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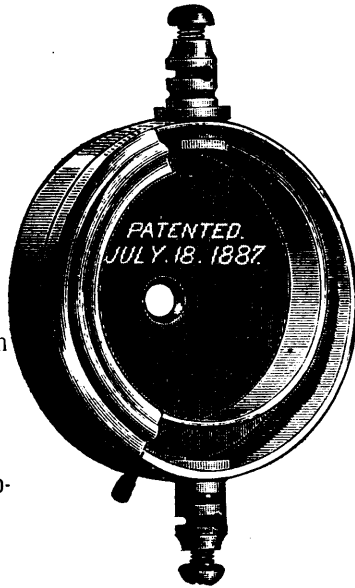
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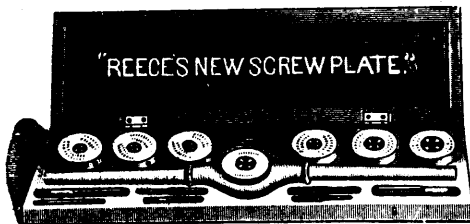
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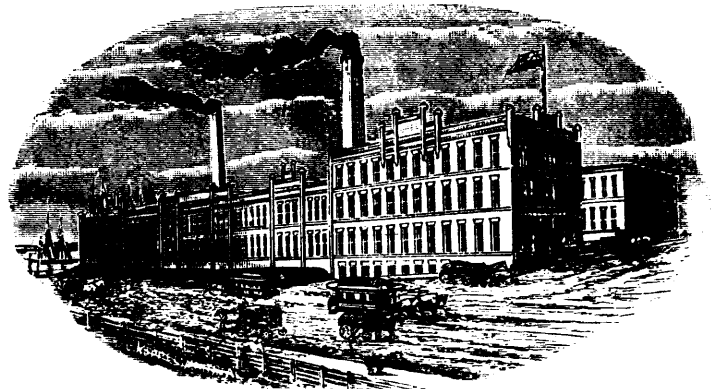
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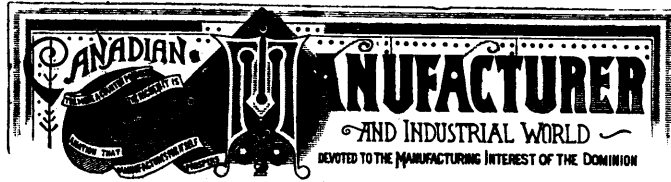
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6 Wellington Street West, Toronto.

HENRY BICKFORD.

MR. HENRY BICKFORD, Mayor of Dundas, Ont., died in that town on April 24th, in the forty-eighth year of his age.

In the issue of this journal of August 3rd, 1888, in our illustrations of "Captains of Canadian Industry," an excellent artotype portrait of Mr. Bickford was published, accompanied by a brief sketch of his life, from which we reproduce the following:

Henry Bickford, of the firm of Messrs. S. Lennard, Sons & Bickford, proprietors of the Dundas Knitting Mills, Dundas, Ont., was born in the City of London, England, March 2nd, 1842, and at an early age was taken by his parents to the town of Newton Abbot in the County of Devon, where he received his scholastic preparation for after-life under the tuition of the Rev. John N. Lightfoot, M.A., the present rector of Moreton-Hampstead, in that county. Having tried farming for some time, he thought to improve his fortunes by removing to London, but not being satisfied with intra mural life, determined to visit the Great Lakes region of Canada, and sailed for this country in 1867.

Arriving in Canada, Mr. Bickford soon found employment as "a white winged Angel of Commerce," and for a couple of years was a commercial traveller for a large wholesale grocery concern of Toronto. In 1869 he became head book-keeper and manager of the firm of Messrs. N. & F. Rooney, of Toronto, where he continued until the dissolution of that concern in 1879. At this time a fine business opportunity was presented to him in the town of Dundas, Ont., and to that place he went, and became a partner in the firm of Messrs. S. Lennard &

Sons, now so familiarly known to the wholesale dry goods trade of the whole Dominion as Messrs. S. Lennard, Sons & Bickford, probably the oldest and largest manufacturers of hosiery in Canada, the firm being the patentees of what is known to the trade as "Elysian" seamless hosiery.

Soon after his removal to Dundas Mr. Bickford was elected a member of the Board of Education of that town, on which he has served seven years, one year as chairman. He has also been a member of the Town Council as councillor; has been deputy-reeve and reeve; and at this time is mayor. In 1886 he received the nomination of the Liberal-Conservative party of North Wentworth for the Legislative Assembly, but considering that active participation in politics interfered injuriously with his business interests, retired from the contest.

By education and natural instincts Mr. Bickford is a gentleman well fitted to perform any and all civil and social duties that may devolve upon him, his experience in successfully conducting a large and important manufacturing industry, and his natural force of character, making him a most valuable citizen. For years a member of the Canadian Manufacturers' Association, his presence at all the important meetings thereof is signalized by his expressions of strong common-sense arguments and reasoning, and a comprehensive grasp of such important questions as may be presented. He is a member of the Executive Committee of the Association, and a member of the Textile Fabrics section of the Association's Tariff Committee.

"IN RELATION TO CANADA."

It is a noticeable fact that nearly all American newspapers, in discussing Canadian affairs, or the relations existing between Canada and the United States, base their arguments upon the assumed fact that at least a large minority of the people of Canada desire their country to be annexed to the United States. Doubtless with them the wish is father to the thought, in which they are strengthened by some papers published in Canada, and by the expressions that some persons who reside in Canada relieve themselves of. We would not impugn the motives of those who entertain such opinions, but we assure our misguided contemporaries that they are very much mistaken if they suppose that any respectable minority of Canadians desire to substitute the Stars and Stripes for the flag that now waves over us.

Among our most esteemed exchanges is *The Manufacturer*, of Philadelphia. Usually its editorials are able and well written, and command respectful attention. But we assure it that if its recent article, "In Relation to Canada," voices its true sentiments on the question, it is disseminating false facts, drawing unjust conclusions, and cultivating unneighborly sentiments against a people who would scorn to commit mean or unfriendly acts, and who would certainly not submit to imposition at the hands of the American people. There are matters of an international character in dispute between the United States and Canada, we admit, but our contemporary knows that both Canada and Great Britain promptly accepted the invitation of the United States Government and sent commissioners to Washington to formulate a settlement; and that in submitting the treaty thus and then drawn up to the Senate for ratification, President Cleveland declared that in his opinion it was fair,

just and right to all concerned, and this view was concurred in by a very large portion of the American people. It will not do for *The Manufacturer* to urge that the treaty was rejected by the Senate, for the ways of that body of gentlemen are frequently strange and past finding out, particularly when an opportunity to twist the tail of the British lion is offered, or the Irish vote to be manipulated. In that treaty Canada waived some of what all Canadians believe to be our undoubted "rights," and in consideration of which the United States waived some of what all Canadians believe to be unfounded and unreasonable "claims." But the relinquishments that Canada offered to make, many American newspapers construed as a willingness to back down in the face of American aggression; and it is fashionable with them to affect to believe that all that is necessary to secure all that they desire is to put on a great deal of brag and bluster.

But Canadians are not of those who will crouch to the insolent dictation of any; they are Anglo-Saxons, which fact should be borne in mind by our ambitious neighbors. Pending the ratification of the recent treaty, Canada offered a *modus vivendi* by which the terms of the treaty might be anticipated, and after the rejection of the treaty the *modus vivendi* was continued, which of itself is the strongest evidence that the Canadian Government was and is willing to do all that lay in their power to propagate and continue friendly feelings between the two peoples. *The Manufacturer*, however, seems to be strangely oblivious to the fact that while Canada, as a part of the British Empire, looks to Britain to make all her treaties for her, that this is only a formality and a show of authority which Britain would not exercise in opposition to the wishes and views of the Canadian Government. This is in answer to the statement that "the Canadian Government has received imperative instructions from England to avoid giving cause of offence" to the United States; and that "in accordance with this policy, licenses will be issued as usual to American fishermen, under the *modus vivendi* arranged by Mr. Cleveland's administration." The sentence, "This is significant of the fact that the British Government fully realizes the nature of the changes that have taken place at Washington"—meaning that the British Government and Canada have more to fear from Mr. Harrison's Government than it had from that of Mr. Cleveland, is an idle and silly threat unworthy of the source from which it comes. *The Manufacturer* finds fault with Canada because our domestic affairs are not conducted with a view to please the American people, and to lead to annexation. Hear it:—"What the Tory politicians (of Canada) desire is to promote the great scheme of Imperial Federation, which will bind Canada more closely to England. It was in this behalf that millions of British and Canadian money were squandered upon the Canadian Pacific railroad. It is in accordance with this policy that a vast naval station for offensive purposes, is being erected at the Pacific terminus of the Canadian Pacific Railroad. It is to chill the impulse to annexation that the rulers of Canada have contrived a series of affronts to us, which provoked irritation and bad feeling. When there are indications that we are getting too friendly and sociable, Sir John Macdonald pulls the tail feathers of the American eagle and calls upon his supporters to sing 'God Save the Queen!' The trouble about this kind of policy of nagging, imposition and harrassment is that it may unexpectedly be carried beyond

the point where it excites anger and disgust, and may provoke war." Do our neighbors desire to prevent Imperial Federation? Perhaps they do, but how are they going to prevent it if the interested parties so decide? What concern is it of theirs if Canada build a transcontinental railroad, with a vast naval station "for offensive purposes" at the Pacific terminus of it? Suppose Canadians do desire to "chill the impulse to annexation," that sometimes shows a flutter and spasm of life amongst us, freezing it out with that glorious old anthem, "God Save the Queen"—what are they going to do about it? The Queen is the constitutional sovereign of Canada, and wherever the subjects of Her Majesty are to be found—and where are they not to be found?—their voices are lifted up in loud tones in singing "God Save the Queen," and it would be a risky job for any who might foolishly attempt to prevent it. If these things constitute a policy of "nagging, imposition and harrassment," which our neighbors don't like, they will have to put up with it as best they can. It will not be abandoned on that account.

IS THERE UNJUST DISCRIMINATION?

It has been asserted by some who profess to have investigated the matter, that the operations of the Canadian tariff developed unjust discrimination against Great Britain as compared with the United States. We can show conclusively such is not the fact.

The total imports from Great Britain and from the United States into Canada during the fiscal year ending June 30, 1887, were of nearly the same value, while the amount of duty collected on those from the former country was much larger than that from the latter, the average *ad valorem* rate in the one case being 20.72 per cent., and in the other only 16.11 per cent. From which it might appear that the Canadian tariff operated unfairly and unjustly upon imports from Great Britain; but this view is dispelled on closer investigation. The value of free goods imported from the United States was \$5,340,497 more than of the free goods imported from Great Britain. These American goods consisted mainly of unmanufactured products of the soil, the mine and the forest, such as Great Britain cannot supply, and with respect of which it is a matter of indifference to England whether they are dutiable or free of duty in Canada. By deducting in both cases all the imports of free goods, the average *ad valorem* rate of dutiable goods imported from Great Britain is ascertained to be 26.06 per cent., as compared with 23.78 per cent. on the dutiable imports from the United States. This still leaves the appearance of the tariff as unfavorable to Great Britain. But on further analysis of the imports of dutiable goods, it is found that in the case of the United States, \$13,642,313 is made up of goods not manufactured, such as bituminous and anthracite coal, corn, wheat, provisions, etc., as compared with only \$2,050,368 of similar goods from Great Britain. As in the case of the free goods, Great Britain is an importer rather than an exporter of nearly all these goods, and here again has little or no interest in the rate of duty imposed by Canada. Her interest in exports to Canada lies almost entirely in manufactured goods. Of these Canada admitted free of duty from England \$5,277,744, as compared with \$2,522,440 from the United States. Of manufactured goods subject to duty, Great Britain supplied us with \$33,715,905, as compared with

\$16,928,296 from the United States. The average rate of duty collected in Canada on dutiable British manufactures was 25.01 per cent., and on American, 26.28 per cent. By which it is seen that Canada admitted of manufactured goods, free of duty, \$2,755,304 more value from Great Britain than from the United States; and of dutiable manufactured goods a little more than double the value, and at a slightly lower rate of duty.

