500	9,500
	64,700	105,000	69,500	94,500

At an average value of only a little over \$25 per ton, the value of these products consumed in Ontario last year amounted to \$2,500,000.

THE suggestion of the *Empire*, that if the Ontario Government were to give a bounty on the production of pig iron in this Province it would be an endorsement of the National Policy, was not prompted by any desire to sustain that policy, or, indeed, in the interest of our manufacturers. It was intended to deter Mr. Mowat from granting the bounty, not because it was not desirable to thus encourage the development of the blast furnace industry in Ontario, but because Mr. Mowat and the Ontario Government are not political bedfellows with the *Empire* and the Dominion Government. We are safe in saying that no manufacturer in Ontario,

or in all Canada, for that matter, but what repudiates the foolishness of the *Empire*.

A NEW carpet loom running two sets of needles has been devised, by which the inventor claims a square yard of carpet material can be produced in one minute. The needles are independent in their operation. The same inventor recently got up a crude contrivance for making mats on the same principle, and a perfect rug or miniature art square was made by it. This machine was of wood and but one set of needles, and consequently one needle carriage was used. The sample rugs, mats and other fabrics woven were beautiful. The texture was firm, and the face, when finished, attractive. Some of the samples were finished so as to be "reversible," while others had an application of cement on the lower side to prevent the "pile" from working out. The specimens were exhibited to experts, and the fact that they were made at the rate of a square yard per minute was sufficient to arouse close and curious inspection.

ST. LOUIS boasts of one of the largest electric central stations in the world. It has nineteen boilers, more than 6,000 horse power of engines and dynamos, and consumes nearly 100 tons of coal per day. The dynamos are located on the third floor of the main building, where no less than seventy-five of these machines may be seen at work in a single room. The switchboard is sixty feet long. The area of the district served from this station is fifty square miles, within which are 2,100 municipal street lamps supplied through 532 miles of wire. There are, besides these, 1,500 commercial lamps, with 240 miles of wire, making an aggregate of 3,600 arc lamps. From the same station an area of thirty square miles is supplied by the alternating system with 20,000 incandescent lamps of sixteen candle power each, some of which are over twelve miles distant. Finally there are twenty miles of wire in the power circuits, to which thus far about 250 horse power of small motors have been attached, working at a potential of 500 volts. All the wires are overhead.—*Engineering Magazine*.

AN interesting paper on the "Cost of Iron Castings" is published in *The Indicator*, by H. J. Shumaker. The following data indicate the scope of the inquiry: The cost of production involves the cost of labor, material, wear and tear of cupola and attachments, repairs and interest on first cost of same. To find the material going in the cupola, more than enough pig scrap and coke was weighed than would be used in the heat, and after the heat the unused material was weighed. The wood was measured. To find the iron coming out, the ladles were weighed as they left the cupola full and as they came back empty. The difference in these weights, plus what stuck to the ladles, and what was spilled and drooled before reaching the scales, gave iron coming out of the spout. The iron stuck to the ladles was found by weighing the crucibles before the heat and again after the heat. The spilled and drooled iron was swept up, riddled and weighed. The iron which remained in the cupola immediately before the bottom was dropped, was, when cool, separated from the slag and ashes by rattling and weighed. The conclusion reached is that the cost of iron castings to the maker is per long ton \$20.62. Short ton \$18.48, less than one cent per pound.—*The Engineer, N. Y. City*.

OF all the mechanical arts, that of molding has been the most difficult to formulate and to reduce to a system. Since the origin of metal founding the molder has been pleased to throw his methods in certain mysteries, which, to him at least, seem essential to perfect castings. It may be said of this trade, more than any other, that the traditions of generations cling to it. Like the good housewife of olden time whose bread was often sweet and delicious and occasionally intolerable, the man of rammer and trowel will alternately score success and failure under apparently the same conditions. He can always tell why his casting is good, but can rarely give a reason when it is bad. There is much that can be accounted for in this; perhaps more that cannot be. In all other industrial branches the senses of touch and sight are always at the command of judgment. In the machine shop contact between the workman and his work is always possible; an error may be detected as soon as made, and corrected at once; there are no final chances upon which the success of the machinist's job depends. With the molder it is different. The conditions which insure bad work and cannot be anticipated, are numerous. There may have been a bar in the "cops" under enough tension to induce a "drop" when the additional "strain" of clamping was put on; the core, with which he had nothing to do beyond setting, may have been made with no reference to free "venting," and a "blow" follows pouring. His troubles do not end here; the molder may have been in a careless mood to the extent of dull iron, and a casting with "cold shuts" is his reward; if his foreman make a wrong estimate on the amount of iron necessary to "pour" his mold, and give him

too little, another loss will be charged to his account. There is much beyond the control of the molder; in the art of metal founding, which tends to make bad castings. His strongest influence upon the quality of his work lies in skill which cannot be verified by caliper, gauge or rule.

The industrial use of the cotton fibre is of far greater importance and of far greater range than is usually supposed; the lint from the seeds of the cotton plant, or the fibres that undergo such a mechanical treatment in the cotton mill, is not the only material that can be carded and twisted into threads that are required for weaving; but it is the very substance that forms an explosive compound when saturated for a moment in a mixture of nitric and sulphuric acid, and dried for a short time in the sunlight. Although the fibres still retain their external appearance, and bring out the markings under the microscope with all the characteristics of a harmless fibre, they now show themselves in transmitting light to be some other structure than what they really are; a chemical change has taken place that furnishes its own draft of air or supply of oxygen, should the picked fibres be set on fire, for there is no gunpowder that will compare with this chemical substance in the rapidity with which it will turn from a fibrous to a gaseous element. It is really *gun cotton*, but stranger still, even this explosive agent can be dissolved in alcohol or ether, when the fibres no longer retain their structure nor leave any trace of their behavior, but form a product known as "collodion," much used by photographers. Even here our poor cotton fibre is not allowed any rest; the gun cotton or the explosive fibrous substance is ground into pulp and mixed in certain proportions with finely comminuted camphor, and when subjected to heat under a powerful pressure forms a product that is a light yellowish brown substance, which can be made either opaque or transparent, carved, turned, sawed, or polished; the explosive qualities completely neutralized, and burns only when in direct contact with a flame. This product is called "celluloid," and is one of the compounds into which the waste from a cotton mill may find its way. Instead of the cotton being woven into a fabric, it is subjected to a chemical process, and leaves a substance that can be spread out into a sheet that is as flexible as linen, that will answer the purpose of hatbands, neckties, and collars, or be left in a state to take the

place of ivory in the mechanical arts, in the form of knife handles, combs, foot rules, piano keys, billiard balls, etc.

A NEW BRITISH COLUMBIA INDUSTRY.

MANY people are probably not aware of the fact that there are a very large number of salmon caught annually which are of no use for canning. Only the red salmon are canned, all the white and pink being rejected simply on account of their color, and prejudice that they are not so good as the red fish, although really their taste is similar. It is impossible to estimate the number that are annually thrown away and wasted. Until this year they have not been utilized in any way, but this summer, Mr. J. Bergoff, of this city, has erected an establishment on the Skeena River, near Port Kootenay, for the curing and salting of the fish rejected by the canners. Mr. Bergoff is no novice in the fish business, and has been engaged in that line in both England and the United States, and was in fact, as he says, born in the fish business, his ancestors before him having been engaged in that line for the last two hundred years.

During the process of preparing the fish they have to be frozen as well as salted, the reason being that they are thus only very mildly salted, and taste almost like fresh salmon. So much so that some gentlemen who tasted the fish would scarcely believe that it was not fresh fish, so mildly are they salted. Salmon preserved in this manner is much to be preferred to the canned fish, and Mr. Bergoff predicts that in a few years this method of curing fish will entirely supersede the present system of canning, as many people are very much prejudiced against canned fish. Mr. Bergoff is now using the white and pink varieties of salmon. It is a curious fact that the white specimens of the fish are salted first and then frozen, and the pink frozen first and then salted. The reason for this is to take the color out of the pink fish so that all may be white. The white salmon look very much like a fish that is caught in the Caspian sea, and is largely eaten in Spain, the only difference being in the head and tail, which are taken off before the fish are cured. Mr. Bergoff expects to have his market for the fish principally in Spain, and when packed in this manner, the fish taste even better

Wants =

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Any subscriber to or advertiser in THE CANADIAN MANUFACTURER who may desire to purchase any sort of machine or machinery; or any sort of mill, factory, workshop, foundry or other supplies; or any materials for manufacturing purposes, and will notify us of his wants, the same will be published in a prominent department of this paper, and his name and address will be furnished to any subscriber or advertiser who may desire to supply the want, for which services no charge whatever will be made.

Stationary and marine engineers with proper certificates, and engineers competent to take charge of electric plants, and first-class machinists and expert electrical workmen desiring situations, are invited to make their wants known in this column. No charge will be made for putting applicants in communication with employers who may desire their services. Our friends are cordially invited to avail themselves of this invitation.

In answering refer to number of want. Address all communications to CANADIAN MANUFACTURER, Toronto.

WANTED—Boss finisher on any kind of men's goods want, situation in woolen mill. References. Address No. 5, CANADIAN MANUFACTURER.

WANTED—Stationary engineer, with second-class certificate, wants situation. References. Address No. 6, CANADIAN MANUFACTURER.

WANTED—Punching Machine—second-hand 16-inch throat, to punch hole $\frac{1}{2}$ -inch diameter, in $\frac{3}{8}$ -inch steel plate. Must be in good working order. Address No. 8, CANADIAN MANUFACTURER.

WANTED—An accomplished Analytical chemist and engineer, familiar with blast furnace work and the manufacture of steel, wants situation. Address No. 9, CANADIAN MANUFACTURER.

WANTED—A Boston manufacturer wants a good machinery house in Canada to represent him in the Dominion. Address No. 10, CANADIAN MANUFACTURER.

WANTED—Situation by stationary engineer with a first-class certificate. Best references. Competent to take charge of electric plant if necessary. Address No. 11, care of CANADIAN MANUFACTURER.

WANTED—Several first-class machinery moulders. Address No. 12, CANADIAN MANUFACTURER.

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WANTED—A first-class open die bolt cutter, to cut bridge bolts from $\frac{1}{2}$ inch up to $1\frac{1}{2}$ inches. Address No. 15, CANADIAN MANUFACTURER.

WANTED—Address of manufacturer making machinery for manufacturing dies, etc., for suspender buckles. Address No. 16, CANADIAN MANUFACTURER.

WANTED—Competent man to act as agent or solicitor for sale of device for increasing capacity of steam boilers, and effecting great economy in fuel. Must be acquainted with use of steam. Address No. 17, CANADIAN MANUFACTURER.

WANTED—A second-hand Patrick cloth press. State particulars. Address No. 18, CANADIAN MANUFACTURER.

WANTED—Second-hand pony planer, to plane 12 to 16 inches wide; also shaping machine—must be in good running order. Address No. 19, CANADIAN MANUFACTURER.

