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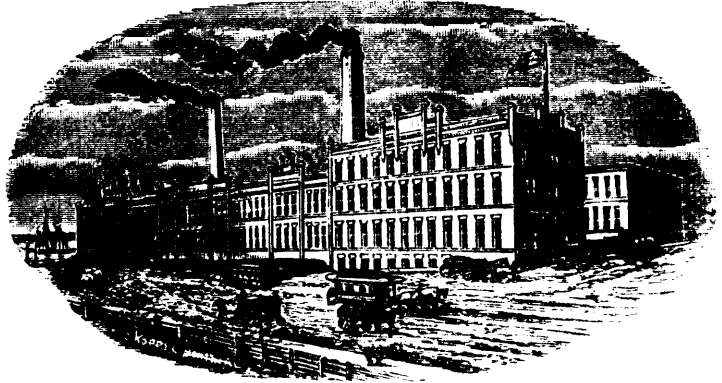
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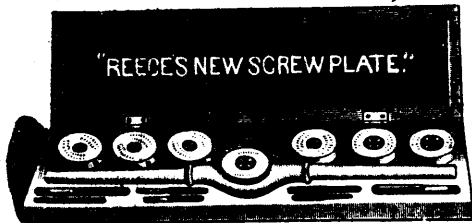
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All other Dies at Corresponding Prices.

We furnish Collet and Die same as used in our Reece's New Screw Plate, to fit stocks B, D and large C stock, Little Giant, also B and C Wiley & Russell Lightning Screw Plate.

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Derby Line, Vermont, and Rock Island, Quebec.

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PATENTED IN UNITED STATES, JUNE 23, 1885

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The advantages of the BATTEN FIRE ESCAPE over all others are:

That the balconies are made of the best wrought iron, of any ornamental design or pattern, and securely bolted through the walls. Can be made any length or width. The brackets and flooring are capable of bearing any number of persons standing on them. The ladders, with wide steps and of easy grade, can remain down permanently, or folded up, as desired, showing the ornamental balcony only in sight, which does not mar the architectural beauty of the building, and can be instantly released when desired. No ice or snow will remain on them, neither will the working parts rust; and they will work admirably in any weather.

A Stand Pipe is also connected for high buildings, with valves at each door and on the roof.

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For situations not requiring a Balcony Fire Escape I can quote reasonable prices for strong and well finished STRAIGHT IRON LADDERS.

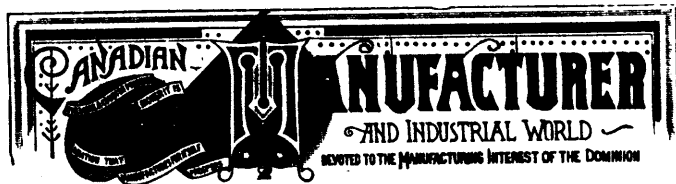
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CANADIAN MANUFACTURER,
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THE BRITISH TARIFF.

THE CANADIAN MANUFACTURER says Great Britain's "customs revenue is derived chiefly from duties imposed upon the commonest necessaries of life." Sugar, breadstuffs, meats and fish of all kinds, clothing, boots and shoes, hats and caps, artisan's tools, agricultural implements, are all on the free list. Perhaps the organ of the combines can specify those "commonest necessaries of life" from which Great Britain's "customs revenue is chiefly derived." Let us have a full list of them. It would be interesting.—*Montreal Herald.*

Certainly, with pleasure. Articles subject to import duties in the United Kingdom, and the rate of duty levied upon each article, distinguishing the duties levied as ordinary import duties, and those levied to countervail excise and other inland revenue duties upon British productions, according to the tariff now in operation, are as follows:

ORDINARY IMPORT DUTIES.