Following is a comparative statement showing the description and value of merchandise imported into Canada from Great Britain and from the United States, entered for consumption; also the amount of duty and the average *ad valorem* rates of duty collected on the imports from both countries during the year herein alluded to, the compilation being from the Dominion Trade and Navigation Returns:

DESCRIPTION OF MERCHANDISE.	Value of Imports from Great Britain.	Duty collected on Imports from Gr't Britain.	Value of Imports from United States.	Duty collected on Imports from United States.
	\$	\$	\$	\$
<i>Free of Duty.</i>				
Produce of the mine, fisheries and forest.....	291,288		1,689,299	
Animals and their products, and agricultural produce.....	1,368,191		5,467,362	
Cotton wool and waste.....	317,641		3,951,180	
Gutta-percha and India rubber, crude.....	2,844		395,672	
Tea and coffee.....	1,363,480			
Coin and bullion, except U.S. silver coin.....	220,883		311,158	
Settlers' effects.....	353,889		1,099,346	
Manufactured and partially manufactured drugs, metals, steel rails, colors, coke, oil, paintings, articles for use of Governor-General, Dominion Government, Consuls, etc.....	5,277,744		2,522,440	
	9,195,960		14,536,457	
<i>Dutiable Goods.</i>				
Hardware, including, metals, glass-ware, etc.....	7,175,908	1,412,809	7,496,936	2,165,930
Dry goods, cotton, woolen, silk, flax, leather, gutta-percha, fancy goods, hats and caps, etc.....	24,128,546	6,431,800	4,099,910	1,012,419
Miscellaneous manufactures, jewelry, books, paper, musical instruments, drugs, earthenware, etc.....	2,411,451	589,107	5,331,450	1,269,863
Total dutiable manufactures.....	33,715,905	8,433,716	16,928,296	4,448,212
Goods, not manufactures—animals, breadstuffs and provisions, grain, coal, groceries, spirits, wines, sugar, etc.....	2,050,368	885,204	13,642,313	2,819,983
	35,766,273	9,318,920	30,570,609	7,268,195
<i>Summary.</i>				
Total merchandise, free of duty.. do dutiable, manufactures.....	9,195,960		14,536,457	
Total merchandise, dutiable, not manufactures.....	33,715,905	8,433,716	16,928,296	4,448,212
	2,050,368	885,204	13,642,313	2,819,983
	44,962,233	9,318,920	45,107,066	7,268,195

The charge that Canada, under its Customs tariff, discriminates in favor of the United States as compared with Great Britain, has infinitely less foundation than can be found by many foreign countries as to discrimination against them by the United States in favor of Canada. In both cases there is an appearance of such discrimination, while in reality there is none. In a report by Mr. Wm. F. Switzler, Chief of Bureau of Statistics, Treasury Department, Washington, dated May 31, 1888, this official appears to recognize the

necessity of explaining this apparent discrimination. He reports: "The average *ad valorem* rate of duty collected in the United States on dutiable merchandise from all countries was 47.11 per cent.; on imports from the Dominion, only 21 per cent. This difference is found in the following classes of merchandise constituting the bulk of the dutiable imports from Canada, viz:

MERCHANDISE.	VALUES.	AVERAGE AD VALOREM.
		Rate of duty collected, per cent.
	\$	
Animals.....	4,374,039	20.00
Barley.....	6,171,660	16.20
Wheat.....	218,551	17.16
Coal, bituminous.....	1,152,604	24.21
Fish: Cod, haddock, etc.....	237,179	17.00
Herring, pickled.....	128,611	14.32
Mackerel, pickled.....	638,312	23.13
Flax, raw.....	298,078	8.00
Hay.....	789,129	19.39
Provisions.....	163,115	24.44
Vegetables.....	987,232	24.05
Wood and manufactures of.....	7,995,840	18.28
Total dutiable merchandise.....	23,154,350	25,997,113

But it is not pretended or claimed that the United States tariff discriminates in favor of Canada, nor has any foreign nation sought to establish any complaint to that effect, from the fact that the average rate of duty on imports from Canada is so much lower than on theirs. They recognize that the difference arises from the classes of merchandise so imported, and not from a policy of discrimination. From precisely the same cause arises the appearance of discrimination in the Canadian tariff as between England and the United States, which really affords no ground for complaint on the part of Great Britain.

"WHAT FOOLS THESE MORTALS BE."

"A CHAIR of protectionism in Yale College is a pure absurdity. No man learns to be a protectionist by the study of political economy. He either believes in it because he doesn't know any better or because it is to his personal interest."—*Nashville American.*

"No man was ever born with a taint of protectionism in him. Every man, woman and child on top of earth to-day is a free trader by instinct. The human being does not breathe who will not buy what he has to buy in the cheapest market, and sell what he has to sell in the dearest market."—*London Advertiser.*

It is remarkable with what flippancy some people who ought to know better utter such absurdities as those above given. The *American* denounces protectionists as either fools or knaves, and the *Advertiser* declares that free trade views come by "instinct":—that people are born that way. Their argument is that it is "natural" for people to be free traders, and "unnatural" for them to be protectionists. The *Philadelphia Manufacturer* declares that this is not a novel proposition, coming from free trade philosophers, and expresses the opinion that it is wholly groundless and indefensible in the light of human experience. So far as man is concerned, it says, he is at his worst when in "a state of nature," either materially or morally. He comes into the world naked and helpless. Other new-born beings are created with power to clothe themselves. Man needs to have some one to protect his body, from the very

start. For many years the care of parents is required to protect him from physical harm, to protect his morals, to protect him from ignorance, and from all the snares that are laid for youth. In his adult years he protects his own body with clothing; he protects it from hunger, from disease, from danger. His body is filled with a protective system of nerves whose function is to give him warning of perils. The adult man protects himself from the elements with a house; he protects the house from fire by insurance; he fills the cellar with coal and heating appliances to protect himself from the winter's cold. He screens the windows to protect himself from insects. He bars and bolts his doors to protect himself from thieves. He devises ingenious plumbing appliances to protect himself from impure gases. He puts a fence around his property to protect it from marauders. He insures his life to protect his family from want in the event of his death. He pays a doctor to protect him from sickness, and a lawyer to protect him from the loss of his property or his rights. He helps to pay for policemen to protect the peace of his community, and the policemen represent the laws man has devised for the protection of life, property, peace, and social order. He organizes fire departments to protect his dwelling from the flames, water departments to protect him from thirst and dirt, highway departments to protect him from inconvenience and loss from bad roads. He equips his dwelling with lightning rods to protect him from lightning. He paints it to protect the wood-work from decay. He builds jails to protect himself from evil-doers. He carries an umbrella to protect himself from the sun and rain. He wears overshoes to protect himself from colds and rheumatism. He builds churches and pays clergymen to protect whatever religious dispositions he may have. He builds navies to protect his rights on the seas. He pays for an army to protect the State. He buys big guns and builds forts to protect his country from foreign enemies. He labors hard and does what he can to protect himself from poverty. In fact, organized society itself is but a piece of mechanism devised by man partly for profit, but largely for protection. It rests upon a basis of protection. It is protective from first to last. Only the savage in a pure state of nature is a victim of unprotection, and even he, in his rude way, strives to protect himself as best he can.

This is protection in its material aspect. But civilized man aims also at protection of morals. The churches are the great agencies for this kind of protection. The founder of the Christian religion declared that its purpose was protective. Just as salt protects flesh from decay, so religion protects society from rottenness. All the laws for the regulation of the liquor traffic are morally, as well as physically, protective. Society protects itself from vice by branding the impure woman as an outcast. It has laws forbidding the circulation of obscene literature, and the exhibition of unclean pictures. A large part of the law is aimed at the restraint of vice and immorality, —at the protection of the virtuous from contamination. The total pressure of social influence is in this direction, because without such protection there would be swift destruction of the social fabric. The entire purpose of religion is to protect the individual man from the impulses of nature. He is bidden to struggle against these impulses, to try to master them, to endeavor to get himself out of the unprotected state of nature

into the protected state of grace. And this process is so violent and radical that it is actually designated as "a new birth." It is so essential to protection from the perils of the world to come that it is declared to be the only means of securing such protection. The simple child of nature is inevitably full of viciousness. Any man of the world can discover that fact from his own experience, without instruction from spiritual teachers. The state of nature in things physical or in things spiritual, is a condition of degradation and depravity—a condition to be avoided, a condition from which man, as he becomes wiser, instinctively protects himself. Protection of industry is nothing more than another form of applying this universal and necessary principle. It is one manifestation of the rule that prevails everywhere in civilized life. The considerations which justify any kind of protection justify that; and the man who denounces it as "unnatural" and contrary to the Divine order simply proclaims himself an ignoramus.

AMERICAN FOREIGN TRADE.

THE foreign trade of the United States with Central and South American States presents some singular features. During the last fiscal year the United States imported from Central America merchandise valued at \$7,623,378, while the exports to that country were valued at only \$4,265,586; but in the preceding year Great Britain sent \$4,941,464 of merchandise to Central America, or nearly \$2,000,000 more than the United States, although the British imports were over \$1,000,000 less. During the year alluded to the American imports from Venezuela amounted to \$10,051,250, as against only \$3,038,515 of exports; while the trade of Great Britain with Venezuela was—exports, \$3,850,944—imports, \$572,208. From which it appears that Venezuela sells its products to the United States to obtain money with which to buy merchandise from Great Britain. The situation is painfully accentuated in the trade with Brazil. Last year the United States imported from that country \$53,710,234 worth of merchandise, while but only \$7,137,008 worth was exported.

The following figures for 1887 show the relative trade of the United States, Great Britain and France with Brazil:

	IMPORTS.	EXPORTS.
United States	\$52,953,176	\$8,127,888
Great Britain	26,127,259	29,616,843
France	22,538,478	13,887,308

Thus it is seen that France, with \$30,000,000 less imports than the United States, exported \$5,700,000 more; while Great Britain, with less than half the imports, exported more than three and a half times as much.

Central and South America contain an estimated population of about 25,000,000 people, who, in manufactures, are almost entirely dependent upon foreign markets. In most if not all the merchandise required for this consumption the United States is undoubtedly able to supply the demand on as good terms as Great Britain or France; and the proximity of the United States to these countries affords a great advantage which should enable our American friends to command those markets. Several of the South American States are even now competing with the United States in supplying European markets with food products.

ARBITRATION.

SOME laboring men and labor organizations entertain some queer views regarding the arbitration of differences that may arise between employers and employes. If the arbitrators decide in their favor it is all right, but if against them, or not in accordance with their views, it is all wrong, as the following illustrations will show:

When Messrs. Richmond Bros., hat manufacturers, of Bethel, Connecticut, made their bill of prices with their workmen for the spring season, they were unable to agree with the men and an arbitration committee was called. The committee met and decided upon a bill, but it was not satisfactory to the local association, who called a meeting and passed a resolution forbidding the men in Richmond Bros.' shop working under the bill, and at the same time made a bottom price, which was 18 cents per dozen more than the price decided by the committee.

A similar case occurred in Messrs. Austin, Drew & Co.'s hat factory in Orange, New Jersey. The Hat Makers' Association, of that city, some time ago passed a resolution that in all cases of arbitration the manufacturer should pay the journey-men serving on such arbitration committee \$1 per night for their services. This the manufacturers refused to do, and the matter was dropped. At a recent meeting of the Hat Makers' Association the obnoxious resolution was again affirmed. Later Austin, Drew & Co.'s men called the shop on a certain bale of bodies and claimed an advance on the ground that they did not shrink well. The firm declined to grant the advance and the men offered to arbitrate the matter providing the firm would pay the contested arbitration fees. The proposition was declined, when the men promptly quit work. The next point in the case was taken by the firm, who "bagged" the entire crew. The officers of the National Hat Makers' Association came out, and after hearing the case pronounced the men wrong and ordered them back to work. A committee then waited on the firm to again ask arbitration, waiving the objectionable demand. The matter was then arbitrated and satisfactorily settled.

EDITORIAL NOTES.

RECENTLY in London the Lords of the Admiralty granted an interview to Mr. McLeod Stewart, of Ottawa, President of the Canadian Anthracite Coal Company, regarding the use of Banff coal for the Pacific squadron in lieu of Welsh coal. The Admiralty are arranging to test the fitness of the coal, and Mr. Stewart expects favorable results.

MARTINEAU & SMITH's Birmingham, Eng., *Hardware Journal* says:—"A Canadian contract for 4,000 tons of steel which was about to be placed in the West of Scotland, has gone to Germany, where it has been accepted at about 7s. per ton below the Scotch rates." Scotland has free trade and Germany has protection. If protection enhances the cost of production, how is it that protective Germany can sell steel "at about 7s. per ton below the Scotch rates," where free trade prevails?

THE Ontario Oatmeal Millers' Association died a natural death in this city, April 18th. The Association was formed

only last year, its membership representing over fifty mills. In the face of the fact that about one-third of these mills are not in operation, and that there is not business enough to keep those that have not shut down running full time, there are quite a number of other mills about being started up. This depressing view of the situation caused the collapse of the Association.

MR. J. J. CASSIDEY, editor of the *CANADIAN MANUFACTURER*, read a most able paper before the members of the Canadian Manufacturers' Association, at their recent annual meeting, on the subject of "Tariff Protection and its Benefits." His logical inferences, based upon historical facts, commend the paper to every fair minded and intelligent reader. The paper is given in full in the *MANUFACTURER* of April 5th, 1889. It is too long for our columns. We have seldom seen the historical aspects of the Protective question so clearly presented as in Mr. Cassidey's paper.—*The Bulletin of the American Iron and Steel Association, Philadelphia.*

THE Bulletin of the American Iron and Steel Association, Philadelphia, of April 24th, includes a centennial souvenir from the Association, which exhibits a convenient list of the Executive Officers of the United States from the inauguration of George Washington, on April 30th, 1789, to and including the present Harrison administration, copied from the official records of the State department. It gives the name and the date of inauguration of each President and the expiration of his term of office, with the names of the Vice President and Executive Officers, Chief Justices of the Supreme Court, and Presidents of the Continental Congress.

THE United States Bureau of Navigation reports the number of iron and steel vessels of the merchant marine launched from American shipyards during the fiscal year ending June 30th, 1888, to have been forty-three, with an aggregate gross tonnage of 36,718 tons, against twenty nine vessels in the preceding year with a tonnage of 34,353 tons. Only three of the whole number of vessels launched in 1888 were sailing vessels. The aggregate tonnage of iron and steel vessels built in the United States in the last twenty-one fiscal years from 1868 to 1888 inclusive, amounted to 500,749 tons, of which 488,585 tons were steam and 12,164 were sailing vessels. The business of building iron and steel vessels in the United States virtually began in 1868, in which year the aggregate tonnage of this class amounted to only 2,801 tons.