WANTED—Good machinists for fine turning and fitting. Address No. 20, CANADIAN MANUFACTURER.

than those caught in the Caspian sea. The fish when cured are first wrapped in paper and then packed in wooden boxes lined with tin, the boxes being hermetically sealed, and thus they can be kept good for a length of time. About one thousand pounds of salmon are packed in each box.

The refrigerating plant was erected by the Vulcan Iron Works of San Francisco, and has proved a great success, as a much lower temperature than the contract called for was obtained, and it is capable of freezing fish solid in six hours. As an illustration of what can be accomplished by artificial refrigeration, when scientifically applied, a gentleman who was examining the plant while in operation had his ears frost-bitten through remaining too long in the freezing room, and it was some days before he recovered from the effects.

Although operations were not commenced until rather late this year, Mr. Bergoff expects to have a very fair pack. He went up to the Skeena on the last trip of the Ialander, and then they had about twenty cases of fish put up, and were packing them at the rate of about a carload a day. Next season, however, he intends to enter into the business on an extended scale, and has purchased 160 acres

of land near the Balmoral cannery on the Skeena river. A contract for the erection of the necessary buildings has been let, and the contract for the plant and machinery will be let shortly. This new factory will be of the capacity of 5,000 tons, so that if the run of fish is large they will be prepared to pack a large number. The machinery will be run with either steam or water power, and the advantage of this site over Port Essington is that there is plenty of fresh water. Mr. Bergoff will also erect a general store there. This season he has been purchasing the fish from the various canneries, but next season he will himself apply for twenty licenses. He has not yet decided whether he will also erect a cannery for putting up the red salmon, or whether he will sell them to the other canneries.

Vancouver, on account of her numerous facilities, will probably be the chief shipping point, so that this new industry will bring more business here. Mr. Bergoff is also entering into negotiations for erecting a similar factory on the Fraser River. Next season he intends to introduce his fish into all the markets, and if it is well received, this method of fish curing will become one of the leading industries of the province.—*Vancouver, B. C., News-Advertiser.*

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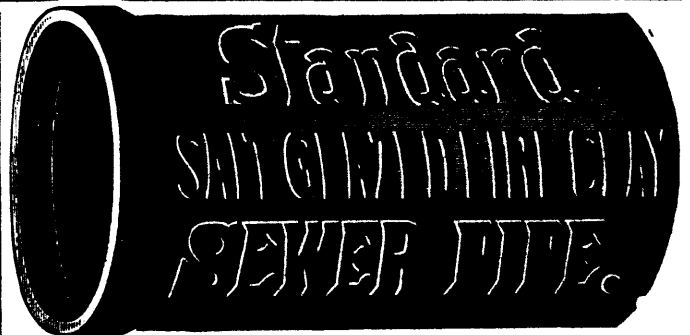
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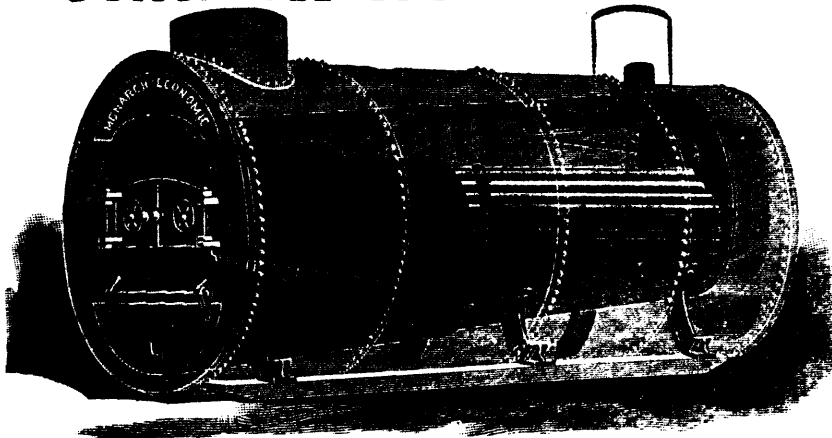
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Inventions.

CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office from March 9 to March 29, 1893, 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.

MECHANICAL.

- 42,211 Gear cutting machine, J. Sherman, March 9th.
 42,213 Car wheel, W. J. Parmelee, March 9th.
 42,214 Connecting the dash-board to the body of a buggy or other vehicle, E. Everett, March 9th.
 42,215 Tunnelling and mining under water, A. W. Palmer and H. Hinds, March 9th.
 42,216 Combined commode and household receptacle, C. H. D. Sincennes, March 9th.
 42,217 Vehicle pole, W. L. Pike, March 9th.
 42,218 Automatic safety stop for engine governor, J. Barclay, March 9th.
 42,220 Safety car, J. A. Beaumont, March 9th.
 42,221 Automatic fire extinguisher, R. W. Newton, March 9th.
 42,222 Molding pulp, M. I. Deering, March 9th.
 42,223 Road cart, W. McClung, March 9th.
 42,224 Aerial machine, S. B. Battay, March 9th.
 42,225 Combination qualifying chamber for upright pianos, J. B. Mitchell, March 9th.
 42,228 Mangle, M. E. Wendell, March 10th.
 42,229 Seat for vehicle, W. Hodge, March 10th.
 42,230 Potato planter, S. Essex, March 10th.
 42,231 Farm gate, C. Devlin, March 10th.
 42,232 Fire escape, W. W. Towne, March 10th.
 42,233 Soles for boots, shoes, etc., F. Ephraim, March 10th.
 42,235 Spring back for vehicle seat, R. Torrance, March 10th.

- 42,236 Harvesting, threshing and farming grain, W. J. Conroy, March 10th.
 42,237 Spinning tops, T. Bedard and N. Vermette, March 10th.
 42,238 Mangle, T. S. Wiles and M. E. Wendell, March 10th.
 42,239 Washing machine, W. Semmens, March 10th.
 42,240 Street gully, L. Skaife, March 10th.
 42,241 Holding up the shafts or poles of carriages and sleighs, E. Miller, March 10th.
 42,242 Roof and floor covering, R. A. Chesebrough, March 10th.
 42,373 Bicycle, C. T. Howell and W. C. Ashdown, March 22nd.
 42,374 Horse shoe, O. McQuillen and W. A. Verner, March 22nd.
 42,375 Cutting off fish heads for salmon canneries, F. J. Cosens, March 22nd.
 42,376 Journal bearing, M. A. Andrews, March 22nd.
 42,377 Post-hole digger, R. Budd, March 22nd.
 42,378 Auto-caloric branding tool, J. S. Fitzmaurice, March 22nd.
 42,379 Fence making, J. E. Hoag, March 22nd.
 42,380 Mixing mortar, gravel, sand, cement, etc., G. P. Brown, March 22nd.
 42,381 Bearings whereby they are automatically lubricated and an alarm is given on their becoming overheated, A. E. Tavernier and C. M. Martin, March 22nd.
 42,382 Sewing machine, J. Boppel, March 22nd.
 42,383 Oyster cooker, A. J. Doty, March 22nd.
 42,384 Time stamp, F. H. Symonds and A. B. Garner, March 22nd.
 42,386 Lubricator, J. D. Fitzgerald and W. E. Dortch, March 23rd.
 42,387 Carving machine, W. C. Laver, et al, March 23rd.
 42,388 Motor for driving pump, The Henderson-Maddock Motor Co., March 23rd.
 42,389 Car coupler, J. Brown, et al, March 23rd.
 42,390 Welt sewing machine, W. Y. Ober, March 23rd.
 42,391 Tobacco pipe, F. Edler, March 23rd.
 42,392 Affixing unmanufactured asbestos, F. W. Jaqui, jr., March 23rd.
 42,393 Artificial fuel, M. Nirdlinger, March 23rd.
 42,395 Bevelling plate glass, E. Hill, March 23rd.
 42,396 Fastening device, M. Friaen, March 23rd.

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- 42,397 Boiler or steam generator, G. D. Mosher, March 23rd.
- 42,398 Coffin, C. Gooding, March 23rd.
- 42,399 Carriage and similar window, H. Wahls, March 23rd.
- 42,400 Type justifying machine, J. L. McMillan, March 24th.
- 42,401 Holder for sliding sash window, C. H. Richter, March 24th.
- 42,402 Banjo, H. C. Middlebrooke, March 24th.
- 42,403 Diary or book, F. E. Meeker, jr., March 24th.
- 42,404 Bicycle, F. M. and J. E. Goodhue, March 24th.
- 42,406 Supporting and driving rotary screens and the like, The Firm of R. L. F. Strathy & Company, March 24th.
- 42,407 Furniture custar, The James Smart Mfg. Co. (Ltd.), March 24th.
- 42,408 Car coupling, F. A. Fox, March 24th.
- 42,409 Automatic gas lighter and extinguishing device, A. Snoeck, March 24th.
- 42,411 Mraising machine, A. A. Barthelines, March 24th.
- 42,412 Hay saver, T. Doolan, March 24th.
- 42,413 Cattle guard, F. C. Seymour, March 24th.
- 42,414 Bicycle, H. Cuttor, March 24th.
- 42,415 Automatic car brake, E. Farnsworth, March 24th.
- 42,416 Mechanical feeding device, A. Conkling, March 24th.
- 42,417 Trolley apparatus, H. J. Welch, March 24th.
- 42,418 Making rubber stamps from type and casts, W. F. Barnes, March 27th.
- 42,419 Receiving mail matter, milk, parcels and kindred articles, F. R. Robson, March 27th.
- 42,420 Coin-freed mechanism, J. T. Calland, March 27th.
- 42,421 Perpetual calendar, G. Dreyfus, March 27th.
- 42,422 Scissor sharpener, C. H. Russell, March 27th.
- 42,423 Metal railway surface cattle guard, The Consolidated Railway Equipment Co., of Toronto, March 27th.

- 42,424 Veneer, L. A. Morrison, March 27th.
- 42,425 Heel stiffener forming machine, L. Cote, March 27th.
- 42,426 Nut-lock, D. Rice, et al, March 27th.
- 42,427 Hop and grapevine trellis, J. Tweddle, March 27th.
- 42,428 Starting gear for high speed rotary machine, J. Head and H. O. Webber, March 27th.
- 42,430 Setting device for saw mill carriage, J. N. Dodd, March 27th.
- 42,431 Car coupling, E. R. Trammel, March 28th.
- 42,432 Fibre preparing machine, J. L. Acosta, March 28th.
- 42,433 Sling carrier, S. G. Emerson and W. F. Campbell, March 28th.
- 42,434 Draw gear for railway car, T. A. Bissoll, March 28th.
- 42,435 Washing machine, L. Grondahl, March 28th.
- 42,436 Egg case, or other package fastener, C. B. Murley and J. A. Ritchie, March 28th.
- 42,437 Cash carrier, N. and N. E. Dillenbeck, March 28th.
- 42,438 Cattle guard, J. J. Callaghan and A. R. Horn, March 28th.
- 42,439 Shaft tug, J. Grammer, March 28th.
- 42,440 Snap and buckle, D. W. Simmons, March 28th.
- 42,442 Sidewalk, H. Brimson, et al, March 28th.
- 42,443 Lath, M. Brown, et al, March 29th.
- 42,444 Nut, The National Elastic Nut Co., March 29th.
- 42,445 Pump, The Cleveland Faucet Co., March 29th.
- 42,446 Friction clutch, the Wm. Hamilton Mfg. Co., March 29th.
- 42,447 Self-closing gas burner, E. Spear and E. F. Augell, March 29th.
- 42,448 Thermostat, E. C. C. Krough, et al, March 29th.
- 42,449 Attachment for spinning spindles, L. W. Huyck and E. Allan, March 29th.
- 42,450 Sash balance, J. McArthur, March 29th.