ARTICLES.	RATES OF DUTY.			
		£	s.	D.
Cocoa :				
Raw	lb.	0	0	1
Husks and shells.....	cwt.	0	2	0
Manufactured	lb.	0	0	2
Coffee :				
Raw	cwt.	0	14	0
Dried, roasted or ground.....	lb.	0	0	2
Chicory :				
Raw or dried.....	cwt.	0	13	3
Roasted or ground.....	lb.	0	0	2
Mixtures, imitations and substitutes.....	lb.	0	0	2
Fruit, dried :				
Currants, figs, plums, prunes and raisins.....	cwt.	0	7	0
Tea	lb.	0	0	6
Tobacco :				
Unmanufactured.....	lb.	0	3	2
Manufactured cigars.....	"	0	5	0
" cavendish.....	"	0	4	6
" snuff.....	"	0	4	6
" all other.....	"	0	4	0

ARTICLES.	RATES OF DUTY.			
		£	s.	D.
Wine :				
Not exceeding 30 degrees proof spirit.....	gal.	0	1	0
From 30 to 42 degrees	"	0	2	6
Additional on sparkling wines in glass.....	"	0	1	0
Exceeding 15 s. value to gallon.....	"	0	2	6

IMPORT DUTIES TO COUNTERVAIL EXCISE DUTY ON BRITISH BEER AND SPIRITS.

ARTICLES.	RATE OF DUTY.			
		£	s.	D.
Beer and ale specific gravity of 1,055 degrees	bbl.	0	6	6
" " not exceeding 1,225 "	"	1	6	0
" " exceeding 1,225 "	"	1	10	6
Spirits :				
Rum, brandy, gin	proof gal.	0	10	4
Liqueurs and cordials	gal.	0	14	0
Perfumed spirits and cologne water.....	"	0	16	6
Chloroform.....	lb.	0	3	0
Chloral hydrate	"	0	1	3
Collodion	gal.	1	4	0
Ether, acetic.....	lb.	0	1	9
" sulphuric	gal.	1	5	0
Naptha, potable	proof gal.	0	10	4
Soap, containing spirit.....	lb.	0	0	3

IMPORT DUTIES TO COUNTERVAIL STAMP DUTIES ON BRITISH-MADE ARTICLES.

ARTICLES.	RATE OF DUTY.			
		£	s.	D.
Plate, gold.....	oz. troy	0	17	0
" silver	"	0	1	6
Playing cards.....	doz. packs	0	3	9

The amount of revenue collected in Great Britain from customs duties for the year ending March 31, 1889, was as follows:

Tea	£4,629,901
Coffee	184,292
Spirits.....	4,296,634
Wine.....	1,210,537
Tobacco.....	8,858,781
Dried fruit.....	579,429
Other imported articles.....	179,800
Miscellaneous	31,817

Total £19,971,191

These imports into Great Britain may be divided into two classes—those that include the commonest necessaries of life to the British workingman, and those that are luxuries that only the rich may enjoy. In the first class we include tea, coffee, tobacco and dried fruit—four lines of imports—the duty upon which aggregated £14,252,403; and in the latter we include spirits, wine and other imported articles, and miscellaneous, the duty upon which aggregated only £5,718,788.

We have here given a full list of articles upon which Great Britain imposes import duties, and we hope it is as interesting to the *Herald* as it hoped it would be.

We have also given a list of foreign articles which, when imported into Great Britain, pay "countervailing" duties levied for the protection of certain British manufacturing industries; and we direct attention to the fact that included in this list are some products that are highly essential to the health of British workingmen—we mention chloroform, chloral hydrate, collodion, acetic and sulphuric ether, etc. Of course foreign manufacturers of gold and silver plate are excluded

from the British market by a prohibitive duty of \$4.14 per ounce troy on gold plate, and thirty six cents per ounce troy on silver plate; and while gold and silver plate may not be essential to the comfort of the British workmen, the fact shows what a pull the British manufacturers of plate have with their Government.

WHO PAYS THE DUTY?