"THE man who takes the place of another when that other is engaged in a struggle with a corporation, is a scab."—*T. V. Powderly*. We wish to say to Mr. Powderly that the man that holds the sentiment above quoted will not be the Moses of labor. The laborer that will be blindly ordered to stop work by another is a slave, and without a volunteer slave of this kind there could not be what Mr. Powderly terms a "scab." He is not philosopher enough to grasp the situation. He compares the present condition of labor and capital with an oppressed people governed by a tyrant which it is possible to overthrow. Mr. Powderly might as well fight his shadow on a moonlight night. He will in time learn that wasting wealth is wasting strength. We would like to have Mr. Powderly paste this in his hat.—*Wade's Fibre and Fabric.*

THOSE who are constantly struggling after the almighty dollar, should as constantly and regularly study the advertising pages of the CANADIAN MANUFACTURER. Study the character of those who therein call attention to their business, and consider what such advertising costs them. Those, and only those, who have confidence in the excellence of the goods which they offer, can afford to be such liberal patrons of such a trade journal as the CANADIAN MANUFACTURER is; and it is this class of business men who command public confidence. No expenditures in this direction will sell poor or unworthy goods. The best and most effective trademark a manufacturer or business man can produce to attract the favorable consideration of Canadian buyers, is the assurance that his business is displayed in the advertising pages of the CANADIAN MANUFACTURER.

WITHIN the past few years Dakota has suffered most severely from causes from which there was no escape; and the elevation of the unfortunate country to the dignity of Statehood in the American Union, has not served to avert the destructive elements. The story of the fires that have recently swept over that country is of a most startling character, farms, and even entire towns, having been swept away, the aggregate losses amounting to hundreds of thousands of dollars, and some loss of life. Dakota is not only subject to storms, cyclones, blizzards and weather of the most fearful character, but the prairie fires that have recently devastated it were far worse than anything ever before heard of. No doubt the country possesses many great natural advantages, but, in the light of the knowledge of the great disadvantages incident to it, Dakota is a good place to avoid as a place of residence.

A FEW months ago this journal assisted in exploding the fiction reported to the United States Government by Consular Agent Washington, of London, Ont., to the effect that Wood self-binding reapers, manufactured in the United States, and sold there to American farmers at from \$150 to \$170 each, could be bought for export to Canada for \$110. Of course there was no truth in the statement, and when proof of it was demanded from Mr. Washington by Mr. Wood, the manufacturer of the implement, the reply was that names and localities could not be divulged without authority from Mr. Bayard, who was then Secretary of State. Since then, however, Mr. Bayard has ceased to be a member of the Government, Mr. James G. Blaine succeeding him; and we suggest to Mr. Washington at London, Ont., that probably Mr. Blaine will readily give the permission that Mr. Bayard withheld. Mr. Washington should now arise and vindicate himself.

MR. JAMES M. SWANK, Secretary of the American Iron and Steel Association, has sent us his annual Statistical Report to his Association, in which is contained complete statistics of the American iron trade for 1888, compared with 1887; and a review of the present condition of the iron industry in foreign countries, compiled up to April 1st, 1889. In alluding to the admirable work done by the Association last year in disseminating tariff literature, Mr. Swank shows that the total distribution of tariff tracts during 1888 amounted to 1,387,864 copies, averaging ten pages each, comprised in seventeen tracts. Some of the facts regarding the iron and steel industries in the

United States are alluded to elsewhere in these pages. Not only the United States, but the world at large, is indebted to Mr. Swank for the accurate and exhaustive statistical work which he prepares from time to time, bearing on the subjects to which he gives so much intelligent attention.

It is difficult to imagine why manufacturing druggists should be so violently opposed to the use of gasoline or naphtha as fuel in vapor stoves, on the ground of the exceeding inflammability of the article, while they consume such large quantities of it in the manufacture of liniments, etc. Although there are hundreds of thousands of vapor stoves in use in the United States, one rarely hears of any accident occurring in such use; while it is no uncommon thing to read of the explosion of liniment bottles, with disastrous effects. A bottle of liniment is composed largely of naphtha, and those who use it—chiefly for rheumatic pains—are apt to crouch near the fire while the application is being made; and as no warning is printed on the label, explaining the volatility and exceeding inflammability of the contents, painful and sometimes fatal accidents occur through careless handling. Even in the hands of the not over-intelligent negroes of the South, gasoline stoves are not considered extra hazardous; but many a poor old rheumatic cripple has gone to glory by bringing his liniment bottle too close to the fire.

"THE Society for the Promotion of Manufactures" is a Chilean organization which has been liberally dealt with by the Chilean Government, one of its prime objects being the gathering of valuable information regarding manufacturing industries from foreign countries, and the dissemination of it among the people of Chili. The Chilean Congress has recently made a liberal appropriation to this society to assist it in carrying on its important work, and it has been determined to hold an exhibition at Santiago, to be opened on November 15th next, with but a single object in view—the introduction of the best flour mill machinery into that country. The society recognize the necessity of the very best machinery to enable Chili to compete as an exporter of flour. It is stated that there are about 750 flour mills in that country, only three of them being of the modern or roller process. The exhibition will be open to manufacturers of all countries who may desire to display specimens of their machinery, and liberal provisions have been made to assist exhibitors in making their displays.

ABOUT a year ago the fact was noticed in these pages that Mr. James Goldie, of Guelph, Ont., late Vice-President of the Canadian Manufacturers' Association, had been elected President of the Ontario Cricket Association; regarding which we ventured the remark: "Thus it is that, having attained the acme of human greatness—to be an officer of the Manufacturers' Association—like the lesser satellites about the sun, do other honors flutter caressingly around the head of the great and good." Then it was an ex-Vice-President of the Association, but this time the hand of propitious fate is laid affectionately upon the executive itself; and Mr. W. H. Storey, of Acton, Ont., President of the Association, has been honored by having not only a base ball club named after him—the W. H. Storey Base Ball Club—but he has also been elected President of that club. We have heard it suggested that efforts should be made to induce the Ontario Cricket Association,

under the captaincy of their lithe and sprightly President and the W. H. Storey Base Ball Club, under the captaincy of their rollicking and agile President, to give some exhibitions of their skill at the Fair Grounds in Toronto, during next September's exhibition. The event would draw.

THE papers in connection with the awarding of the contracts for the deepening of the St. Lawrence canals, were presented in the House of Commons last week. For the Galops Canal, Messrs. Charlebois & Poupore, of Ottawa, were the lowest tenderers, their figures being \$521,199. The Chief Engineer of Canals reported that some of the prices in this tender were very little more than half what the material can be purchased for, and in some other cases the items were little more than one-half what the work would cost. The highest tender for the Galops amounted to \$1,248,000. In consequence of Mr. Page's report, the Minister advised that new tenders be called for. This was done, and Messrs. Murray and Cleveland were the lowest tenderers, their figures being \$588,749. In regard to their offer the Minister reported "the lowest tender is from a competent and energetic firm, the members of which have done considerable work for the department satisfactorily." This tender was accordingly accepted. For the Cornwall Canal enlargement, sections 2, 3 and 4 went to Davis & Sons, their prices being \$377,744, \$328,303, and \$294,294, respectively. Sections 5, 6 and 7 went to the Gilbert Blasting and Dredging Co., their figures being \$176,298, \$87,535, and \$141,280.

In all branches of the iron and steel trades in the United States, but one—pig-iron production—according to Mr. Swank's recent report, there was a decline in 1888 as compared with 1887, as is shown in the following table:

Net tons 2,000 lbs., except nails.	1887.	1888.
Pig iron.....	7,187,206	7,268,507
Bessemer steel ingots.....	3,288,357	2,812,500
" rails.....	2,354,132	1,552,631
Open-hearth steel ingots.....	360,717	352,036
" rails.....	19,203	5,261
Crucible steel ingots.....	84,421	78,713
Rolled iron except rails.....	2,565,438	2,397,402
Iron rails.....	23,062	14,252
Kegs of cut nails, 100 lbs.....	6,908,870	6,493,591
Pig, scrap and ore blooms.....	43,306	39,875

In but one item, cut nails, was the production of 1887 exceeded in any previous years, the production of cut nails in 1886 being 8,160,973 kegs. The reduction in production of cut nails is no doubt due to the largely increased production of wire nails. Mr. Swank estimates the production of wire nails in the United States in 1888 at one and a half million kegs; in 1887 at one and a quarter million kegs, and in 1886 but 600,000 kegs. While all sizes of nails are now made from wire, it has been chiefly in the smaller sizes that there has been such a material increase in production, and it is these sizes that have most seriously interfered with the production of cut nails. It is also a remarkable fact that, notwithstanding the great production of 1888, as compared with the previous years, all that was made passed into the hands of consumers, as the stocks on hand at the beginning and close of 1888 were practically the same.

JUSTICE FORSAITH, of the Municipal Criminal Court, of Boston, Mass., recently sentenced Thomas Flynn, an officer of Local Assembly 6849, Knights of Labor, composed of marble workers in

that city, to pay a fine of \$30 and costs of prosecution, for disturbing the peace by shouting "scab" at three non-union men who were peaceably proceeding to their work. It is a self-evident truth, and one of the first principles of liberty, that a man may fix a price for his own labor. The right has been admitted over and over again, and applies as well to the workman who chooses not to join the Knights of Labor or trades union society, as to members of such organizations. The commonest species of black-guardism is to call a mechanic who is not a trades union man a "scab." This opprobrious epithet sensational newspapers of the day hasten to adopt to please their trades-union readers; and great head lines are paraded in their columns such as "Four scabs beaten on their way to work." "Strikers firm—scabs warned off," etc.—and the aid of a portion of the press is thus brought in to crush honest, temperate and industrious workmen. Many and many have been the occasions, as heads of great industrial establishments will bear witness, when well paid and perfectly satisfied workmen have been compelled to sacrifice good positions and suffer for the want of needful comforts in their families, because of outrages and annoyances they would be subjected to did they not comply with the commands of trades-union leaders.

In a recent report of the Boston (Mass.) Manufacturers' Mutual Fire Insurance Company, alluding to the automatic sprinkler system properly equipped and maintained in operative condition in certain factories, it is stated that this is the best system of protection for isolated fire hazards yet discovered, and that its present value is mainly due to the factory mutual insurance companies, which thoroughly investigated the matter and evinced their belief in this protection by reducing the rate on textile mills protected by approved sprinkler systems one-half. The company alluded to publish a table showing the results of the automatic sprinkler protection upon fires on property insured by that and other companies. The exhibit extends from the year 1877 to 1887, both included, and shows that without the sprinklers there were 759 fires, involving losses aggregating \$5,706,723, the average claims for insurance being \$17,613 each; while with the sprinklers there were 206 fires and \$87,637 losses; the average claims for insurance being but \$1,081. The records of the New York Board of Underwriters show that during 1887 eleven fires were extinguished by sprinklers, which otherwise would have proved very severe losses. It has been discovered that fire protective apparatus, pipes, tanks, water buckets and automatic sprinklers, will not do much in preventing loss by fire unless these devices be supplied with water. For instance an automatic sprinkler system will not do anything to prevent loss where the water is turned off from the pipes or where it is frozen. A great many establishments which have been fitted with automatic sprinklers, have been visited and found that the water was turned off in some instances because one of the sprinklers was leaking a trifle. It takes diligence and intelligence to derive benefit from the best of means that may be afforded.

ANENT the question of American millers finding new foreign markets for their flour, and the difficulties they encounter in doing so, the Indianapolis, Ind., *Millstone* grinds out the following grist, which should interest and be suggestive to all

F. E. DIXON & CO.

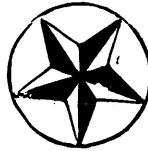
MANUFACTURERS OF

TO MILL OWNERS
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F. E. DIXON & CO.'S

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LEATHER



RIVET
BELTING.

READ THIS:

Shepherd Street,
Toronto, Nov. 16, 1888.

Messrs. F. E. DIXON & CO.
Gentlemen,

The eighteen-inch Driving Belt we had from you in July 1879, has given us thorough satisfaction. It has done all the work in our factory ever since, and looks as if it were good for the next ten years.

Yours truly,

WM. BURKE
For Langley & Burke.

BELTS for Saw Mills,
for Electric Light Works,
for Hard Places.

Lace Leather, Belt Oil, etc., etc.

F. E. DIXON & CO.

70 KING STREET EAST,
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MANUFACTURERS OF

LEATHER BELTING

BELTS MADE ANY WIDTH,

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OAK-TANNED LEATHER BELTING.

11 JORDAN STREET,

TORONTO.

Canadian manufacturers who may also be seeking foreign trade. Hear him :

"We called attention, some time ago, to the fact that Mexico is on this side of the earth ; that it is contiguous to us, and that Mexico is inhabited by eaters of bread. We also cited the fact that the Germans and English were satisfying their appetite for this staff of life and getting their money. We mentioned that there is only one good reason for this, and that is, that the English and Germans know better how to do business than we of this country. That the American merchant travels a good deal on his shape ; that he is too much disposed to button his coat up to his chin, expand his chest, look large, and call attention to the greatness of the American merchant, and thus rest himself. The English and German merchants are the hustlers. They are coming to our doors and doing business that ought to be ours. They do business the way the Mexicans want them to. We want the Mexicans to do business our way. There is only one thing that the English or German merchant, exacts, as being his way, and that is the money. If they want the flour done up in a blue bag and tied with a yellow string, they get it. If they want the accounts made out in any very remarkable manner, or anything else done in an unusual way, these German-English merchants do it and hand in the bill. We are not living to save ourselves trouble. If that is so, life is not a success for any one. If we sell our flour and get the money for it and get paid for all we do in connection with it, we should be willing to do anything legitimate. Now the trouble with the American merchant and the Mexican trade is, that he is either too conceited, too ignorant, too proud, or something else, to study and meet the Mexican ways. Hence, we are without the Mexican flour trade. It is true of the West India trade and the South American trade. We fail to meet their requirements or to present our goods, and the result is that we are out of the market. We are working the same old channel, principally Great Britain and the North German countries. We haven't enough strings to our bow. Hence, depression of trade. America will have to take on a great deal of new territory before the milling business will assume an easy condition. We can grow wheat and make flour as cheap as any nation under the sun. The conditions are all favorable to us ; but as long as we do not present our goods, or call attention to them, outside of certain channels, we cannot expect to do anything. We have organizations which will admit of our living. That is about all we may expect as long as we are supplying our contracted markets. Our business will become more profitable only after an extension of trade. There are a good many things necessary before this will be reached. First, is the recognition of the fact that we, as manufacturers, must make exactly what the trade want as long as they want to pay for it ; and that we must furnish it as they want it, when they want it, and reserve to ourselves only the matter of price and payment."