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 42,244 Steam engine for ship steering, D. M. Maxon, March 10th.
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 42,246 Steam generator, W. C. Higgins, March 10th.
 42,247 Two wheeled vehicle, J. F. Barrows, March 10th.
 42,248 Sulky plow, W. Sobey, March 10th.
 42,250 Filter, J. A. Bowden, March 10th.
 42,251 Damper, A. C. Matthews, March 11th.
 42,252 Desk for type writers, F. Velter, March 11th.
 42,253 Elevated tank for storage of liquids, J. Galt, March 11th.
 42,254 Car coupler, F. D. Broga, March 11th.
 42,255 Combined whip lock and socket, H. J. Saxton, March 11th.
 42,256 Paper holder, L. Elias, March 11th.
 42,257 Cartridge, M. F. Walker, March 11th.
 42,258 Swinging basin support, W. B. Malcolm, March 11th.
 42,259 Setting tire, I. Lehman, March 12th.
 42,260 Combined twister and shuttle spooler, W. Houghton, March 11th.
 42,261 Curtain rod, Pullman's Palace Car Co., March 11th.
 42,262 Curtain rod, Pullman's Palace Car Co., March 11th.
 42,264 House moving truck, A. G. Kent, and J. H. Fisher, March 11th.
 42,265 Cow milking, J. D. Frederiksen, March 11th.
 42,266 Air compressing pump, Gonett Air Brake Co., March 11th.
 42,267 Spring pillow, M. Lary, March 11th.
 42,268 Pump, The National Vacuum Drying and Air Distilling Co., March 11th.
 42,269 Supply station for car heating system, Consolidated Car Heating Co., March 11th.
 42,270 Road cart, J. Scouler and J. Mason, March 13th.
 42,271 Boots and shoes, Boston Footwear Machine Co., March 13th.
 42,272 Cutting head, N. B. and A. E. Huther, March 13th.
 42,278 Cultivator, G. B. Davison and E. Norris, March 13th.
 42,275 Flax harvester, W. Morrow, March 13th.
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 42,278 Photographic camera, D. J. Tapley, March 13th.
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 42,288 Car coupling, W. Toms, et al, March 14th.
 42,289 Safety attachment for cars, R. J. Spearing, et al, March 14th.
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 42,291 Car coupling, C. H. Carpenter, March 14th.

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- 42,297 Propelling boats, etc., T. D. Clapham, March 14th.
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- 42,299 Milk can lid, W. A. Clark, March 14th.
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- 42,302 Surface cattle guard, G. W. Miller, March 16th.
- 42,303 Making compound metal tubes, G. W. Everson, March 16th.
- 42,304 Heel nailing machine, H. A. Webster, March 16th.
- 42,305 Automatically regulating temperature in ships, buildings rooms, etc., A. Shiels, March 16th.
- 42,306 Wire stretcher, J. S. Richardson, March 16th.
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- 42,308 Washing machine, L. J. Wilson, March 16th.
- 42,309 Harvester elevator, M. Kane, March 16th.
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- 42,313 Cash registering and indicating machine, The Boston Cash Register Co., March 16th.
- 42,314 Steam engine, J. M. Powell and A. Duman, March 16th.
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- 42,323 Flooring and other lumber, F. J. Feldmann, March 18th.
- 42,324 Ougon, C. S. and W. E. Haskett, March 18th.
- 42,325 Disk harrow, S. W. Woodhau, March 18th.
- 42,326 Oiler for axle and wheel, H. Clouston, March 18th.
- 42,328 Bidet or hip bath, R. Gosden, March 18th.
- 42,329 Measuring and indicating a series of lengths, F. Boss and S. Weimann, March 18th.
- 42,330 Thill tug, A. C. Marshall, March 18th.
- 42,332 Automatic liquid gauge, G. A. Lewis, March 18th.
- 42,335 Foot rasp, for horses, G. Tompkins, March 18th.
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- 42,341 Churn, R. Z. Curtis, March 20th.
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- 42,343 Horse shoe bending, J. Wiko, et al, March 20th.
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- 42,348 Car coupling, O. Wynn, March 20th.
- 42,349 Thill coupling, W. B. Root, March 20th.
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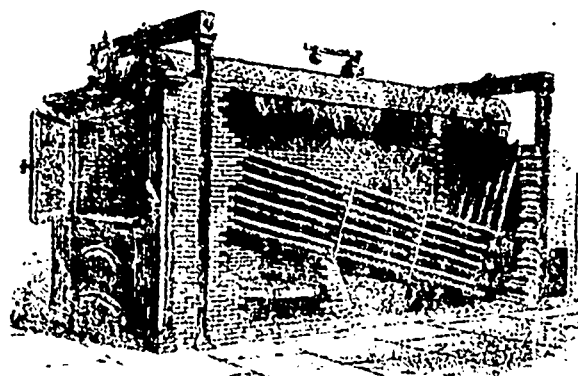
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 42,362 Wrench, T. Fletcher, March 21st.
 42,363 Brush, C. Smith, March 21st.
 42,364 Interlocking apparatus, S. T. Dutton, March 21st.
 42,365 Cash registering and indicating, Borton Cash Register Co., March 21st.
 42,366 Cash registering and indicating, Borton Cash Register Co., March 21st.
 42,367 Jump seat or convertible vehicle, C. H. Stratton, March 21st.
 42,368 Making felt, P. Logrand, March 21st.
 42,369 Safety shoe, R. J. Spearing, March 21st.
 42,370 Tubular pneumatic action for organs, Farrand and Votey Organ Company March 22nd.
 42,371 Seeding machine, Peter Hamilton Manufacturing Company, March 22nd.
 42,372 Saddle for velocipede, C. F. Lavender and T. Fane, March 22nd.
 42,373 Bicycle, C. T. Howell and W. C. Ashdown, March 22nd.
 42,374 Horse shoe, O McQuillon and W. A. Verner, March 22nd.
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- 42,118 Transmitting and receiving sound, H. Rose, March 1st.
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 42,123 Arc lamp, M. A. Sneck and R. W. L. Holsten, March 1st.
 42,125 Self-neutralizing flexible conductor for transmitting motion to movable objects, B. W. Warwick, March 1st.
 42,126 Electric railway system, M. Shoemaker, March 1st.
 42,131 Lightning arrester, W. R. Garton and J. C. Daniels, March 1st.
 42,132 Electrical distribution, E. Thomson, March 1st.
 42,133 Electrical governor, M. A. Replogle, March 1st.
 42,135 Electric arc lamp, W. H. Akester, March 1st.
- 42,136 Signal telegraphy, C. V. Broughton, March 1st.
 42,143 Electrical distribution, E. W. Rice, Jr., March 1st.
 42,156 Electric motor or dynamo electric, R. Lundell and E. H. Johnson, March 4th.
 42,170 Shade holder for attaching shades to incandescent electric lamps, H. A. C. Hellyer, March 4th.
 42,171 Electrical propulsion of cars, A. H. Brintnell, March 4th.
 42,188 Heating and welding by electricity, H. Howard, March 7th.
 42,202 Transmitting power, T. A. Edison, March 9th.
 42,203 Controlling electric lights, A. Secharist, March 9th.
 42,210 Electric light hanger, H. L. Holt, March 9th.
 42,212 Galvanic battery, W. A. Crowder, March 9th.
 42,226 Electrical propulsion of cars, A. H. Brintnell, March 10th.
 42,227 Electrical propulsion of cars, A. H. Brintnell, March 10th.
 42,234 Galvanic battery, W. A. Crowder, March 10th.
 42,249 Phonograph recorder, T. A. Edison, March 10th.
 42,279 Propelling device for electric cars, T. A. Edison, March 13th.
 42,281 Electric lamp hanger, A. G. Ingalls, et al, March 13th.
 42,319 Electric metal heating, Electrical Forging Co., March 16th.
 42,327 Raising and lowering incandescent electric lamps, W. J. Kidd, March 18th.
 42,331 Manufacturing compound and elementary bodies, or chemical products, by means of electricity, H. Niewerth, March 18th.
 42,333 Motor switch, E. W. Rice, jr., March 18th.
 42,334 Electric locomotive, N. C. Bassett, March 18th.
 42,351 Printing telegraph, D. H. Bates and H. Van Hoevenbergh, March 20th.
 42,360 Dynamo electric machine, R. Lundell and E. H. Johnson, March 21st.
 42,361 Electrical transmission of power, H. W. Leonard, March 21st.

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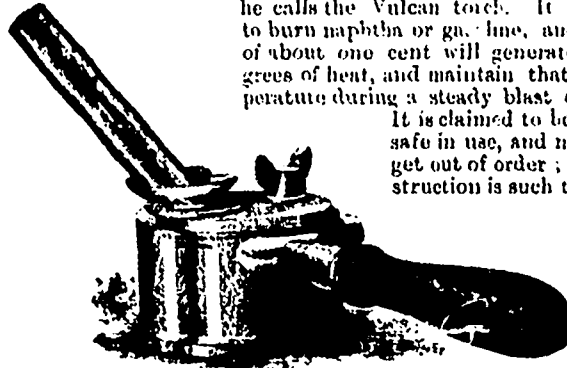
- 42,385 Vacuum core for electrical heating device, The Butterfield-Mitchell Electric Heating Co., March 22nd.
- 42,391 Electric fire alarm, H. Cortland, March 23rd.
- 42,410 Electrical hose signalling apparatus, W. Fowler, March 24th.
- 42,441 Electrical measuring instrument and current direction indicator, J. J. Wood, March 28th.

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- 42,219 Bleaching compound, W. B. Brittingham, March 9th.
- 42,263 Treating sugar mass so as to obtain the entire quantity of crystallizable sugar contained in the same, Hon. G. A. Drummond, March 11th.
- 42,274 Ammonia and gas manufacturing, Henni Process Co., March 13th.
- 42,318 Impregnating beer with carbonic acid, Universal Carbonating Co., March 16th.
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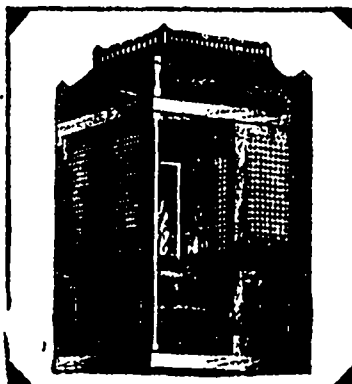
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If you have any Pipes or Boilers uncovered you are losing on same at the rate of 87 cents every year on each square foot of surface exposed. By having them covered with our Mineral Wool Sectional Covering you will save 85 per cent of this loss. The saving thus effected in fuel will in one year more than pay the cost of covering, which we guarantee to last as long as the pipes. Our covering is the best fuel saver on the market.