FREE TRADERS are unceasing in telling that the consumer pays the duty imposed upon imports. Sheffield manufacturers take a different view of the question, however, judging from their action in getting up an immense petition to the Mayor of that city requesting him to call a public meeting to protest against the McKinley Tariff Bill, which, if passed, they say will injure them most disastrously. A prominent manufacturer of Sheffield, in a speech urging some action to prevent, if possible, the passage of this bill, said that he voiced the sentiments entertained throughout the North of England on this subject; and that it behoved every workman, and every manufacturer, if they were to retain any of their trade for themselves and their families, to do all they could to defeat the McKinley Bill. He said:—"The Americans might as well come forward and blockade us." Replying to the address of the committee presenting the petition the Mayor declared that the question at issue was of such momentous importance that those whose interests were involved could not afford to stand still and see protective or prohibitive measures adopted in the United States without entering a protest against them. All British manufacturers were interested in obtaining commerce. He was old enough to remember when manufacturing for the American market gave employment to one-half the population of Sheffield; but that from time to time the tariff policy of the United States had imposed restrictions upon that trade until at the present time Great Britain was almost entirely shut out of the American market.

The discontent prevailing in all the manufacturing centres in Europe over the McKinley Bill, and the expressions of those most interested, answers our question. But what are these European manufacturers going to do about it? One of the Sheffield manufacturers thinks that if the British Foreign Office would enter a vigorous protest "the Americans would listen to it and would see that Europe would not submit to being handicapped in this matter." How is Europe going to prevent the passage of the McKinley Bill? Of course it will not be accomplished by force; and the only other thing that can be done is to retaliate by imposing high duties upon American products, or by excluding them entirely. This, however, is not very likely to be done, particularly by Great Britain, unless she is ready to abandon her present fiscal policy.

The question is an important one in that it shows that foreign manufacturers feel and know that they must include the duty as one of the charges to be borne by them in manufacturing merchandise for protected countries. Under protection the Americans have built up many and vast cutlery factories; and the competition among these in their home market has brought prices so low that that line of goods may be bought there, under a very high tariff, at lower prices than

corresponding articles of Sheffield manufacture can be bought for in Canada under a much lower tariff.

Another feature of this question is this,—under a low tariff Canada has never yet established any cutlery works that can produce such goods as are made in either Sheffield or the United States, and Sheffield dominates the Canadian market; while under a high tariff the Americans have driven Sheffield out of their market, and are manufacturing as good or better class of cutlery, and selling it cheaper than Sheffield cutlery can be bought for in Canada.

CANADIAN RAILWAYS.

THE Dominion Government have issued a Blue Book having reference to Canadian Railways, the statistics contained in it including those for the year ending June 30, 1889. In twenty years, from 1869 to 1889, the mileage of these roads increased from 2,497 miles to 12,628 miles, which was at a ratio very much greater than the increase of population of the country. This increase of mileage was about 500 per cent., while the increase in the United States during the same time was only about 350 per cent. Canada has one mile of railway to every 383 of population, while in the United States there is one mile to every 434 of population.

The following tabulated statement shows the operating expenses, earnings, etc., of all Canadian railways for the year ending June 30, 1889, compared with the year ending June 30, 1881:

	1889.	1881.
Total mileage completed (rails laid) ..	13,324	7,596
Total paid up capital of all kinds.	\$760,576,446.49	\$389,285,700.31
Total paid up capital per mile of line	57,083.00	51,248.00
Net receipts after deducting operating expenses	11,111,570.00	7,866,090.41
Percentage of net receipts on capital	1.4	2.0
Total mileage operated	12,628	7,260
Total train mileage	38,819,380	27,301,306
Train miles per mile of line	3,074	3,760
Total operating expenses	\$31,038,045.35	\$20,121,418.43
Operating expenses per mile of line	2,457.87	2,771.50
Operating expenses per train mile	79	73
Total earnings	42,149,615.35	27,987,508.84
Total earnings per mile of line	3,337.00	3,855.00
Total earnings per train mile	1.08	1.02
Total number of passengers carried	12,151,105	6,943,671
Passengers carried per mile of line	962	956
Total tons of freight carried	17,928,626	12,065,323
Tons of freight carried per mile of line	1,420	1,951

It will be kept in mind that within the eight years here under consideration the great Canadian Pacific railway was completed, and that its business has not yet sufficiently developed to bring in such receipts as would make a fair return on the cost of it. A consideration of the figures shows that the "cost per mile" of Canadian railways increased from \$51,248 in 1881 to \$57,083 in 1889. This increase was not accompanied by a corresponding increase in net receipts.