SPECIAL ADVERTISEMENTS.

TISDALE'S BRANTFORD IRON STABLE FITTINGS.—We lose no job we can figure upon. Catalogue sent free. The B. G. Tisdale Co., Brantford, Canada.

KNITTING **CREELMAN BROS.,** **MACHINES.**
Georgetown, Ont

TO MANUFACTURERS.

WANTED.—By a young man, position as book keeper or accountant ; rapid worker, thoroughly reliable, and experienced in all details of office work, "cost accounts" and general business. Good correspondent and able to take management of office. Highest references ; salary, \$700 per year. Address—"Accountant," in care of CANADIAN MANUFACTURER office.

"THE Greater Half of the Continent" is a handy reprint from the *North American Review*, of Mr. Erastus Wiman's recent paper in that magazine regarding Canada ; printed for the author. It is a condensed history of the resources of the country which is both convenient and valuable.

THE Industrial Publication Company, 294 Broadway, New York, have sent us "A Practical Guide to Success in the Use of Recipes, Formulæ, etc." This is an exceedingly useful little hand-book on technological and commercial subjects, with hints on chemical and mechanical manipulation, intended as a supplement to all books of recipes.

MESRS. EUSEBE, SENECA & FILS, Montreal, have just published a complete and revised edition of the debate in the Dominion House of Commons on the "Jesuit Estates' Act," a copy of which they have sent us. The question under discussion is one of the most exciting ever presented to the attention of the Canadian public, and to those who feel interest in it, the book cannot but be invaluable, presenting, as it does, the views of all the gentlemen who participated in that memorable debate.

A NEW feature in *Once a Week*, is a full page, entirely devoted to the young folks. It is a continuous illustrated poem, by Palmer Cox, entitled "The Brownies," and as announced by the publishers, will appear every week for a whole year. This illustrated journal is one that can be relished by every one, both old and young ; it is bright and racy, and replete with good stories, interesting reading, splendid illustrations and cartoons. P. F. Collier is the publisher, 104 Attorney St., New York.

Good Housekeeping is publishing a series of articles by Prof. Riley regarding "Insect Pests of the Household," which will command the attentive perusal of all good house-keepers. In the current number he tells us an interesting story regarding the clothes moth, the habits and natural history of which it is worth while to know, as this is the time of the year to put such knowledge to good use. *Good Housekeeping* is a family journal conducted in the interests of the higher life of the household ; published fortnightly by Messrs. Clark W. Bryan & Co., Springfield, Mass., at \$2.50 a year.

MR. J. H. BROWNLEE, Brandon, Man., has sent us a copy of his indexed railway and guide map of Manitoba, which, we are informed, is published by authority of the Provincial Government of Manitoba. There are fourteen pages devoted exclusively to the indexing, which gives correct and comprehensive information of the Province ; embraced in which are the names of every settlement in that section ; railroad lines, completed or contemplated, townships, grain centres, rivers, lakes, etc. The map is convenient to be carried in the pocket, and is sold at the nominal price of twenty-five cents.

THE *Iron Trade Review*, Cleveland, Ohio, has been turning a new leaf, and now comes to us exhibiting a marked and radical change in its make up from what it formerly was. The conventional cover has been abandoned ; and instead of the three-column page, as heretofore, there are but two columns. Its distinguishing news features are begun right at the front, and the reading matter is continued uninterruptedly until the advertising business is reached. These changes—we are not prepared to call all of them improvements—are the crystallization of the twenty-two years of prosperity of our contemporary ; and we hope its shadow may never grow less. THE CANADIAN MANUFACTURER adopted the style of wide columns here alluded to, when it first made its appearance eight years ago, since which time the style has been followed by the *American Artizan* of Chicago, the *St. Louis Miller*, and *Farm Machinery*, of St. Louis, and some other American trade journals. The *Iron Trade Review* is one of the most valued and valuable exchanges that comes to our table.

THE *May Wide Awake* has two contributions that make this issue of special interest. One is a long and thrilling tale by Jessie Benton Frémont, of a personal Californian adventure in the wild mining days of 1840. As a foil to this dramatic narrative, is "The Household of Andrew Jackson" (Children of the White House Series). It is enriched with twenty illustrations. Trowbridge's popular serial, "The Adventures of David Vane and David Crane," reaches its last and best chapters. A new serial, "Sibil Fair's Fairness," by Chas. Talbot, author of "Romulus and Remus," "Royal Lowrie," etc., will open with the new volume in June. "Five Little Peppers Midway," Margaret Sidney's charming serial, comes to a pause in this number. But "Five Little Peppers Further On," will delight all readers through the second half of the year. Many other articles, stories and poems fill the number, the more noticeable ones being a ballad of a boy's perilous ride during the Civil War ; a "Behavior Letter," "An English May Day," etc. *Wide Awake* is 20 cents a number, \$2.40 a year. D. Lothrop Company, Boston, publishers.

Manufacturing.

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. MORRIS & BANKS will build a large saw mill at Shaw-nigan Lake, B.C.

MR. GEORGE MCFARQUHAR, Lethbridge, Alberta, is establishing a sash, door and blind factory.

DOOLITTLE'S saw-mill, near Centreville, Ont., was destroyed by fire, April 18th. Loss, \$2,000.

MR. J. H. SILL, St. Thomas, Ont., is filling an order for 200,000 brush-handles for the English market.

THE Rathbun Company, Deseronto, Ont., will ship 150,000 rail-road ties to Charlotte, N. Y., this summer.

A COMMITTEE of citizens of Killarney, Man., are trying to induce the erection of a first class flouring mill at that place.

MESSRS. SMITH & BRIGHAM, of the Moosomin, Assa., flour mill, contemplate erecting an elevator at their mill this season.

MESSRS. McDONALD BROS., Sherbrooke, Que., have recently made a rich find of asbestos in the vicinity of Thetford, Que.

THE Dominion Government will place an electric light plant in the Kingston, Ont., Penitentiary, at a cost of about \$15,000.

MR. GEO. BEACH, Meadows, N.B. has shipped 700,000 hop-poles to the United States this year, where they find a ready market.

MESSRS. RITCHIE & NEWCOMB will convert the stone grist mill at Gladstone, Man., to a roller mill, with a capacity of fifty barrels.

MESSRS. GOLDIE & McCULLOCH, Galt, Ont., are building several large iron tanks for Sleeman's artificial ice factory, at Guelph, Ont.

MR. J. A. TESKEY, proprietor of the Mississippi Woolen Mills, at Appleton, Ont., will make a considerable addition to his factory.

DR. HARRISON, a banker of Neepawa, Man., will build a 125-barrel flour mill at that place if certain inducements are offered him.

THE derrick, engine house and machinery of Messrs. J. L. Englehart & Co.'s Baxter oil wells at Petrolea, Ont., were destroyed by fire, April 10.

A CONTRACT to supply the Richelieu and Ontario Navigation Co. with 18,000 tons of coal has been awarded to the Cumberland Coal and Railway Company.

THE Grand Trunk Railway shops at London, Ont., are engaged building vestibule cars, which will be placed on the continuous route between Montreal and Chicago.

THE Maritime Car and Machine Company has been organized at Moncton, N.B., who will take over the plant, etc., of the defunct Peters' Combination Lock Company.

MESSRS. WEBSTER, MUTTER & Co., cigar manufacturers, have acquired the Fortier property in Sherbrooke, Que., which they will enlarge and improve for the purposes of their business.

MR. WM. PRESTON, of Stratford, Ont., will build a first-class roller mill at Boissevain, Man., with a capacity of 100 barrels per day. The building is to be of stone 48x30, 40 feet high.

WHILE boring for water a few days ago at Blenheim, Ont., gas was struck in what is thought to be paying quantity. A joint stock company has been formed, and boring will be continued.

AN asbestos manufacturing company are negotiating with the Levis, Que., corporation for the purchase of a large lot of ground in that town for the purpose of erecting extensive works there.

A BONUS of \$2,000 is guaranteed to a miller from Sydenham, Ontario, to build a roller mill at Killarney, Man., which offer he has expressed himself as willing to accept.—Deloraine, Man., *Times*.

THE Dominion Sanitary Pottery Company, St. Johns, Que., are turning out large quantities of their excellent goods, and have large orders booked for future delivery. They now have two potteries in operation.

MR. VALANCEY E. FULLER, of Hamilton, Ont., has been appointed managing director of the Cochrane Roller Mill Company at Esc-

naba, Mich. He will leave Hamilton to reside there permanently about June 1.

THE Canada Pipe and Foundry Company, Montreal, have been awarded the contract for the manufacture of a large portion of the water-pipes to be required by the corporation of Montreal the current season.

MR. NEILL FRASER, Pictou, N.S., is operating a successful factory for the manufacture of a combination picket and wire fence. He gives employment to eight hands, and sold last year about fifty miles of this fencing.

THE two cotton mills owned by Wm. Parks & Son (limited), St. John, N.B., recently turned out, in one week, 52,500 pounds of manufactured goods. The factories are now working on several large orders for the West Indies.

MR. JAMES SKENE, Pennfield, N.B., is adding a new American loom to his woolen mill, to be used in making plaid horse blankets. Since the beginning of last year he has added seven new machines to his factory and is now building a new dye house.

A REPRESENTATIVE of the milling firm of Messrs. Moyer Bros., Listowell, Ont., who was talking of establishing a flour mill at Neepawa, Man., is proposing to establish a mill at Morden, Man., if given a loan of \$6,000 or \$8,000, to be repaid with interest.

THE town of Alliston, Ont. has surrendered its claim of \$10,000 on the Vulcan Foundry property in that place in favor of Messrs. Mercer Bros. & Co., who have acquired it, and who have been granted exemption from municipal taxation on it for five years.

THE building of the Chignecto Ship Railway is booming Amherst, N.S., immensely. Among the new factories talked of are nail factory, homespun mills, furniture factory, condensed milk and coffee factory, cheese factories and the opening up of the stone quarries.

THE Rapid Manufacturing Company, Montreal, has been incorporated with a capital of \$150,000. The objects of the company are the manufacture of type-writing machinery, sewing machines, and generally for the manufacture of any article for domestic or business uses.

WITHIN a radius of fifty miles of Sherbrooke, Que. there are said to be more varieties of mineral than in any other locality in North America of similar area—iron, copper, nickel, silver, galena, asbestos, antimony, plumbago soapstone, marble, limestone, flag-stone slate, etc.

MESSRS. E. LEONARD & SONS, London, Ont., have supplied Messrs. M. D. Barr & Co., Montreal, the Canadian agents of the Edison system of electric lighting, with a 50 horse power boiler and one of their celebrated automatic Ball engines for the Brandon, Man., Electric Light Company.

MR. E. H. HEAPS, who recently operated a highly-bonused furniture factory at Oshawa, Ont., which was not remarkably successful, has associated himself with others and will start a similar factory in Vancouver, B.C., several carloads of the necessary machinery having already been forwarded to the latter place from Oshawa.

MR. G. LEDINGHAM, Victoria, B.C., has just completed a new factory building 60x50 feet, two stories high, which he will occupy as a carriage factory, where all kinds of work, from the lightest sulky to the heaviest dray, will be turned out. All the iron work necessary in the construction of vehicles will be done on the premises.

MESSRS. ROBIN & SADLER, of Montreal and Toronto, have been awarded another good contract by the Royal Electric Company, Montreal, to supply three double leather belts, two of which are to be thirty-two inches, and one thirty-eight inches wide, and each about one hundred feet long. These are to be run on the Electric Company's new dynamo engines.

THE high price of brass has led the clock manufacturers of Ansonia, Waterbury, Thomaston, Conn., and other places, to experiment with steel for certain parts of the cheaper grades of clocks, and the result has been gratifying. Soft sheet steel has been put under the dies, and many working parts are now made entirely of steel which were previously composed of brass.

A UNITED STATES firm offer to supply the Pilot Mound Milling Co., lately formed, with machinery for a roller flour mill for \$7,327. In addition the engine will cost \$1,575 without the boilers. The mill to be of seventy-five barrel capacity. Another firm at Minneapolis offer to provide all the machinery required for a seventy-five barrel mill, including the engine, for \$10,000.—The Pilot Mound, Man., *Sentinel*.

DURING the past year the Hamilton Bridge and Tool Company, Hamilton, Ont., constructed bridges and similar heavy iron work for the Canadian Pacific, Grand Trunk, Michigan Central, Guelph

Junction, and Oxford and New Glasgow Railways, and the St. Clair Tunnel Company. They are now at work in the construction of twenty-one iron bridges for the Canadian Pacific, and four for the Grand Trunk Railway.