Canadian Mineral Wool Co., Ltd., 122 Bay Street, TORONTO.



ELEVATORS

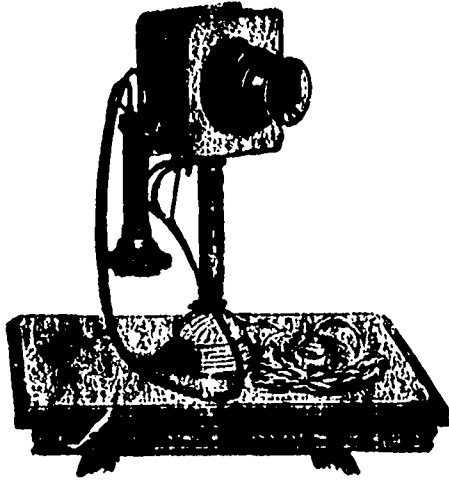
FENSOM ELEVATOR WORKS
52-54-56 DUKE ST
TORONTO.

ELECTRIC HYDRAULIC
STEAM & HAND-POWER
PASSENGER & GOODS
ELEVATORS. DUMB WAITERS

DESK TELEPHONE.

The accompanying illustration is of a portable or desk telephone, manufactured by the John Starr, Son & Co., Halifax, N. S.

A flexible silk covered cord is provided, as shown, by which means the instrument can be moved about at will, thus avoiding the necessity of leaving one's seat to answer a call. The silk cord terminates in a nicely finished wall rosette and connected to binding posts thereon, to which are connected the main line and battery wires. This is screwed to the wall, giving a very neat appearance.



By the addition of a few extra batteries the central office can be called up by merely pressing the push on top of the transmitter box, after which the batteries are automatically cut out of circuit. This, it will be observed, is much more convenient than having to use a magnetic bell.

This desk telephone is but one of quite a variety of styles of telephone manufactured by this company under the name "Unique." The principal advantage claimed in the use of the "Unique" telephone lies in the transmitter, which, we are informed, can never rust or get out of adjustment, and is not affected by sudden changes of temperature, jarring, etc. It has no screw or spring adjustment to work loose, the adjustment being done at the factory; and, unless

wrongfully used, should never need any attention beyond replenishing the battery, which may require it about once a year at the cost of but a few cents.

Another advantage is that the same transmitter is suited for either long or short distances without change of adjustment. These are very strong points in favor of this instrument, as the transmitter is the vital part of a telephone; and with one that does not require a special attention a great saving is made in its maintenance, to say nothing of the convenience and lack of annoyance, which many telephone users will understand.

These telephones are manufactured in five different styles, as follows:

With electric bells, for short distances and inside use; very useful for connecting the different floors in a building, in place of speaking tubes, being much more convenient, and are placed in position without injury to walls and floors. This style is designed especially for use in factories, warehouses, hotels, residences, etc.

Another style, similar to above and adapted to similar service, has a battery box attached, and is more complete. It has a switch board so that the different flats or departments in a building, as desired, may be connected in one system, and, by simply plugging the desired number, communication can at once be procured with the instrument wanted. Only the bell on the instrument with which communication is desired is rung, thus avoiding the necessity of signals and consequent misunderstanding. More than two persons can use the system at one time without interfering with one another. Thus in a system of six instruments numbers one and four, two and six, and three and five can converse at the same time, or when two are talking a third can be rung up and the three converse together. The arrangement for doing this is very simple and exceedingly convenient.

The Standard instrument has extra strong generators with automatic cut-out, in which a special long bar receiver switch is used.

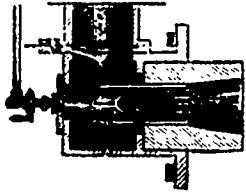
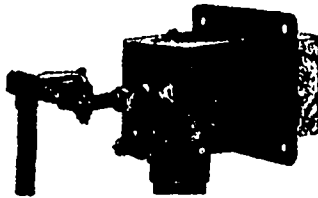
The makers inform us that they are disposing of large numbers of these telephones and equipments, they being in much favour with manufacturers, and in establishments including departments where constant communications must be maintained with office.

For further information address the John Starr, Son & Co., Halifax, N. S.

Hydro - Carbon Burner

For Burring Crude Petroleum Under Low Pressure

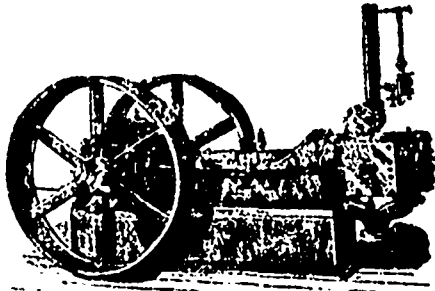
(Meyer's Patent.) Adapted for all kinds of Iron and Steel Forging, Tempering and Welding, Annealing, etc., for Burring Sewer Pipe, Heating Asphalt, Oxidizing Lead, Generating Steam, and an endless variety of special work.



Engineers furnished on application to equip plants with the improved system.

Standard Oil Fuel Burner Co.
FORT PLAIN, NEW YORK

ARMINGTON & SIMS
AUTOMATIC HIGH SPEED ENGINES



Electric Lighting

GENERAL FACTORY PURPOSES

Perfect Regulation and Highest Economy.

STEAM PUMPS
SHAFTING, PULLEYS

General Machinery

NYE & LYNCH, (Write for Prices) HAMILTON, ONT.



THE

"Unique"

TELEPHONES

FOR

Exchange
And . . .
Warehouse
Purposes

Sold Outright
No Exorbitant Royalties



These Telephones have a special advantage over any other in that the transmitter never requires re-adjustment, and has no spring or screw adjustment to work loose. It is also not affected by atmospheric changes, jarring, etc.

Simp'est. Most Efficient. and Reliable Electric Telephone Extant. Manufactured only by

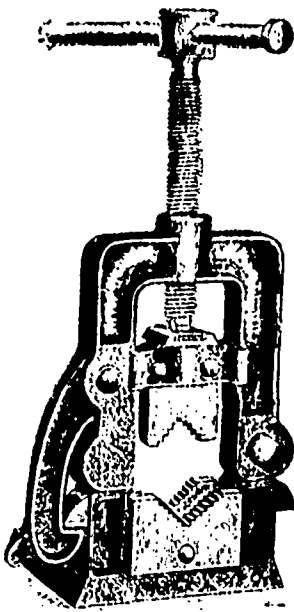
John Starr, Son & Co., Ltd.

Manufacturers and Importers of General Electrical Apparatus and Supplies.

2, 4, and 6 Duke St., Cor. Water. HALIFAX, N.S.

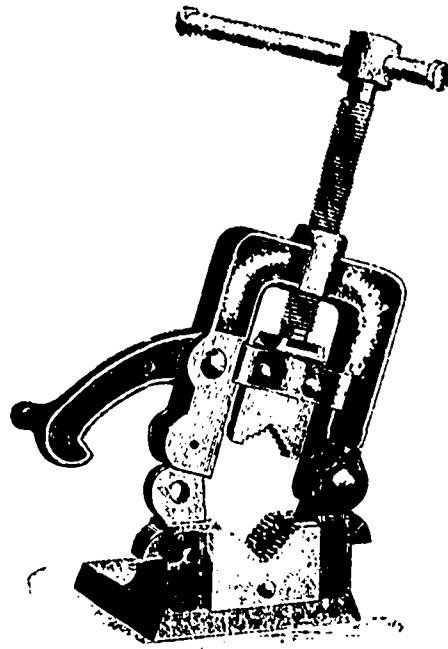
Send for New Illustrated Catalogue and Price List.

IMPROVED HINGED PIPE VISE.



CLOSED.

The accompanying illustrations are of an improved hinged pipe vise, manufactured by Messrs. Watt Bros., Gananoque, Ont. The simplicity of construction and use of this article is so apparent that but very little explanation is necessary. It is made of malleable iron, the jaws being of the best cast steel, milled and carefully hardened. Every vise is interchangeable, so that it can be used either right or left hand, and for the same reason any part that may require to be replaced can be supplied. The screw and handle are of steel; and the capacity is to hold pipe up to two inches diameter.



OPEN.

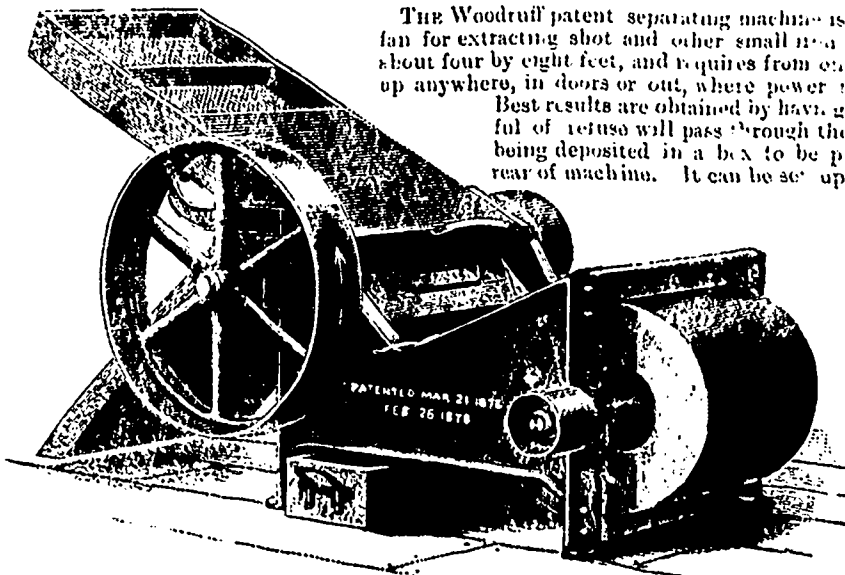
The Aylmer Canning Company, Aylmer, Ont., are putting a steam elevator in their factory.

The Sorel Cotton Company is being incorporated at Sorel, Que., with a capital stock of \$20,000, to manufacture wadding, batting, etc.

The Cowan Cocoa and Chocolate Company, of Toronto, will change its corporate name to The Cowan Cocoa and Chocolate Company, and increase its capital stock from \$25,000 to \$50,000.

The Slingsby Manufacturing Company is being incorporated at Bramford, Ont., with a capital stock of \$175,000, to take over the plant and business of Messrs. Slingsby Bros., that place, and continue the manufacture of blankets, flannels, woollens, etc.