The amount of "train mileage" run per mile of road has decreased from 3,760 miles per hour in 1881 to 3,074 in 1889. This is to be accounted for by the large extent of mileage on the western part of the Canadian Pacific over which the trains are run very infrequently. At the same time the operating expenses have fallen from \$2,771.50 per mile of road in 1881

to \$2,457.87 in 1889; these operating expenses, however, when charged upon the train mileage show an increase from seventy-three cents per train mile in 1881 to seventy-nine cents per train mile in 1889. Such seeming contradiction is capable of the same explanation as that previously given: viz., the comparatively small number of trains run over the western part of the Canadian Pacific. There is a certain class of operating expenses, such as maintenance and repairs of track, buildings, bridges, etc., that is much the same whether the traffic be light or heavy. The operating expenses of engines and cars, of course, increase as the train service is increased. When, therefore, the first described fixed charges plus light traffic charges are distributed over the length of mileage of the line they appear small, but when distributed over a small amount of train mileage they appear large; on the other hand, a large increase of train service causes these fixed charges plus traffic charges to be distributed over a much larger train mileage, and consequently the cost of operating seems smaller.

The earnings per mile have also decreased from \$3,855 per mile in 1881 to \$3,337 per mile in 1889; but at the same time the earnings per train mile have increased from \$1.02 to \$1.08. These anomalies are capable of being similarly explained as above, with the additional fact of the high freight and passenger charges of the Canadian Pacific in the West.

The passenger traffic has increased from 6,943,671 to 12,151,105. It has grown to about 40,000 per diem. It is now 962 passengers per mile of road per annum, as compared with 956 per mile in 1881; evidently our people are travelling more per individual now than they did then. The freight business has increased from a little over twelve million tons in 1881 to 17,925,626 in 1889. But in 1881 the tons of freight moved were 1,951 for each mile of railway, whereas in 1889 there were only 1,420 tons per mile moved. In other words, the railway mileage has increased much more than the freight business. Of course it is to be hoped and expected that the freight business will increase with the development of the country, caused by the construction of railways, but at present there is a falling off of about twenty-five per cent. per mile of line, as compared with eight years ago.

A tendency that is very clearly seen in our railway systems on comparing the present with the past—and it is a tendency that is common to all commercial enterprises of these days—is towards amalgamation, and the absorption of the smaller concerns by the larger, so as to reduce the separate managements to the smallest number possible. Out of the 13,324 miles completed in 1889 (rails laid), 9,505 are controlled by only three separate managements—the Government railways, the Canadian Pacific and the Grand Trunk. The following table has been prepared from the Blue Book, giving statistics for these respective systems:

It is to be noticed that though the Government railways have cost twenty per cent. per mile less than the Canadian Pacific, and sixty per cent. less than the Grand Trunk, yet their earnings are not sufficient to meet their ordinary working expenses, and the concern is run at a loss; whereas the Canadian Pacific and Grand Trunk both clear an amount equal to 1.6 per cent on the large amount absorbed in construction. This is particularly creditable in the case of the

Grand Trunk, where the construction account has now reached the figure of \$100,046 per mile. There are very few railways—and those only insignificant—besides the Government railways, that are run at an absolute loss.

	GOV. RY'S.	C.P.R.	G.T.R.
Total mileage complete (rails laid).....	1,353	4,973	3,179
Total paid-up capital.....	\$55,377,528	\$218,835,434	\$318,048,133
Total paid-up capital per mile of line.....	\$40,929	\$50,037	\$100,046
Net receipts.....	\$4,019,299	\$4,019,299	\$5,133,557
Percentage of net receipts on capital.....		1.6	1.6
Mileage operated.....	1,181	4,973	3,114
Train mileage.....	4,934,094	10,631,977	15,608,034
Train miles per mile of line.....	4,177	2,138	5,012
Operating expenses.....	\$3,492,207	\$8,997,312	\$12,193,252
Operating expenses per mile of line.....	\$2,957	\$1,809	\$3,915
Operating expenses per train mile.....	70½ cents	84½ cents	78 cents
Earnings.....	\$3,139,170	\$13,016,611	\$17,326,809
Earnings per mile of line.....	\$2,659	\$2,617	\$5,564
Earnings per train mile.....	63½ cents.	\$1.22	\$1.11
Passengers carried.....	1,289,052	2,457,306	5,917,742
Passengers per mile of line.....	1,091	494	1,900
Tons freight carried.....	1,274,559	2,636,121	7,128,973
Tons freight per mile of line.....	1,079	530	2,289

* Loss, \$353,037.