THE Dominion of Canada Manufacturing Company, it is stated, will take over the business of manufacturing school, office and church furniture, etc, heretofore conducted by Messrs Stahlschmidt & Co., Preston, Ont. The personnel of the new company will include the Stahlschmidt people, of Preston, and Mr. George F. Bostwick, of Toronto, who has for some time been the Toronto agent for these most excellent goods.

MESSRS. YOUNG BROS., manufacturers of mill machinery, Almonte, Ont., have just put in one of their fulling mills for Messrs. Gemmill & Son, woolen manufacturers, Port Elmsley, Ont., and are now making one of their cloth washers for the woolen mill of Mr. Galetta White, of Galetta, Ont. They are also building for the Canada Lumber Company, Carleton Place, Ont., one of the largest sizes of their well known rotary pumps.

MESSRS. J. O. WISNER, SON & Co., Brantford, Ont., are about making considerable enlargement of their agricultural implement works—the addition to their factory including a new three-story brick building, 80 x 66 feet, which will be fully equipped with the latest and most approved machinery. They have already this spring sold 1,500 of their cultivators, and will build 500 more to fill orders; and they expect to put out 3,000 of them for the spring trade of 1890. They have sold nearly 2,000 of their broadcast seeders this spring.

THE Rathbun Company, Deseronto, Ont., manufacturers of porous terra cotta fire proofing, for use in new and old buildings, have recently furnished the necessary quantities of this material used in the construction of the new Bank of Commerce building in Toronto; the new Royal Insurance Company's building, the Imperial Fire Insurance Company's building, and the St. Lawrence Sugar Refinery, in Montreal. It is the finest article for suburban cottages, excluding both heat and cold, and it is both cheap and durable. Descriptive catalogue sent on application.

THE Napanee Cement Company Napanee Mills, Ont., manufacturers of roach lime, hydraulic cement, etc., call special attention to the cement manufactured by them, which they say is equal, if not superior, to any native cement, and as good for most uses as the higher priced Portland cement. The price of this latter article is about \$3, as compared with the Napanee cement at about \$1 for the same weight. This is a large difference which builders will consider, particularly as the Napanee cement can be used as an entirely satisfactory substitute for a great deal of the work now being done with Portland cement. It is endorsed by many leading engineers of cities, railways and others. Full particulars of strength, tests, etc., furnished on application.

THE authorities of Collingwood, Ont., having acquired possession of the large and valuable dry dock there, have transferred the lease to a new company, the principal members of which are Messrs. Thos and John J. Long, Chas. Cameron and P. M. Campbell. Under direction of this company vigorous action has been taken, and it now appears that the dry dock has entered on a steady business career, such as was looked for when the people of Collingwood gave \$25,000 towards building it. The company have erected a powerful engine for pumping the dock. Soundings show fourteen feet of water over the sill, so that the dock can take on any vessel on the lakes. Negotiations are opened for a foundry and machine shop in connection with the dry dock.

THE New Brunswick Manufacturing Company, St. John, N.B., has just been organized with \$30,000 capital for the purpose of manufacturing the Lancaster patent vice grip wrench and other wrenches, steel forgings, drop forgings, etc. The Lancaster wrench is the invention of Mr. B. F. Lancaster, of Norridgewock, Maine, the article being manufactured extensively at Lewiston, that State. It is described as having an adjustable and simply operated vice grip. It is stated that no factory of the kind exists in Canada; that the duty on this class of goods is 30 per cent.; that Canada buys annually 400,000 wrenches at a cost of \$200,000, paying on them \$60,000 duty, and that the facilities and advantages for home manufacture are equal to those of any country.

THE Excelsior Copper Company, Harvey Hill, Que., is turning out three car loads per week of very rich ore, which is being shipped to England. The mine is improving the further the work goes down. Over a hundred men are employed. This is close to the large asbestos mines Johnston's, Ward's, and the Lake mines. There are over a thousand men employed during the summer in asbestos mining. At Capelton there are two copper mines, with smelting and acid works. The Easter mine, and the G. H. Nichols

& Co. mine, employ over 500 men, and work night and day. There is a new American company from St. Louis bonding mining properties in the vicinity of Sherbrooke. They commenced on two properties, and are already pumping the water out of the abandoned shafts.

A TELEPHONE can be very nicely made for home use, and will work well forty rods or more. Buy small copper wire, have a box for each house about the size of a cigar box, with cover; the box should be two or three inches deep. In the cover make a small round hole about as large as a large pea, and directly opposite another as large as a silver dollar. Place the small hole next the wall. Between the box and wall must be placed four small pieces of rubber (taken from the heel of an old rubber boot). Now draw the wire tight enough to hold the box in place, wind around a nail placed across the large opening and your telephone is done. Care must be taken that the wire does not come in contact with anything. Leather straps can be tacked to posts or trees to keep the wire in place.

It is probable that the sash and door trade will be immensely developed on the North Pacific coast during the coming five years. The cedar of that region is admirably adapted to the manufacture of such goods. It is wide, clear and easily worked, but its chief recommendation for sash and doors is its integrity when put in place. It never warps, and shrinks and swells but little. It is now largely used for the home demand, and manufacturers already have their minds set on extending their markets so as to reach remoter parts of the country. There is no reason why their anticipations should not be realized. Sash and doors are mill products that can be shipped long distances at a profit, and an energetic pushing would place North Pacific factory output in any part of the country. —*Northwestern Lumberman.*

THE Canadian Pacific Railway Company have recently built two magnificent passenger engines at their Montreal shops. They are constructed on an entirely new model, the design of Mr. F. R. Brown, the mechanical engineer of the company. The engine has ten wheels instead of six. Six wheels are driving wheels with a four-wheel truck in front. These driving wheels are 75-inch. Cylinders are 20x22. Special attention has been paid to abate the smoke and cinder nuisance, and an appliance has been fitted to each engine that will almost entirely abate this inconvenience and will make traveling cleaner than ever. Another thing is the rounded cab for the engineer, the first of its kind. It is arranged so that it can be kept perfectly warm during winter. The length of the engine is sixty-five feet, and weight about 107,000 pounds.

A REPRESENTATIVE of the Welland Vale Manufacturing Company, of St. Catharines, Ont., J. D. Chaplin, at present staying at the Driard, has made arrangements to have a branch factory of the company started here, where all kinds of edge tools, agricultural implements, etc., will be made. It is more than likely that the factory will be erected on either a piece of land, part of the Pemberton estate, or on the old Nesbitt property. A manufacturing business like the above started in the city could not fail to be beneficial.—Victoria, B.C., *Standard*. Mr. William Chaplin, manager of the Welland Vale Manufacturing Company, above alluded to, informs us that there is no truth in the statement that his company propose establishing a branch factory in British Columbia. He says that the newspaper man originating the statement had been drawing upon his imagination for his facts.

THE American Copper Company, Toronto, of which Mr. C. A. Oswald is Manager, have recently constructed a group of five magnificent chandeliers, wall brackets, etc., for Chalmers' church in this city, which give great pleasure and satisfaction to the congregation. The chandeliers have a spread of six feet, and are eight feet in length. One has a cluster of forty lights, the second thirty-six, the third thirty, and two twelve. The combination of the clusters, together with the wall lights, is most perfect, giving the church not only a brilliant appearance, but also prevents a shadow in the most remote corner. Until the American Copper Company took these designs in hand, Canadians had to import these useful church ornaments and appendages from the United States, and it is doubtful if any American can turn out such a first-class article as furnished Chalmers' church by the company concerned.

THE Penberthy Injector Company, Detroit, Mich., occupy a very liberal space on our back cover, in calling attention of steam users to the Penberthy improved automatic injector, manufactured by them. They inform us that there are 10,000 of these injectors in use in Canada. They are described as being cheaper than a pump; take up less room, and feed the boiler with water at nearly boiling point. They are simple, economical and durable, and are claimed to be the only absolutely automatic injector on sale in Canada. Their prominent features are: They start at about twenty-five

pounds steam pressure and work to 150 pounds; lift water up to twenty feet, and work from a head as well; require but little attention, as, being automatic, they re-start themselves if feed to boiler is broken by air or sudden jarring; parts are interchangeable, and can be easily removed and replaced without uncoupling. These goods are handled largely by the Watrous Engine Works Company, Brantford, Ont.; Mr. J. H. Taylor, Montreal; Mr. S. J. Shaw, Quebec; Messrs. Park Bros., Chatham, N.B.; Messrs. McDonald & Co., Halifax, N.S., and Messrs. A. R. Williams & Co., Toronto. Descriptive pamphlet sent on application.

The Grand Trunk Railway Company, or strictly speaking, the St. Clair Frontier Tunnel Company, are pushing the building of the railway tunnel between the towns of Sarnia, Ont., and Port Huron, Mich. The length of the actual tunnel will be 5,280 feet, of which 2,310 feet will be under the river. For the centre portion of this distance, fifteen hundred feet are practically level, the ascent from the centre on either side being one in fifty. The total length of the tunnel and its approaches is 15,150 feet. The tunnel, cylindrical in form, has a diameter of twenty feet in the clear, and is being lined with cast iron. The greatest depth of water over the top of the structure will be forty and a half feet, and the minimum fifteen feet. The works are now in active progress and it is expected that the gigantic undertaking will be completed this year. The Government will probably propose to Parliament that the subsidy shall be fifteen per cent. of the actual cost of the work, which, as the cost is estimated at about \$2,500,000, would be about \$375,000. When completed the tunnel will be of immense benefit to the Grand Trunk Railway Company, the long delay which is entailed by the present transfer system by boat being entirely avoided, and making more than an hour's difference in time in the journey between Toronto and Chicago.

A VICTORIA, B. C. genius, according to the *Standard* of that city, has invented a patent hen. The mock bird is precisely like a "really" hen; clucks, scratches, looks out of one eye, and does all the business of a well-conducted hen, except to lay eggs. It is constructed of cast-iron, and in its interior is arranged a circular saw, which is turned by a powerful coil spring and clock-work. This mechanism is wound up and set, and the hen placed in the garden. Should a bird of prey make a dive onto the bird, the machinery is set in motion, and the saw revolves about 7000 times a minute. The hen then opens and the saw emerges, slices the victim into mincemeat, and retreats back into the interior of the hen, ready for the next marauder. The performance is repeated four times for every winding. A neighbor of the inventor laughed the idea to scorn, and set his dog on the lone hen, which was placidly scratching in the garden. The canine made a charge, there was a sudden buzzing of rapidly revolving wheels, and in a moment nothing was left of that dog but an excellent sample of sausage meat. The scoffer is now convinced that the invention is a grand success. Letters patent have been applied for, and the inventor is sure of a big profit, as the sales of his hawk-destroyer will no doubt be large in the rural districts.

The welding of copper has been generally considered a lost art, but if the incident here republished from a Pittsburg, Pa., paper is correct, it has been recovered. The experiment in copper-welding here alluded to is thus described:—"At the time stated Mr. James Burns, representing the Burns Copper Welding Company, took possession of an ordinary blacksmith forge, and with a rod of copper three eighths of an inch in thickness began operations. After the flattening process usual in such work he formed a disconnected ring. The usual 'scarfing' process followed, then the operator, after sprinkling a powder over the piece, proceeded to make a weld which, when cooled, showed a perfect union. He then took the ring measuring two inches in diameter and submitted it to a strain until it had widened three-fourths of an inch. This was a more severe test than iron is expected to stand, and demonstrated conclusively that the union of the two ends of the rod was not the mere 'blazing' known to mechanics to-day. Other experiments were made and in every case the spectators expressed themselves as being satisfied that the process was a complete success. Some of those who watched the work have spent years in working among metals, and consequently were well justified to express an opinion in regard to the copper-welding process."

The iron ore deposit at St. George's Bay, Newfoundland, has excited the wonder of the experts who have visited it. Last fall Doctor Stevens, mining expert from New York, inspected the property and found the visible width of the deposit to be 171 feet, the distance beyond not being ascertainable as the deposit is hidden by moss and shrubbery. The visible ore is of the purest quality, being practically free from foreign rock matter. The length of the deposit has not been determined, but it may be described as a mountain of

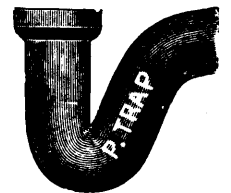
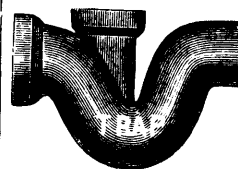
magnetic ore of the purest quality, free from sulphur and phosphorus, and just suitable for the manufacture of steel. Analyses by Professor Pike give an average percentage of 90.3 per cent of magnetic iron. The samples were taken from the surface and the solid vein will undoubtedly give still higher results. A deep gulch cuts through this mountain of ore, exposing the lode, which can be worked on either side, in fact quarried out, at a cost of not over twenty cents a ton. From the bottom of the gulch to the top of the mountain 750 feet, thousands of tons of ore, estimated at from 300,000 to 400,000 tons are exposed, which can be mined without the aid of explosives. This magnificent deposit of ore is close to a fine harbor, with which it may be connected by a short tramway. Coal has been discovered close by, which adds immensely to the value of the property, and we are safe in predicting that in a few years St. George's Bay will be the seat of extensive steel and iron works. The property has been bonded to an American Syndicate.