WOODRUFF SEPARATING MACHINE.



The Woodruff patent separating machine is an ingenious combination of vibrating screen and fan for extracting shot and other small iron from foundry refuse. It occupies ground space about four by eight feet, and requires from one and a half to two h.p. to drive it. It can be set up anywhere, in doors or out, where power may be had, preferably near the cinder barrel. Best results are obtained by having openings in cinder barrel $\frac{1}{4}$ or $\frac{3}{8}$ inch. A barrowful of refuse will pass through the separator in three or four minutes, all the iron being deposited in a box to be provided for it, and all other materials thrown to rear of machine. It can be set up and started by any ordinary mechanic. It can

be successfully operated by any laborer who is intelligent enough to slip a belt, use an oil can, and shovel the refuse into the screen or hopper. If a foundry is not equipped with cinder barrel, the saving effected by this machine in connection with such a barrel will pay for both in a short time, in spite of present low price of iron.

The manufacturers have a great many letters commending this machine from malleable iron manufacturers, stove manufacturers, car wheel foundrymen, hardware manufacturers, and general iron founders. The Hamilton Facing Mill Company, Hamilton, Ont., are handling the Canadian business of this machine, and will be pleased to give further information on application.

FOUNDRY FACINGS

Core Compound, Ceylon Plumbago, And Foundry Supplies.

WRITE FOR CATALOGUE AND PRICES.

Hamilton Facing Mill Co., Hamilton, Ont.

PAPER PULLEYS

We carry in stock all weights of Mill Boards for making Paper Pulleys, and for packing purposes, also thin boards for covering pulley faces.

Special attention to letter orders.

CANADA PAPER CO., (Ltd.), 15 Front St. West, Toronto.
578 CRAIG STREET, MONTREAL.

To Let!

FACTORY FLATS

With power to suit.

From two to fifty horse power. Apply.

F. W. BARRETT, 68 Esplanade West, TORONTO, ONT.

ROBIN & SAHLER
MANUFACTURERS OF
Leather Belting
SPECIALTIES
DYNAMO BELTS WATERPROOF BELTING
MONTREAL TORONTO
2518 & 2520 NOTRE DAME ST. 129 BAY ST.

Captains of Industry.

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

MESSRS. LOGAN BROS., Renfrew, Ont., have recently added two more looms to their woolen mill.

MR. W. W. CARTER'S shingle mill at Fesserton, Ont., was destroyed by fire April 14th; loss about \$1,200.

THE Lincoln Paper Mills Company have installed electric light plants in both their paper mills at Merritton, Ont.

THE large flour mill of Messrs. McCahill & Co., at Forest, Ont., was destroyed by fire April 6th; loss about \$25,000.

MESSRS. WM. PARKS, SONS & Co., St. John, N. B., will add two more boilers to the power plant of their cotton mills.

THE large window shade factory of Messrs. McKinley & Co., Toronto, was destroyed by fire April 10th; loss about \$30,000.

THE Eagle Knitting Company, Hamilton, Ont., will increase the capacity of their power plant by the addition of a steam engine and boiler.

MR. MARTIN I. RUSSELL, Renfrew, Ont., is preparing the site for a flour mill to be operated by water power. He is in the market for machinery.

MESSRS. PATTERSON & CORBIN, St. Catharines, Ont., have contracted to build the cars to be used on the Toronto and Scarboro Electric Railway.

THE Glen Roding lumber mill, belonging to Messrs. N. G. & J. McKechnie, near Durham, Ont., was destroyed by fire April 15th; loss about \$5,000.

THE Montreal Stave and Barrel Company has been incorporated

at Montreal with a capital stock of \$12,000, to manufacture barrels, kegs, coopers' stock, etc.

THE Trojan Coupler Company, Montreal, is being incorporated with a capital stock of \$300,000, to manufacture car couplers and other railway equipments.

THE Windsor Furniture Company, Windsor, N. S., have recently increased the power of their steam plant by the addition of a 100 h. p. Monarch Economy boiler.

MR. W. H. PETRIE, machinery dealer, Toronto, has just installed an electric motor in the Bloor Street Methodist church, Toronto, to supply power for operating the organ.

THE William Clendinning & Sons Company is being incorporated at Montreal with a capital stock of \$500,000, to manufacture machinery of all kinds, furniture, agricultural implements, etc.

THE Carey Wire Sewing Process Company of the Dominion of Canada is being incorporated at Montreal with a capital stock of \$250,000, to manufacture the Carey wire process sewing machine, etc.

THE Canadian General Electric Company, Toronto, are equipping the large steamer, now being built at Owen Sound, Ont., by Mr. John Simpson, with an electric plant of the most complete description.

"MILLERS who wish to procure high class mill machinery can find it at John Abell's Engine and Machine Works Toronto," is an inscription occupying a prominent place in the advertising pages of this journal

FIRE in the saw and lead works of the James Robertson Company, Toronto, on April 16th, destroyed property to the value of about \$40,000. The greatest damage occurred in the lead department, in which work will be suspended for but a very short while.

THE Wm. Clendinning & Son Co., Montreal, has been incorporated with a capital stock of \$500,000, to take over the business, plant, etc., of Messrs. Wm. Clendinning, Son & Co., and manufacture iron, steel, brass, tin, copper and other goods, wares and merchandise.

THE General Mining Association has ordered from the Robb Engineering Company, Amherst, N. S., one of their 100 horse power Monarch Economic boilers, for the Victoria Mines, Sydney

THE "OPTIMATES" POWER HAMMER

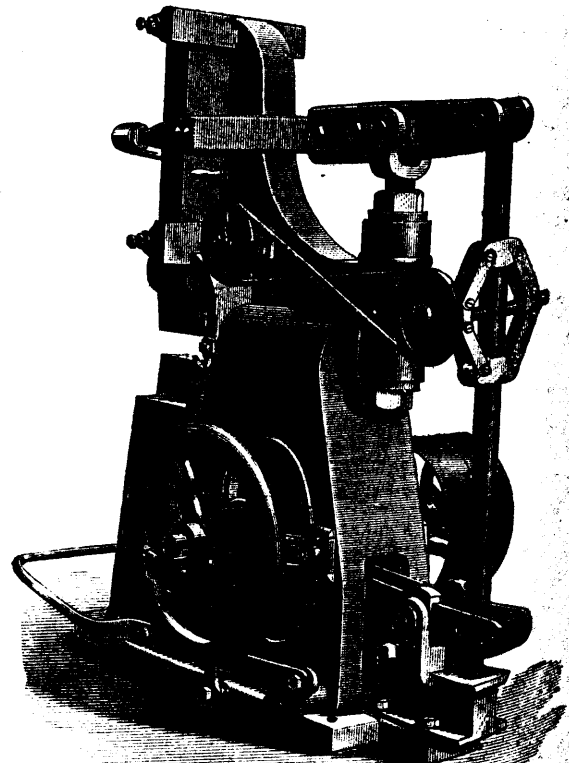
Patented in the United States, Canada, and England.

W. H. LAW,
Inventor.

MANUFACTURED BY

The Central Bridge and Engineering Co., Ltd.

PETERBOROUGH, ONTARIO, CAN.



C. B. This is the second of these boilers bought by them within three months.

Messrs. JOHN INGLIS & SON, Toronto, have the contract for supplying boilers, engines, etc., for the large steamer being built at Owen Sound, Ont., and almost ready for launching. The machinery is almost all in place in the ship, and is of the best possible description.

The Cortland Electrical Manufacturing Company has been incorporated at Toronto with a capital stock of \$40,000, to take over the automatic fire alarm business heretofore carried on by the inventor, Harvey Cortland and others, and for manufacturing electrical appliances and machinery.

Messrs McCOLL BROS. & Co., Toronto, the manufacturers, strongly advise all users of machinery and others to use their lubricating and burning oils. The excellence of these articles is testified to in the great popularity they have attained in mills, factories, etc., throughout the country.

The Waterous Engine Works Company, Brantford, Ont., have just placed a fine Buckeye steam engine in the power house of the

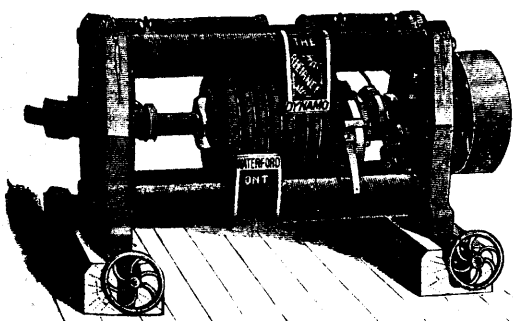
Brantford Electric and Power Company, that city. This, together with other machinery supplied by the Waterous Engine Works Company, cost about \$17,000.

Messrs. BURROW, STEWART & MILNE, Hamilton, Ont., manufacturers of stoves, furnaces, etc., will enlarge their capacity by the erection of a three-story brick building, extending 150 feet on one street and 100 feet on another. This building will be utilized for their stove mounting and scale departments.

The Tilsonburg Stove Manufacturing Company is being incorporated at Tilsonburg, Ont., with a capital stock of \$50,000, to manufacture stoves, furnaces and other heating apparatus, taking over the business of Messrs. J. T. Weston & Co., of that town. Mr. E. D. Tilson is one of the incorporators.

The John Abell Engine and Machine Works, Toronto, have just supplied a fine new steam boiler for the works of the Speight Wagon Company, Markham, Ont. Mr. Abell declares that a wise man, when he finds himself in need of a good boiler, hieth himself to the John Abell Engine and Machine Works for it.

Messrs. M. BEATTY & SONS, Welland, Ont., have just supplied



The Reliance Electric Manfg. Co., Ltd.

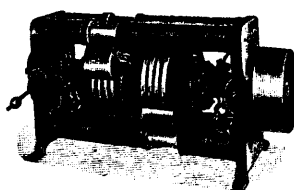
Manufacturers of The Reliance System of Arc and Incandescent Lighting

and Power Apparatus. The Itae System of Electric Railway.

Head Office and Works WATERFORD, ONT.

Branch Offices:

Toronto, Ont., 141 King St West Montreal, T. W. Ness, 749 Craig St.



THE BALL Electric Light Co. LIMITED.

Established 1882. 70 Pearl Street - TORONTO

Manufacturers, Engineers & Contractors

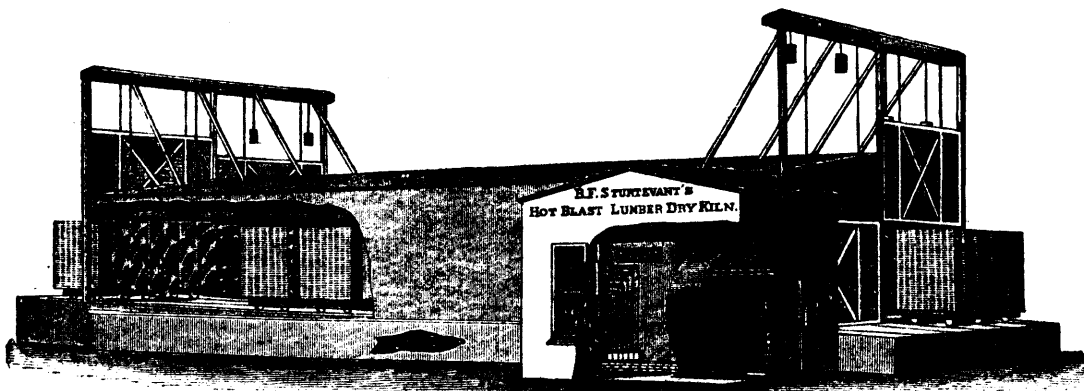
For complete Electric Light and Power Installations, Arc and Incandescent Dynamos, Electric Motors.

ELECTRIC ELEVATORS A SPECIALTY

The Best Apparatus. PRICES REASONABLE. Guarantees Absolute. Write for Printed Matter and Estimates.

THE STURTEVANT PROGRESSIVE LUMBER DRY KILN

Complete Plans . . . Furnished With . . . Each . . . Apparatus



Absolutely Safe . . .

AS A

FIRE RISK

Quick Drying

Economical in use of steam

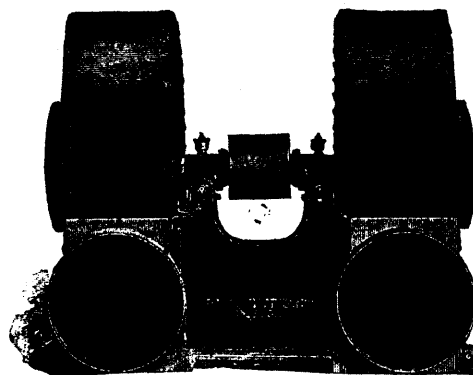
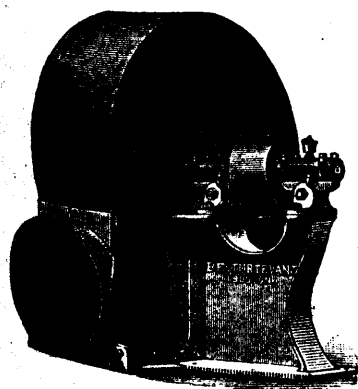
THE STURTEVANT Steel Plate Exhaust Fans

For Removing Refuse from Wood-working Machinery

SEND FOR CATALOGUES.

B. F. Sturtevant Co.

BOSTON, MASS., U.S.A.



DOUBLE EXHAUSTER

the Hamilton Bridge and Tool Company, Hamilton, Ont., with an engine and self-propelling derrick car, to be used by that Company in the construction of a bridge they are about building in the Rocky Mountains for the Canadian Pacific Railway Company.

L'UNION SARDINIÈRE DU STE. LAURENT is a joint stock company just formed at Quebec with a capital stock of \$100,000, to put up canned sardines. These fish abound in large quantities in the Gulf of St. Lawrence. A factory in the city of Quebec is now engaged in manufacturing tin cans for this business at the rate of 10,000 per day.

THE Railway Car Heating and Ventilating Company, Toronto, are applying for incorporation with a capital stock of \$1,000,000, to purchase the patent of Mr. Samuel Hughes, of Lindsay, Ont., for heating and ventilating railway cars, etc. Messrs. Wm. McKenzie, H. A. Everett and J. C. Grace, of the Toronto Railway Company, are some of the incorporators.

THE New Glasgow Iron, Coal and Railway Company, Ferrina, N. S., whose new blast furnace plant was put into successful operation a few months ago, announce to manufacturers and foundry men their readiness to supply them with the "Ferrina" brand of coke pig iron. This iron is being used in the manufacture of radiators, stoves, etc., in Ontario with great satisfaction to all concerned.

MR. WILLIAM T. GIBBS has formed a company and started works in Ottawa for the manufacture of chemicals by electricity. It is expected that these works will be in operation next month. A large electric dynamo for plating metals has just been imported from England, which the Government kindly permitted to be brought in without the payment of the duty imposed by the tariff.

MESSRS. F. J. PHILLIPS and W. C. Phillips, of the Cobban Manufacturing Company, Toronto; W. R. Hobbs and T. S. Hobbs, of the Hobbs Manufacturing Company, London, Ont., and others are applying for incorporation as the Consolidated Glass Company of Canada, with headquarters at Toronto, with a capital stock of \$250,000, to deal in all kinds of plate, sheet and ornamental glass, painters' and glaziers' supplies, etc.

MR. W. R. SCOTT, dealer in all kinds of new and second-hand machinery, Toronto, reports business "very good" in his line. Although he has had but one adv. in THE MANUFACTURER he

expresses his satisfaction with the number of enquiries received and sales made through this medium. His card in this issue refers to some high class machines, slightly second-hand. He is always open to buy or handle on commission anything in that line. Give him a trial.

SEVERAL new and important industries will soon be in operation in British Columbia, the building and machinery having been, or are being, put in place. They are all on a large scale, and will mean the employment of a great deal of labor. These are: smelters at Pilot Bay, West Kootenay, Portland cement works and the British Columbia cooperage and jute works, Vancouver; paint mills and bone reduction works, Victoria; paper mills, Alberni; and oatmeal and feed mills, Westminster.

THE B. F. Sturtevant Co., Boston, Mass., present an illustrated advertisement in this journal, in which some of the features of the "Progressive" hot blast lumber dry kiln are shown and described. Complete plans are furnished with this apparatus; some of the desirable features of which are absolute safety as a fire risk; quick drying, and great economy in the use of steam. They also illustrate their steel plate single and double exhaust fans for removing refuse from wood-working machinery. Catalogues and prices will be sent on application.

MESSRS. NYE & LYNCH, Hamilton, Ont., engineers, iron founders, boiler makers, etc., inform us that they have now two *Armington & Sims* steam engines under construction for the North-West Transportation Company (Beatty Line), Sarnia, for electric lighting purposes, also a small marine engine and boiler for Mr. C. M. Anderson's yacht *Little Current*, at Manitoulin Island. Messrs. Nye & Lynch are successors to the Osborne-Worswick Company, Hamilton, and make a specialty of manufacturing "Brown" and "Armington & Sims" engines, pumping engines and pumps, hydrants, valves, etc.

THE World's Fair exhibit of the Dominion Organ & Piano Company, of Bowmanville, Ont., comprises ten superb instruments—six organs and four pianos. The organ exhibit comprises a magnificent canopy-top, seven octave instrument in walnut, splendidly carved, the whole effect being very imposing. A large church reed organ with double bank of keys, and containing all the combinations of

IN PRESS

The Shipping Manufacturers' List

INDEX TO LEADING MANUFACTURERS OF CANADA AND ARTICLES MANUFACTURED BY THEM.

THE INFORMATION WHICH THIS WORK CONTAINS IS OF VALUE TO ALL CLASSES OF BUSINESS MEN AND MAY BE CONSIDERED A GOOD COMMERCIAL RATING ON ANY ONE THAT APPEARS IN THIS LIST OF MANUFACTURERS. THE VALUE OF THIS WORK WILL BE APPRECIATED WHEN IT IS KNOWN THAT THE INFORMATION IT CONTAINS HAS BEEN OBTAINED BY A THOROUGH PERSONAL CANVASS OF MANUFACTURERS THROUGHOUT THE DOMINION. NEARLY EIGHTEEN MONTHS HAVE BEEN CONSUMED IN GETTING THE INFORMATION THIS WORK CONTAINS OF THE MANUFACTURING INDUSTRIES OF CANADA.

THE WORK CONTAINS 500 PAGES HANDSOMELY BOUND IN CLOTH, AND REPRESENTS OVER FORTY DEPARTMENTS OF TRADE. SECTION 1 CONTAINS OVER 20,000 ENTRIES OF ARTICLES. SECTION 2 CONTAINS OVER 20,000 ADDRESSES OF MANUFACTURERS. SECTION 3 CONTAINS OVER 400 ADVERTISEMENTS OF MANUFACTURERS, MAKING THIS THE MOST THOROUGHLY REPRESENTATIVE WORK PUBLISHED ON THIS CONTINENT.

NO FOREIGN ADDRESSES OR ADVERTISEMENTS APPEAR IN THIS WORK.

THE PUBLISHER

The Shipping Manufacturers' List

34 Confederation Life Building, Toronto

FUEL OIL APPLIANCES

IMPROVED DUPLEX SYSTEM

FOR

Annealing, Forging, Enamelling, Welding, Melting, Brazing and Heating Generally

WITH

FUEL OIL

FURNACES DESIGNED AND BUILT

FOR EVERY PURPOSE.

Estimates MADE AND Works EQUIPPED COMPLETE

W. S. ROCKWELL,

Constructing Engineer,
81 Centre St., New York

the modern pipe organ. The other four are a Mozart grand in oak, cabinet grand in walnut, a villa gem in oak, and a chapel organ in walnut, all having the many improvements for which the company are justly famous. The four pianos are a magnificent production, the leading one being of burl walnut, the gables of which are flanked by carved pilasters, dados and mouldings, the front being a mass of carving in the Corinthian style of art. It is a Farwell cabinet grand. The other three pianos are no less worthy of note, being excellent products of art piano construction. They are a Farwell grand in Japanese walnut, a Dominion grand in vermilion mahogany, and a Dominion cottage gem in striped walnut.