The Canadian Pacific's new grain elevator, just completed at Fort William, on Lake Superior, Elevator B, as it is called to distinguish it from the first elevator built there by the Canadian Pacific Railway Company, has a capacity of 1,400,000 bushels. There are fourteen elevating legs, each capable of elevating 7,000 bushels per hour. Each of these legs is furnished with a self-cleaning boot, the invention of W. J. Loss, the company's Superintendent of Buildings. Owing to a provision having to be made for tightening the belt which carries the elevating buckets, there has always been a certain amount of grain remaining in the boot, which requires to be frequently cleaned out by hand, and always so when changing from one grain to another. This boot has an ingenious arrangement, by which a shield is attached to the frame carrying the pulley. This shield is always just kept clear of the buckets, no matter what position the pulley takes in the boot while tightening the belt from time to time. Grain men will understand the advantages of always having a clean boot to start elevating with. The whole of these legs are driven by friction clutches attached to the shafting, two lines of which are run the entire length of the elevator. These two lines of shafting are driven by a single massive seven-ply rubber belt fifty-six inches wide and over 300 feet long. This method was first tried in Elevator B at Montreal, and found to work so satisfactorily that it was decided to accept the same arrange-

A. E. CARPENTER, Pres.

J. H. NEW, Vice-Pres.

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THE HAMILTON AND TORONTO

SEWER PIPE CO'Y,

(LIMITED,)

HAMILTON, CANADA.

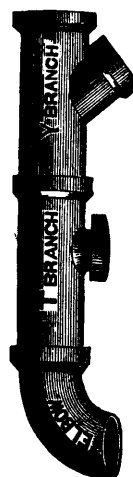
SUCCESSORS TO

The Campbell Sewer Pipe Co. and The Hamilton
Sewer Pipe Co.

—MANUFACTURERS OF—

STEAM-PRESSED, SALT-GLAZED
VITRIFIED
SEWER PIPE,
FLUE PIPES, CHIMNEY TOPS and
SMOKE PREVENTIVES.

Established 1860.



ment at Fort William. This elevating machinery, with the steam shovels, will enable a train of sixteen cars to be unloaded and stowed away in the bins in twenty minutes.

THE Toronto Pattern Model Works, Toronto, have recently constructed a model of the *Globe* fast train that carries that paper as far west as London, Ont., early every morning several hours in advance of all other city papers. The model is eight feet long and weighs over 100 pounds. It consists of locomotive 702 and car 601, standing on steel T rails spiked to oak sleepers. The engine is made of steel, iron and brass, and is so well proportioned that though the smokestack is four inches in diameter, this would hardly be supposed at a casual inspection. The locomotive is fitted with sand dome, whistle, bell, headlight bearing the train number, air brake and every detail of a real iron horse, except of course the internal arrangements. The tender is loaded with coal and the tanks underneath filled with water. The cab is upholstered in blue plush, ready for the driver to step in and open the throttle-valve. The car body is of wood, and all through the same materials have been used as are employed in the construction of an ordinary car. At some of the windows the blinds are drawn; the weather bulletin, which many a farmer looks for daily, is displayed on the side, and all the little details have been so carefully attended to that a very pleasing general effect is achieved. The scale is about one to nine, and the model, while not got up on an elaborate scale, is very striking, and the results aimed at—a facsimile of the *Globe* train—is reached in a way that reflects much credit on the mechanical skill and artistic taste of the gentleman whose handiwork it is. This model has been an exhibition in the window of Messrs. J. E. Ellis & Co., at the corner of Yonge and King streets, and is greatly admired.

THE following appeared in a Toronto daily paper a few days ago as a press telegram from Simcoe, Ont.:—Messrs. West & Peachey have just completed a tug for Mr. Joseph Jackson to be run on French river and certain lakes in the Muskoka region. The vessel is a curiosity and certainly unique of its kind, being intended to run both on land and water. It is intended for the lumbering business, and not only propels itself in the water at a speed of five miles an hour, but also over portages, being provided with runners, drum and cable, by means of which, and a hitching post, the land journeys will be made. It is 10x32 feet, four feet hold, twenty horse-power engine, geared six to one. It weighs thirteen tons, and is propelled in the water by two side paddle wheels. When moving over a portage these and the rudder will be raised by means of screws. The boiler is horizontal, swung on a pivot, so that it will remain level when ascending or descending an elevation. One man operates the whole affair from the wheelhouse. A large concourse of spectators from town and country witnessed the launch on Silver Lake a few days ago. The cable was made fast to a tree, the steam turned on and the *Alligator*, as the craft is aptly called, crawled slowly to the water's edge, into which it glided, and several trial trips demonstrated the complete success of the design. The cable was again made fast to a tree and the vessel crawled out of the water back to the dockyard, where it remained until steam was again



TENDERS.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Indian Supplies," will be received at this office up to noon of **THURSDAY, 9th May, 1889**, for the delivery of Indian supplies during the fiscal year ending 30th June, 1890, consisting of Flour, Bacon, Groceries, Ammunition, Twine, Oxen, Cows, Bulls, Agricultural Implements, Tools, etc., duty paid, at various points in Manitoba and the North-West Territories.

Forms of tender containing full particulars relative to the Supplies required, dates of delivery, etc., may be had by applying to the undersigned, or to the Indian Commissioner at Regina, or to the Indian Office, Winnipeg.

Parties may tender for each description of goods (or for any portion of each description of goods) separately, or for all goods called for in the Schedules, and the Department reserves to itself the right to reject the whole or any part of a tender.

Each tender must be accompanied by an accepted Cheque in favor of the Superintendent-General of Indian Affairs on a Canadian Bank, for at least five per cent. of the amount of the tender, which will be forfeited if the party tendering declines to enter into a contract based on such tender when called upon to do so, or if he fails to complete the work contracted for. If the tender be not accepted, the cheque will be returned.

Each tender must, in addition to the signature of the tenderer, be signed by two sureties acceptable to the Department for the proper performance of the contract.

The lowest or any tender not necessarily accepted. This advertisement is not to be inserted by any newspaper without the authority of the Queen's Printer, and no claim for payment by any newspaper not having had such authority will be admitted.

L. VANKOUGHNET,
Deputy of Superintendent-General
of Indian Affairs.

Department of Indian Affairs,
Ottawa, April, 1889.

made, and by the help of the trees along the street the *Alligator* crawled at no snail's pace to the G.T.R. depot, to be shipped to the Muskoka country, where its practical work is to begin in tugging logs and timber for its owner.

AMONG the most important manufacturing industries in Eastern Canada are the New Brunswick Cotton Mills, operated at St. John, N.B., by Wm. Parks & Son. The first cotton mill put in operation in the Dominion was established in 1861 by this firm. The venture was a promising one, and with the close of the American war, which seriously affected the production and price of raw cotton, and the union of the provinces in Confederation, the business increased enormously, and has continued to expand, until now it is one of the most prosperous in the country. In 1884 a joint stock company was formed under the name of Wm. Parks & Son (limited). The firm made a specialty of spinning cotton yarns, for the quality of which they obtained a high reputation all over the Dominion. This reputation it has been their aim to sustain, and the continued demand for their yarns in preference to others

G. & J. BROWN M'F'G CO.

(LIMITED).

BELLEVILLE, ONT.

Engineers, Machinists, Boiler Makers,

Foundrymen and Bridge Builders.

RAILWAY and CONTRACTORS' SUPPLIES A SPECIALTY.

Frogs, Diamond Crossings, Switches, Hand Cars, Lorries, Velocipedes, Cars, Jim Crows, Track Drills, Semaphores, Rail Cars, Double and Single Drum Hoists, etc., etc.

MUNDERLOH & CO.

MONTREAL,

SOLE AGENTS FOR THE DOMINION

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Meyer's Watchman Control Clock.

REDUCED PREMIUMS ON FIRE INSURANCE
SECURED BY USING THIS CLOCK.

Description and particulars on application.

"The Princess" Baby Carriage Rugs

MANUFACTURED BY

NEWLANDS & CO.

Registered and Patented in Canada and the United States.

Are light, elegant and warm; and every Child's Carriage and Perambulator should have one.

WRITE TO **W. H. STOREY & SON,**

ACTON, ONTARIO,

For CIRCULARS and PRICE LISTS.

seems to indicate that they have succeeded. This applies to their carpet warps, which are so largely used in Ontario. The St. John cotton mill, which had been idle for some years, was purchased by the company about a year ago on favorable terms, and it has been worked to its full capacity ever since. The grey cottons, ducks and drills made at this mill have been placed at the very front rank among the wholesale houses. A conclusive proof of the superiority of the goods made by this firm is the fact that they have been able to work continuously both their mills during the depression of the last year. In addition to yarns, carpet warps and grey cottons, this firm make several other articles, all of which are as well known and as highly appreciated as their more important productions. The two mills employ over 500 hands, and pay out \$2,500 weekly in wages. Besides their Canadian trade, this firm has a growing trade in the West Indies, Bermuda and Newfoundland, for the prosecution of which the city of St. John, N.B., is so well situated.

It will be remembered that the works of Messrs Coulthard, Scott and Co., manufacturers of agricultural implements, Oshawa, Ont., were badly damaged by fire last September. With their characteristic energy, the firm have greatly enlarged and improved their factory, which is now one of the best arranged in the country. The main building is 90x40 feet, two stories high, an enlargement of thirty feet on the old building. This department is occupied on the ground floor by the wood workers, planer, circular saws, and other machinery preparing the lumber for the seeders. The upper flat is also occupied by wood workers and finishers, the office being at the west end of this building. The south wing is the old building completely re-built and thoroughly renovated, heated with steam pipes and filled with all the most modern machinery. The size of this department is 100x30 feet, the first floor being used as a machine shop, which was alive with skilled workmen busy putting the numerous castings into shape for the Champion seeders and drills and drags, which are being shipped to all parts of the Dominion as fast as they can be turned out. The upper flat is used as a paint shop and finishing room. In this department is a modern machine for turning the spokes of the wheels to the proper length and fitting them for the fallies. A new wing has been added to the south west end of this department, 25x16 feet, which is used as a blacksmith shop, occupied by three forges. The end of the first flat of the south wing is also used as a blacksmith shop, and is

occupied by several forges, the trip hammer and a powerful punch for making holes in the iron bars and plates. To the rear and away from the brick building is a small frame building which contains several forges and is used as a blacksmith shop; east of this and away from other buildings some distance is another small frame building used as a dipping room. In this all the castings and iron fittings of the drills and harrows are dipped in a solution of asphaltum. The engine house is a strong building attached to the main structure. The oil house is also a small brick building attached, covered with iron on top and sides, making it fire proof. Everything about the establishment is fitted up on the same principle and makes this one of the model industrial implement works of the Province. Attached to the works is the foundry of Mr. William Hare, where the firm procure all their castings. The main building is 40x50, two stories brick, and the moulding shop 50x50, well lighted and fitted up with all conveniences.

THE NOVA SCOTIA STEEL COMPANY.

MR. J. H. BARTLETT, M. E., of Montreal, the well-known Canadian iron and steel expert, sends to the *Cleveland Iron Trade Review* the following description of what he terms "the most successful steel works in Canada."

"New Glasgow, Nova Scotia, ranks among the most enterprising and progressive towns in the Maritime Provinces. It is situated at the head of navigation on the East river, which flows into Pictou Harbor. The famous Pictou coal mines are in the immediate vicinity, with all of which New Glasgow is connected by rail.

"The Nova Scotia Steel Works, which were established in 1882, have invested in them a paid up capital of \$280,000, two-thirds of which is owned by citizens of New Glasgow. Some of the stock is also owned in Halifax, Pictou, Montreal, and other places. Sir D. A. Smith being one of the Montreal shareholders. The works occupy about ten acres of land, the main building, 410 feet by 130 feet, covering over 50,000 feet. Extensions are being made to the buildings, which will cover 25,000 feet additional. Nearly two miles of railway track are in operation in and about the works, and this will be largely increased by sidings now being laid

"The product of the works consists largely of steel for agricultural implements, together with the usual sizes of merchant steel, in

Fenwick & Sclater,

43 and 44 Foundling St., Montreal.

MANUFACTURERS OF

Cast Steel Files and Rasps, Anchor Brand.

Cotton Waste, white and colored.

Asbestos Cement for covering Steam Pipes and Boilers

Asbestos Piston and Joint Packing. Asbestos and Rubber Piston and Joint Packing. Plumbago Packing.

HOSE—Rubber, Canvas and Linen.

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Asbestos Packing Co., Boston; Boston and Lockport Block Co., Boston; American Cotton Waste Co.; Montreal Tent and Awning Co.; "Household" Fire Extinguisher Co.

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MONTREAL and TORONTO,

MANUFACTURERS' AGENTS FOR

Iron, Steel, Wire, Tinsplate,
GALVANIZED IRON.

Special value in STEEL BARS, ANGLES,
SHEETS, PLATES.

BUYERS ARE INVITED TO OBTAIN PRICES.

"JESSOP'S" STANDARD TOOL STEEL IN STORE.

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TO MANUFACTURERS.

FACTORY, with water privilege, near Black's Bridge Montreal. Building 60 x 60, five flats, extra well lighted and very strong; rare opportunity for party wanting cheap power. Apply

WM. JOHNSON & CO.

14 St. John St., Montreal.

The Standard Drain Pipe Co.

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INVERT BLOCKS

FOR BOTTOMS OF BRICK SEWERS.

These Blocks are made of Fire Clay, SALT GLAZED and VITRIFIED, and form the most perfect Invert known. Amongst their special advantages, they are indestructible perfectly smooth, affording the minimum of friction to flow. Easily and cheaply laid on ANY BOTTOM. Made in lengths of 18 inches, or to suit buyers.