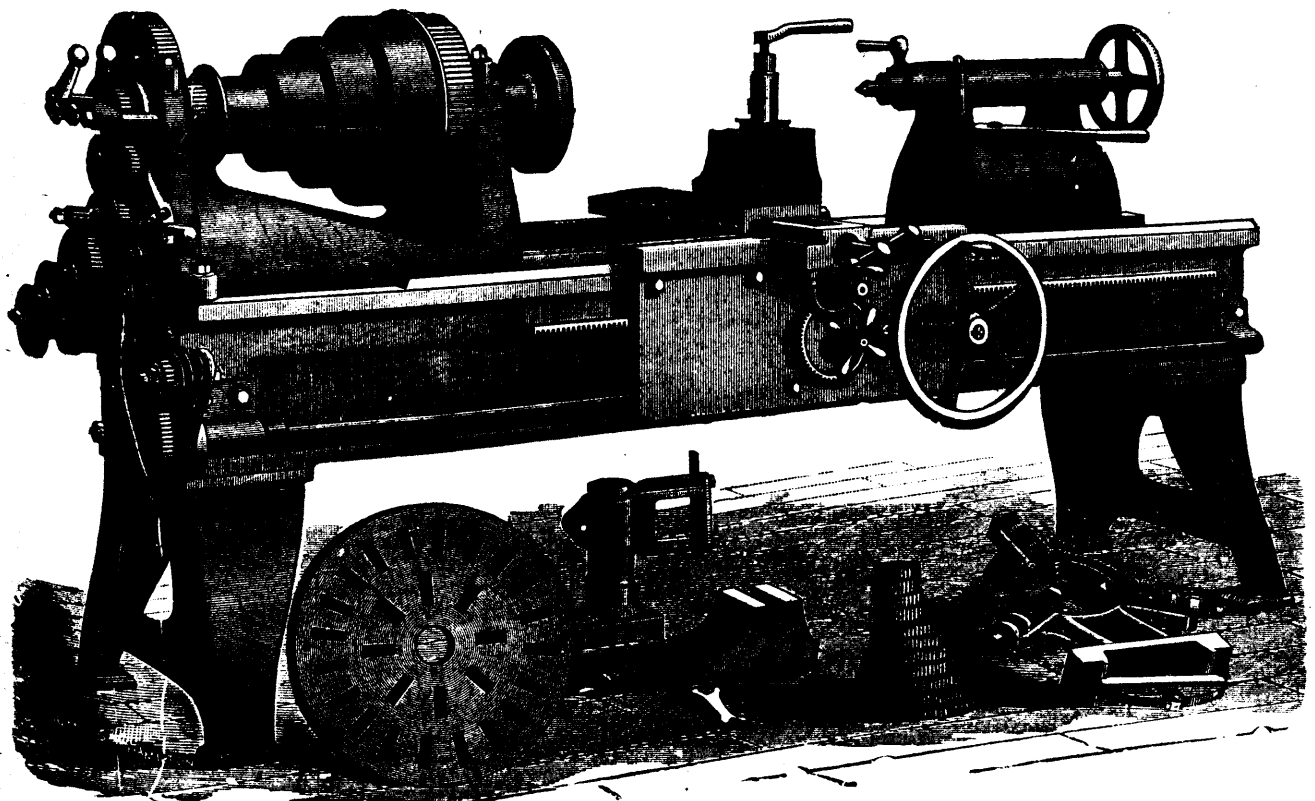
THE New York Sun of a recent date says: "The war canoe which the Knickerbocker Canoe Club has ordered from the Ontario (Peterborough) Canoe Company, of Peterborough, Canada, will be thirty feet in length and about five feet beam. It will be built of varnished basswood, which is lighter than the cedar used in the smaller canoes. Its full crew will be thirteen men, six paddlers on each side and a steersman who stands in the stern and wields the long steering paddle. The ultimate capacity will be about thirty. This will make the fourth war canoe in New York or its vicinity. The others are owned by the Yonkers Canoe Club, the Crescent Athletic Club of Brooklyn, and the Orange Canoe Club of Arlington, N.J. Both the Marine and Field Club and the Brooklyn Canoe Club will arrange for war canoe races at their regattas next June, and some intensely exciting races are expected. These great boats, with their pointed prows and high sides, and their flashing rows of paddles, recall more than anything else the pictures of the ancient Roman war galleys, and several of them together moving over the water make an impression not easily forgotten.

THE British Columbia Cooperage & Jute Company, Victoria, B.C., are erecting a substantial three-storey building 120 x 50 feet in which will be placed a complete outfit of machinery for manufacturing barrels and boxes. The timber will be cut direct from the log, and by means of the latest and most improved machinery, made either into staves and heads for sugar, fruit, fish, beef and other barrels or firkins, or into sides, ends and tops for all kinds of boxes. A large drying kiln is to form part of the works, and it is the company's intention to put upon the market a package which for general finish, whether it is box, keg, firkin or barrel, will leave

nothing to be desired. A feature of the business to which it is proposed to pay special attention is the making of barrels and boxes for apples and all kinds of British Columbia fruit. Provision will be made for shipping these packages, either made up and ready for use, or knocked down in the "shook." On the side of the railway track on the site of the present buildings, which are to be demolished, will be a large structure devoted to the manufacture of jute bagging. The services of a thoroughly practical man from Dundee have been secured to run this department of the business, the object being to supply not only all the grain, sugar and other sacks required in the Province but a large proportion of the Manitoba and North-West trade as well. When running at full capacity it is expected that employment will be given from forty to fifty hands.

THE Pictou Charcoal Iron Company, whose head office is at New Glasgow and works at Bridgeville, N.S., was incorporated in November, 1891, with a capital stock of \$200,000. The land of the company consists of 5,000 acres of heavy hardwood timber, with abundance of other fuel in the vicinity, and there is also contiguous deposits of limestone sufficient for all demands. The furnace grounds at Bridgeville are about twelve acres in extent, and there is railroad connection therefrom by a track to the line of the New Glasgow Iron, Coal and Railroad Company's railroad. The furnace stack is fifty feet high with eleven feet bosh, constructed on the latest and best approved plans. There are two batteries of steam boilers, with independent steam and water connections, each set being of sufficient capacity to operate the entire works, the fuel being the waste gases from the blast furnace. The offices are commodious and comfortable, and all the buildings in connection with the works are of the best and most substantial character, corrugated iron entering largely into their construction. There is ample provision for washing, roasting, screening and otherwise handling the ore. The ore, the supply of which is practically inexhaustible, is a fine quality of brown hematite. There are some twenty kilns, built of brick, for burning the charcoal, and there is every convenience for handling the fuel. The output is about fifteen tons per day of a very high quality of pig iron, which is giving much satisfaction to the consumers. The works are under the management of Mr. E. A. Sjoestedt, formerly general manager of the Katahdin Iron Furnaces at Katahdin, Maine.

Canada Tool Works, John Bertram & Sons, Dundas, Ont.



PRICE LIST ON APPLICATION.

24-in. LATHE

The Londonderry Iron Co., Ltd.

A. T. PATERSON, President and Director. JAS. PHYMISTER, Secretary.

MANUFACTURERS OF

**PIG IRON, PUDDLED BARS,
BAR IRON, NAIL PLATES,
WATER PIPES, ETC.**

OFFICE, MONTREAL. WORKS, LONDONDERRY, NOVA SCOTIA.

Pictou Charcoal Iron Co.

BRIDGEVILLE, NOVA SCOTIA Ltd.

WORKS: Bridgeville, N.S. HEAD OFFICE: New Glasgow, N.S.

Manufacturers of all grades of

Charcoal Pig Iron

SUITABLE FOR
CAR WHEELS, CYLINDERS, ETC.

Nova Scotia Steel and Forge Co., Ltd.

NEW GLASGOW, NOVA SCOTIA.

(Only Steel Works in Canada)

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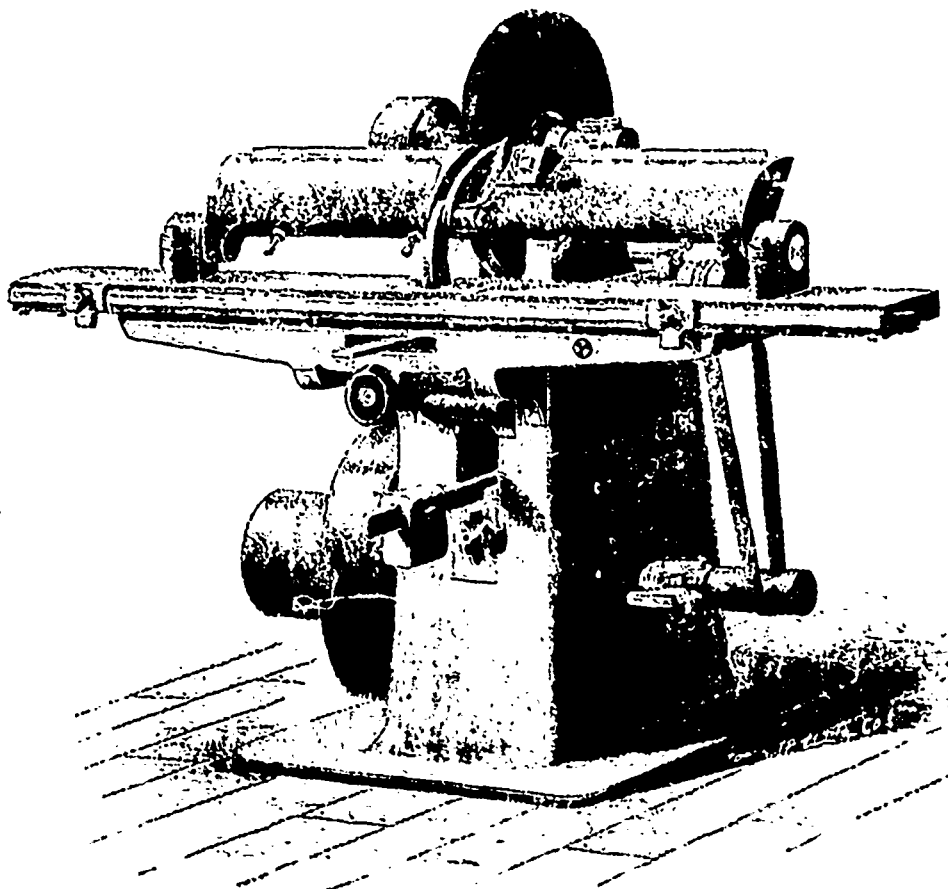
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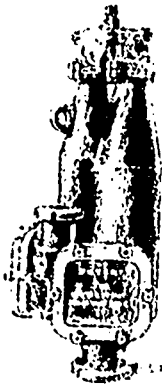
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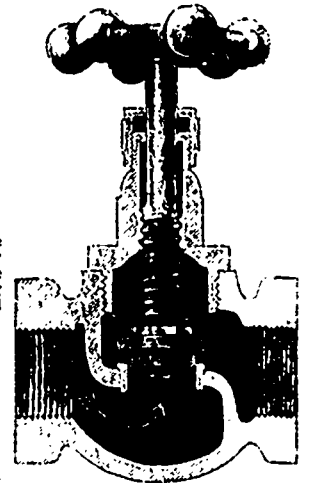
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	6 "	654.52	626.20	391.76	589.72	531.20	308.24	326.40	311.80	178.68
	9 "	664.16	646.56		629.56	601.20	406.88	353.96	370.20	199.76
	12 "	686.76	648.60	not gv'n	644.00	615.96	428.28	367.46	383.2	221.00
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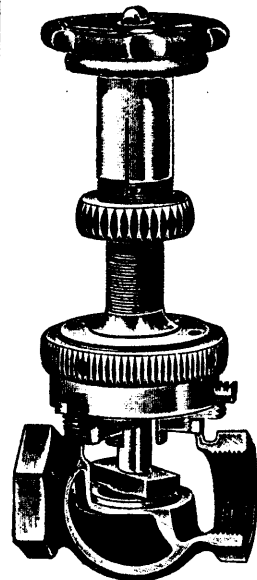
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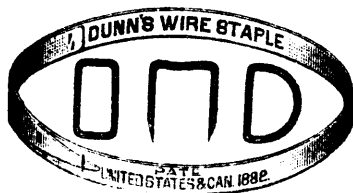
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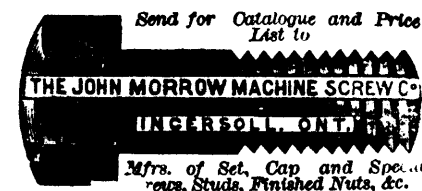
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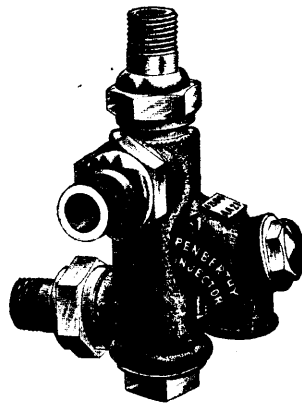