The Standard Drain Pipe Company, St. John's, P.Q.
ROBT. CARROLL. Agent for Toronto.

rounds, flats, and squares, with angles and special sections. A large quantity of spring steel is also made. Rivet steel, of specially low carbon, is also manufactured, besides tramway and pit rails, nail and plow plate, and large quantities of "sections." In 1884 the shipments from the establishment were only 2,270 tons; in 1887 they amounted to about 6,000 tons; and when the plant now being put in is completed the works will have a capacity of 12,000 tons, and no difficulty is anticipated in disposing of the increased production. At the present time there are 225 men on the pay list, and the monthly pay is about \$8,000. The number of men will be increased to 300 when the additions to the works are completed. The company is paying dividends, both on its original and preferential stock."

A REMARKABLE DISCOVERY.

UNDER the caption, "One of the most astounding of recent scientific discoveries," the *Philadelphia Record* gives an account of a recent exhibition in that city of a decidedly new method of heating. While the average reader will await further proof of the new idea, the following description may be interesting: Before a common sheet iron cylinder stove, in which the fire had been lighted on the top of the coal instead of beneath it, a crowd of scientific men and practical manufacturers, last night, complimented the man who controlled the stove, and told him that he was a great public benefactor; that his invention would in a very short time revolutionize the fuel-using methods of the world, and that he has practically given to the world unaccountable millions of tons of fuel. Any scientist being told that in a common cylinder stove a few kitchen shovels of coal may be lighted, and, in a few minutes, without artificial draught, a heat be created which will melt cast iron, spiegel and manganese ore; a stove in which the draught, when the kindling is lighted, goes up the chimney, and on the ignition of the coal comes down the chimney without driving out the gases or permitting them to leak from the vents of the stove; a stove in which the combustion of anything put into it is absolute, and in which the material of the stove is unimpaired by the process—would regard his informant as a natural fool, or as being the victim of an impostor. But all of these things were shown to an assemblage of practical men in the second story of No. 11 North Fifth street, last night.

The inventor of this method of using fuel is a Mr. Edward Fales, and it is only five or six years ago that his attention was directed to it by phenomena which he observed while pursuing scientific experi-

ments in collateral directions. The method is simplicity itself; the results astounding. It is a plan of creating by the fire itself two different currents of air of different temperatures through separate parts of the grate. That is really all there is of the method.

The result of the method is a partial vacuum in the centre of the grate and a cyclone in the drum of the stove, producing perfect combustion all over the surface of the coal. The manner in which the two drafts are created is by a central fire-pot with a grate at the bottom, the pot hanging in a circular grate filling the inside diameter of the drum. Air is admitted by an ordinary door at the bottom of the stove. The fire-door is, as ordinarily placed, at the upper edge of the grate.

The coal is placed to fill the pot and cover the circular grate to a depth of five or six inches. A bundle of kindling is placed on top of all and lighted. The fire-door is closed, and the lower, or draught door, left open. The greater draught goes up the outside of the pot and through the circular grate. In fifteen seconds from the lighting of the fire the drum is red hot, and the stove-pipe leading to the flue is red hot for five of its seven feet of length. A few seconds more and a rapid, powerful vibration occurs in the drum, and is felt all over the room with startling effect. The cyclone in the stove is evidently raging in full force, but in a small fraction of a second it ceases with the slight opening of the fire-door or the closing of the draught. Simultaneous with this exhibition of the cyclonic phenomenon, the stove-pipe loses its heat, and it is discovered that the air is being draw down the chimney. At the intense heat of the furnace the hand may be thrust in against the lower grate and there is felt a cold draught. Within four minutes from the time of lighting, iron, manganese, and spiegel may be melted in the furnace, and the temperature of the room be regulated to ordinary acceptable parlor heat.

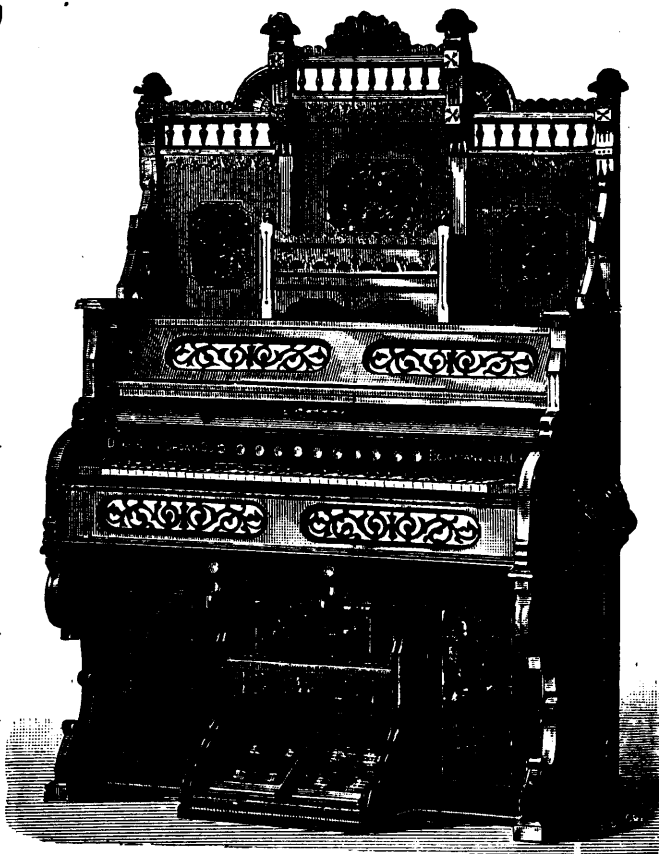
The consumption of fuel is absolutely complete, but so gradually accomplished that a fifty-pound charge of coal will last twenty-four hours, and leave nothing but a sort of finely granulated coke.

The scientists have been somewhat astounded, for it is a puzzle to them in this, that the accomplished fact is before them before the scientific theory is formulated. They can see what is done without being able to account for it on scientific principles.

Such men as Colonel Ludlow, of the United States Engineer Corps, Benjamin F. Bultler, General Hastings, Mr. Carnegie, and others of the same calibre, are warmly interested in the discovery, which enables an iron furnace to be started in a drawing room, and which can send an ocean steamer on the longest voyage with coal bunkers the size of a few Saratoga trunks.

"DOMINION"
PIANOS

Hold more Gold
Medals from the
World's Fairs than
all other Canadian
makes put together.



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**Strap and T. Hinges, Screw Hooks and Hinges,
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We are also prepared to make special Nails or Hinges, or other articles made from iron from samples. The quality of our goods is always A. 1, and our facilities for making them are unequalled.

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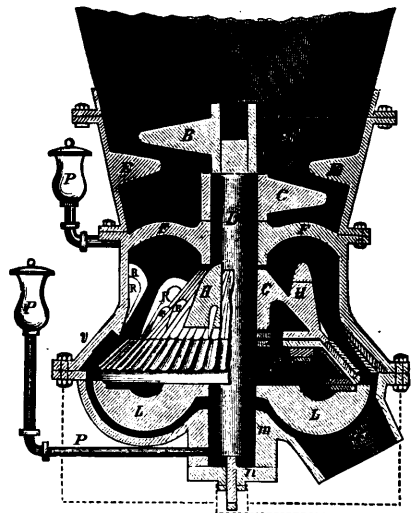
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PATRONIZE HOME INDUSTRY

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Important to Tanners.

SEGMENT BARK MILL.

For Grinding any hard substance
 SUCH AS

Cement, Plaster, Bones, Bats,
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 Also as a Corn
 Breaker.

The Segments will retain
 their cutting edges longer than
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It has the following good
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It works with ease in damp
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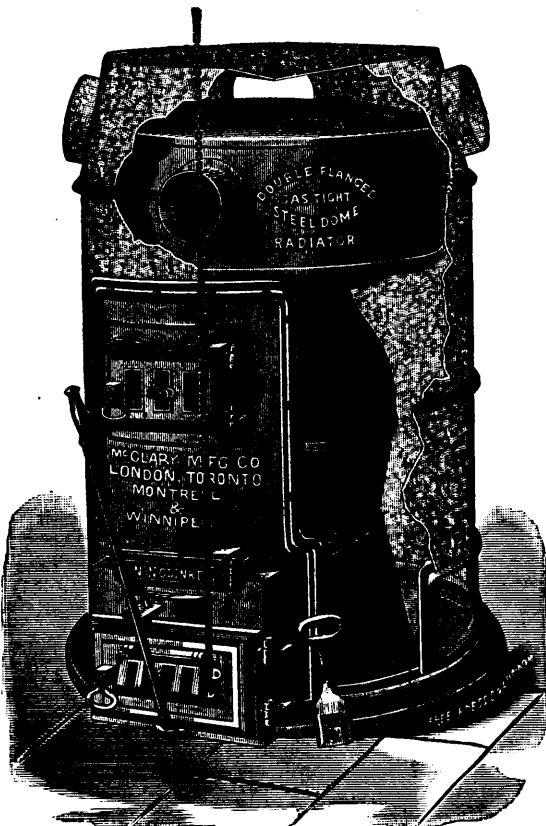
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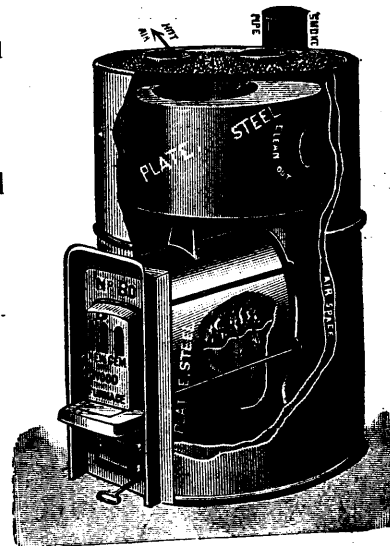
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Thoroughly tested. Specially adapted for medium sized dwellings.

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EVERY REPUTABLE DEALER KEEPS THEM.



Insist on having the Genuine, and see that they bear our name.

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MAKE A SPECIALTY OF
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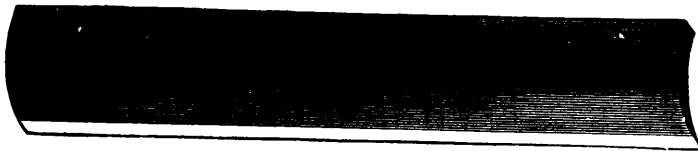
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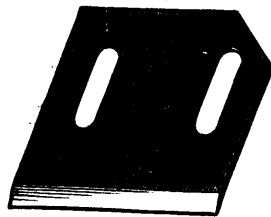
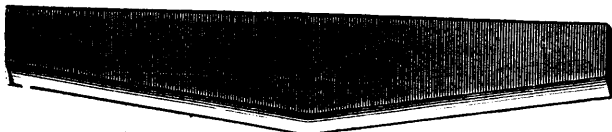
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MOULDING, TENONING,
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And other irregular shapes.

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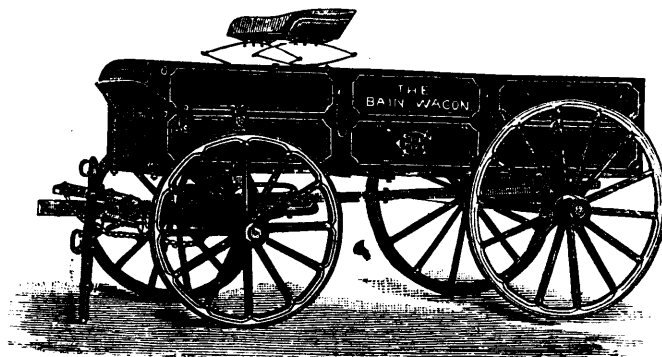
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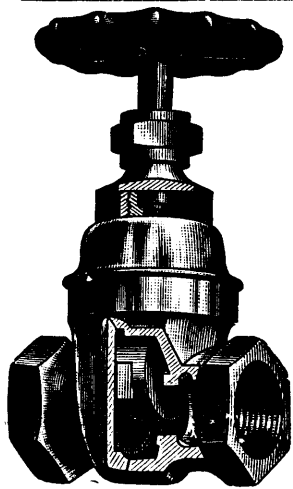
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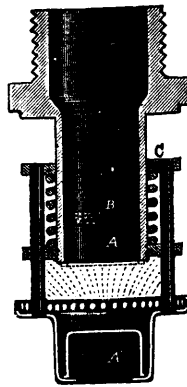
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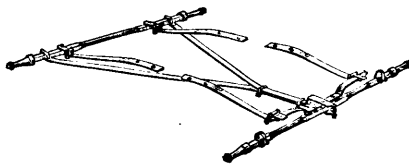
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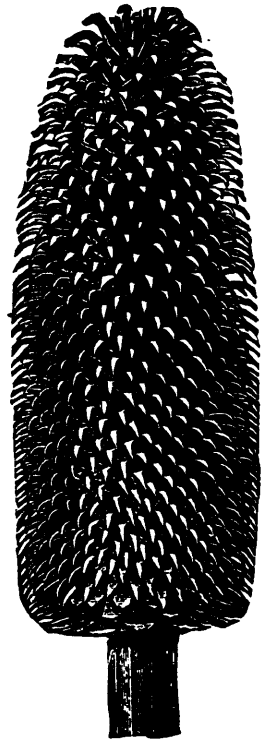
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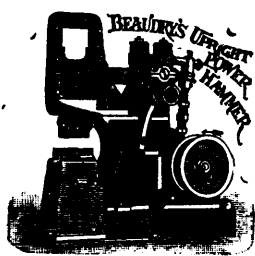
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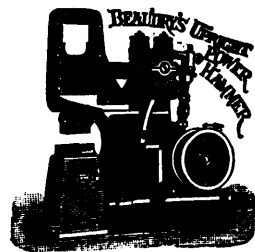
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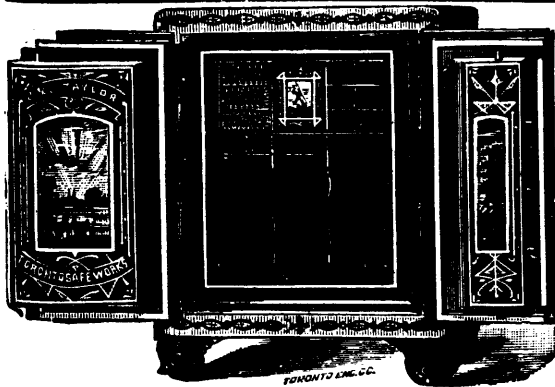