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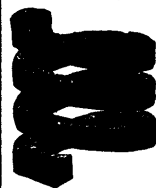
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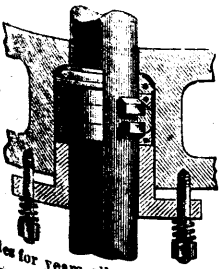
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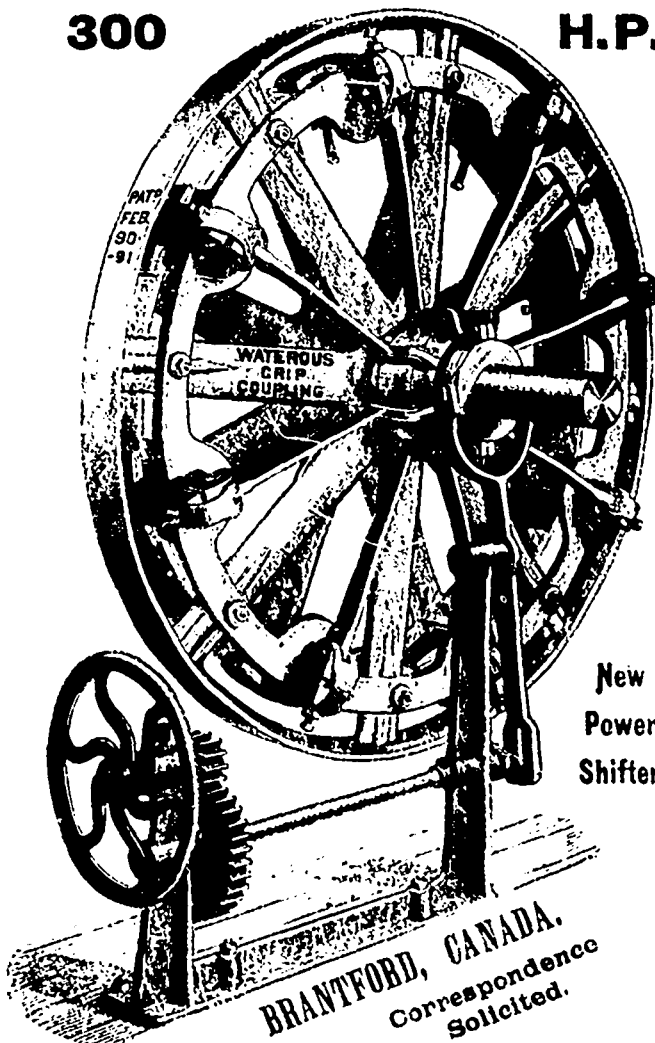
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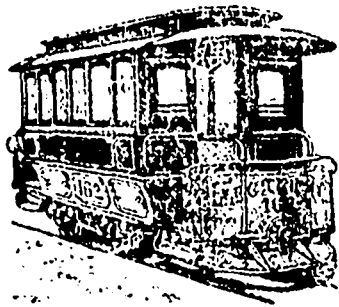
Inspection invited. Tenders will be received for the entire running business, or for any portion of the stock, plant, or machinery. All tenders must be received by the undersigned not later than the 1st day of May, 1893. For condition of sale and further particulars apply to

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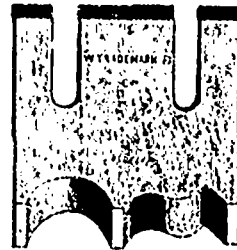
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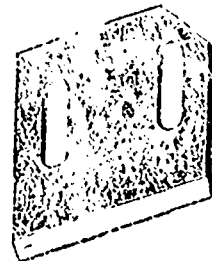
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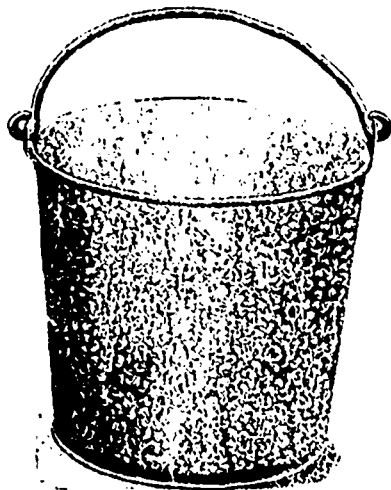
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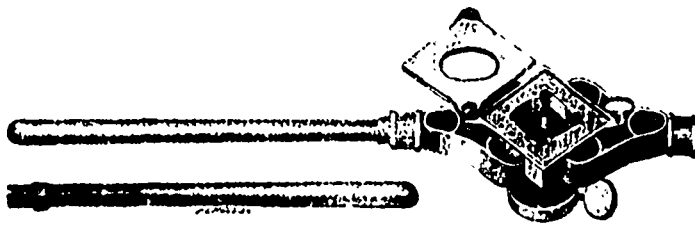
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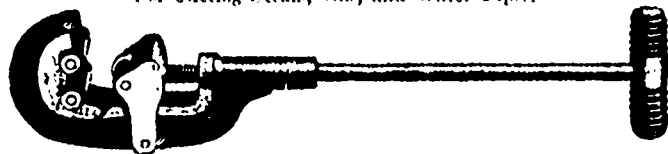
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The President, James Goldie, Esq., in moving the adoption of the report on the business of 1892, said: I have much pleasure in drawing your attention to the fact that this Company has verified, in a marked degree, every expectation set forth in the original prospectus when organized in 1885.

Up to the present time the insurers with this Company have made a saving, when compared with the current exacted rates, of \$91,004.20. And in addition thereto bonus dividends have been declared to continuing members amounting to \$21,523.72.

Besides achieving such result, we now also have, over all liabilities—including a re-insurance reserve based on the Government standard of 50 per cent (\$50), a cash surplus of 1.3 per cent. to the amount of risk in force.

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

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

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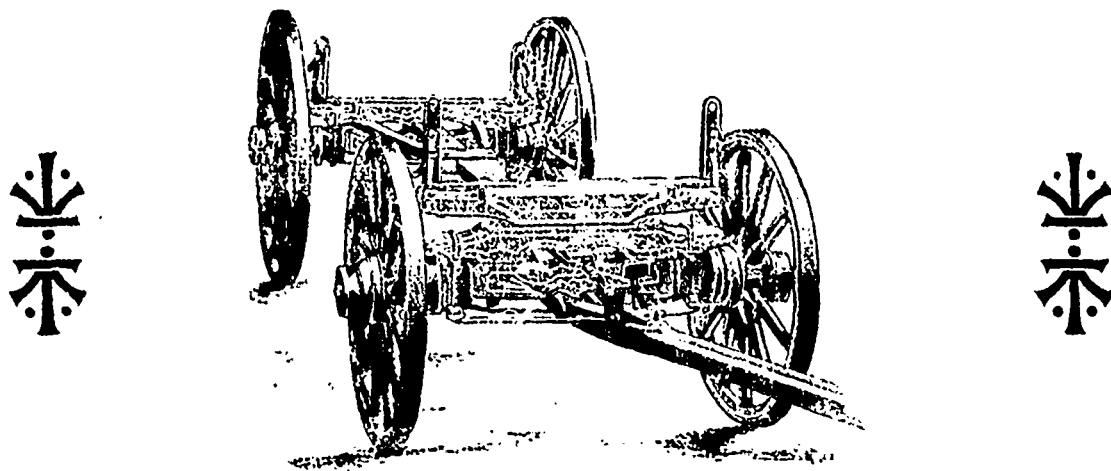
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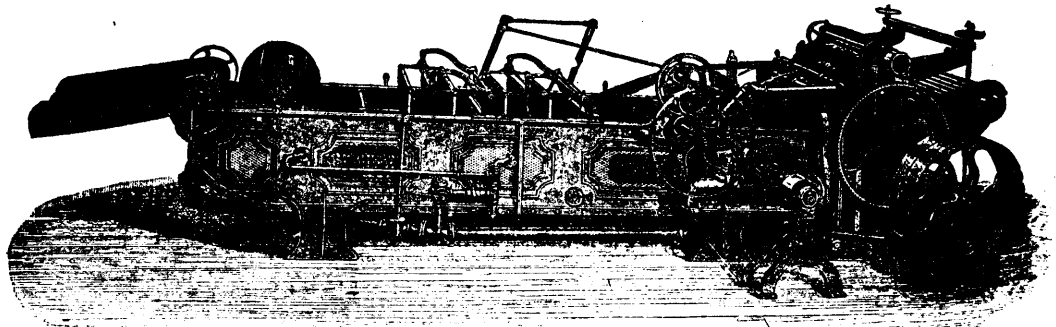
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- To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises. To enable those in all branches of manufacturing enterprises 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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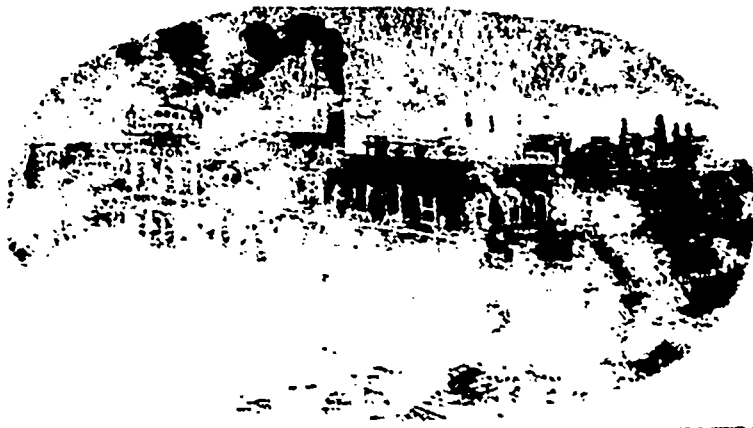
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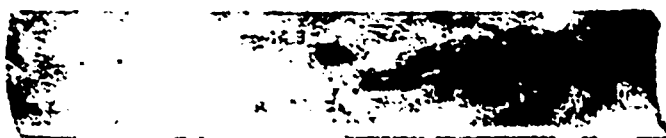
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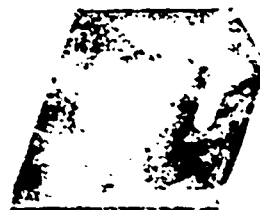
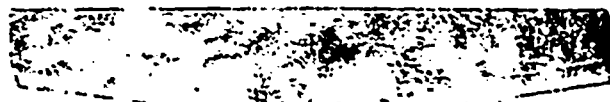
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