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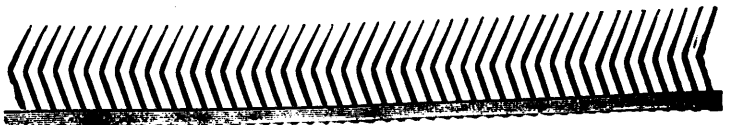
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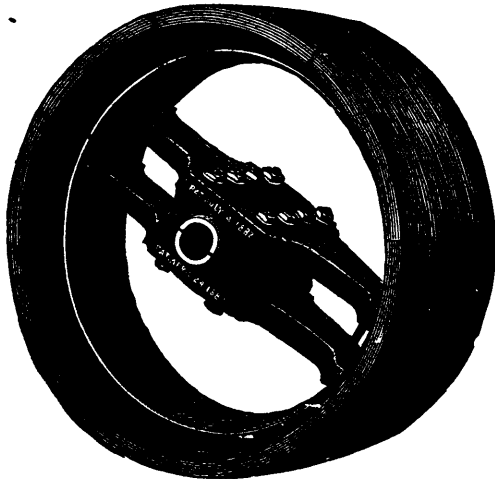
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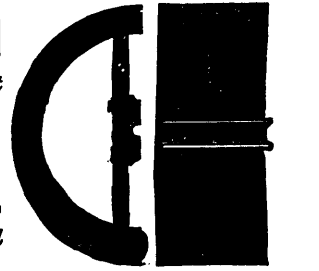
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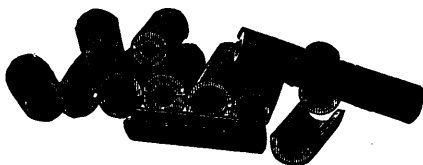
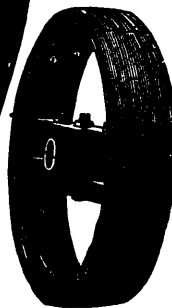
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Yours truly,
S. R. STIMSON, General Manager.

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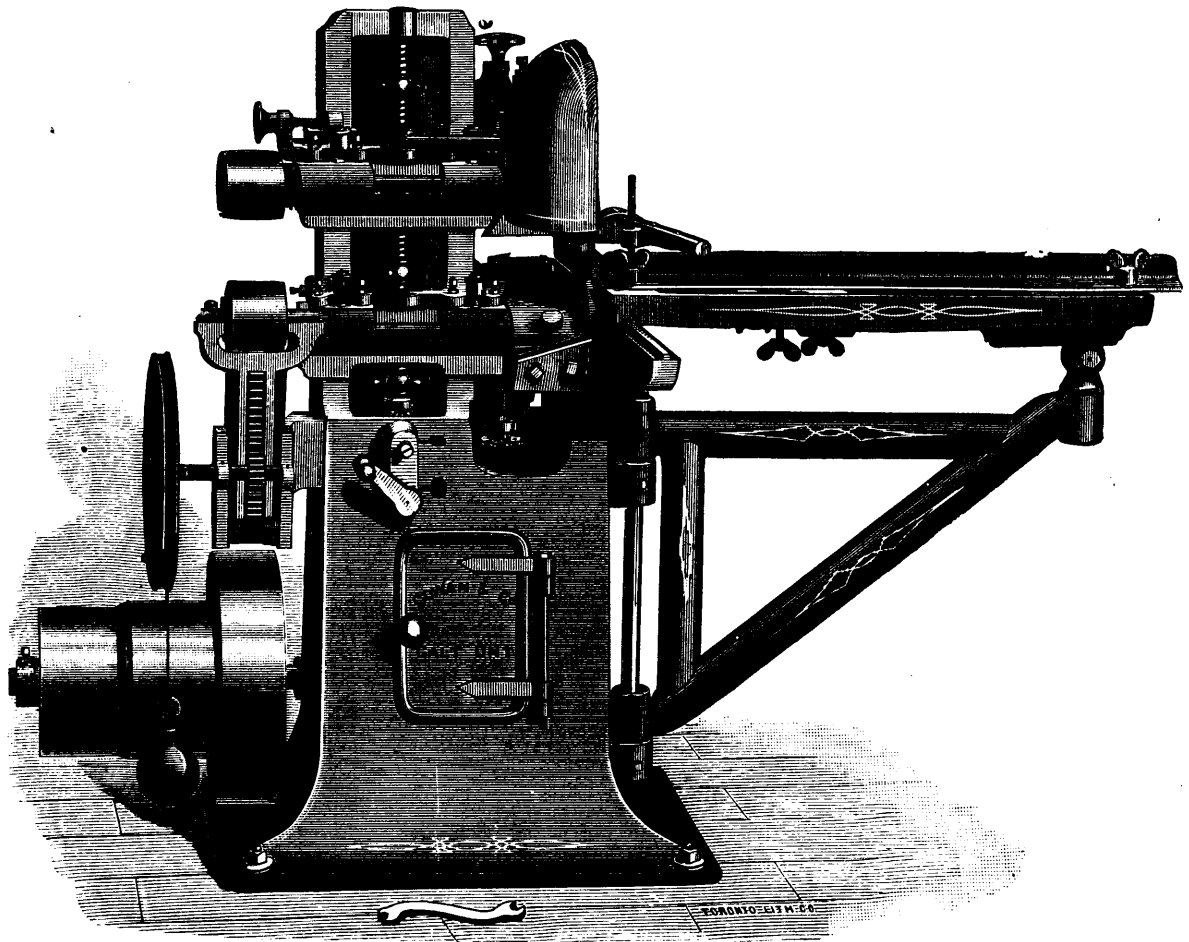
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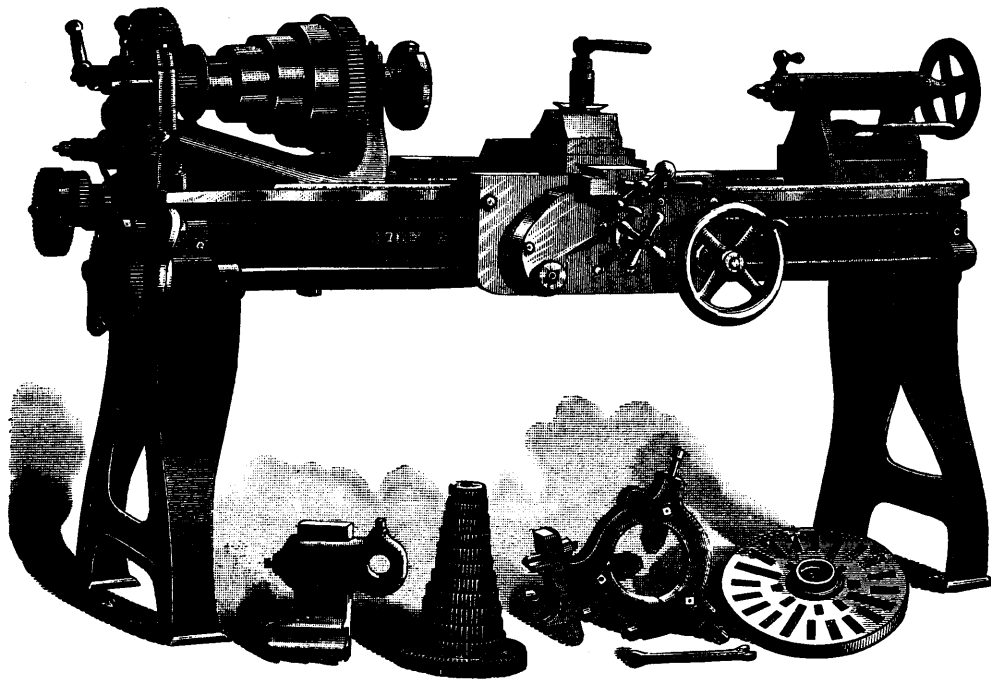
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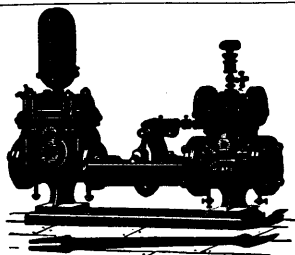
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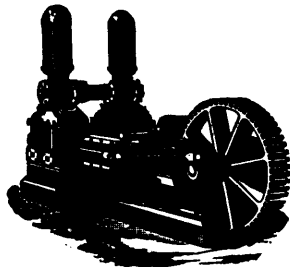
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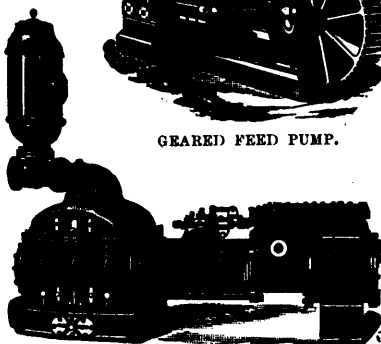
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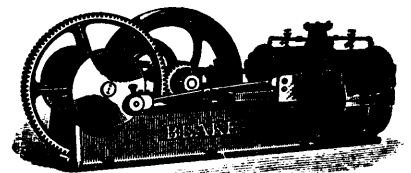


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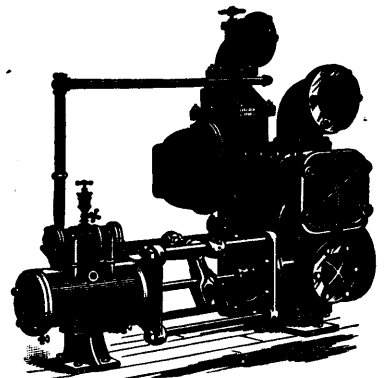
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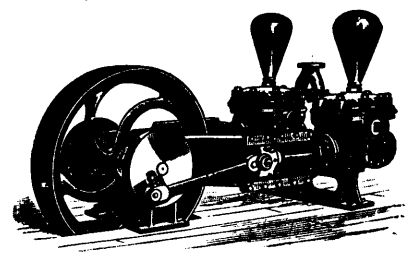
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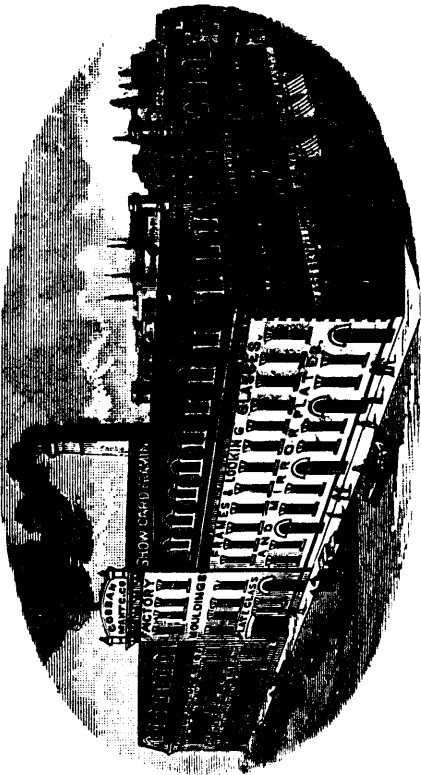
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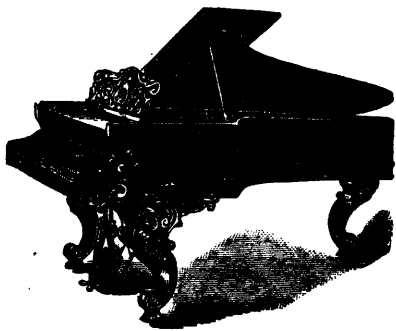


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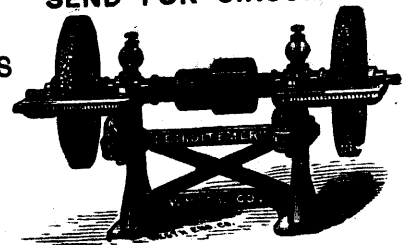
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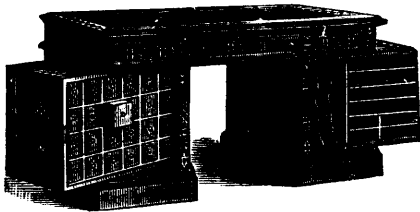
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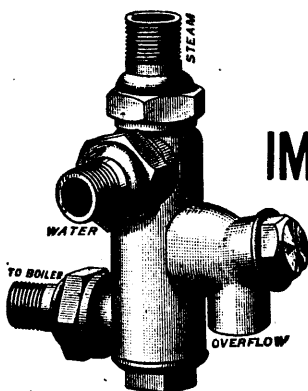
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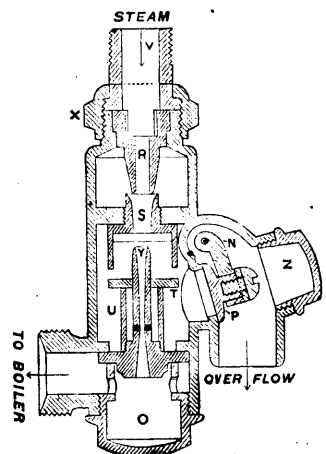
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