CLOSER POLITICAL RELATIONS.

A MEMBER of the recent commission appointed to report upon the mineral resources of Ontario objects to having it charged against the commissioners that they, in their report, favored much closer political relations between Canada and the United States than what now exists. Mr. A. Blue, the gentleman alluded to, in a letter published in the *Globe*, declares that it is in no sense true that the commissioners in their report preached up such closer political relations as the only salvation of Canada, and the only means by which its mineral resources might be developed:—that “the most casual reader could not have the hardihood to make such a sweeping statement.” Mr. Blue should certainly study his own report. Elsewhere we reproduce the testimony of some of his witnesses who most unequivocally preached the doctrine alluded to, and which was endorsed by Mr. Blue and his associates; but we particularly request the attention of the gentleman to the language of the commissioners themselves where they occupy singular ground. On page 230 of the report, in contrasting the mining industries of the United States and Canada, the following language is used:—

“The vast increase in mineral production in the United States has been pointed out. A state of great activity is the characteristic of the development of the mineral resources in that country. Why should Canada lag behind in this career of development? Why should the great tide of enterprise and business activity sweep by and leave us untouched? The tariff wall serves like a wing dam to direct the current from us. Remove the dam and the current will reach us in full force. To the wealth and the restless activity of the United States we must look to a large degree for the capital and the skill to develop our resources of gold, silver, nickel, copper and iron. Now we are looked upon somewhat as Siberia is; a land possessed of minerals, perhaps, but foreign and far away. More than one-half of our mining capital is now American, but

it represents only a small fraction of the amount that would speedily seek investment in Ontario if the countries were commercially one. The influence this change would exert would probably be felt in a more marked degree in the development of the silver and gold mines of Northwestern Ontario than even in the more seriously tariff-burdened industries of iron, copper, salt and structural material production. Examination into the character and extent of the mineral resources of Ontario shows even now, when we are only at the threshold of discovery, that they are practically without limit in extent and value. As to the best means of development, we must pick up the courage to make that considerable degree of progress which present conditions will permit, and we must work and hope for the coming of the day when the war of tariffs shall be a thing of the past."

If this is not preaching up Commercial Union, Unrestricted Reciprocity or Annexation the English language is a failure. There is nothing about it that savors of manliness, of independence, of love of country, or of any of the nobler feelings that should actuate those who desire to see Canada stand the peer and equal of the United States. Nothing. But instead we see repining and regret that we cannot have full and free access to the markets of that country. Why can we not have that access? Our statute books show that years ago Canada offered to establish a free interchange with the United States of all the natural products of the two countries, including iron ore; and if that interchange has not been established it is because the United States will not accept our offer. Are we menials and sycophants that we should go crouching to the United States, begging to have iron ore placed on their free list, and offering to sacrifice dignity, manhood, independence, all that honorable men live for, for the paltry privilege? Not much. No wonder Mr. Blue is ashamed of the unpatriotic expressions published so copiously throughout his report. No wonder he denies their existence there. No wonder he seeks to divert attention from them by advancing unworthy personal insinuations that do not effect what we have said. Mr. Blue should study his own report. It was written with a view not so much to show the mineral resources of Ontario as to advocate closer political relations with the United States.

PROTECTION vs. FOREIGN TRADE.

THE following letter from Mr. James G. Blaine, American Secretary of State, to Senator W. P. Frye, explains itself:—

BAR HARBOR, MAINE, July 11, 1890.

DEAR MR. FRYE:—I have just received intelligence from the highest commercial authority in Havana that American flour, under the new duties imposed by Spain, cannot reach the Cuban market under a cost of \$11.46 per barrel, counting the shipping price in New York at \$4.80 per barrel. Spain holds the market for herself and is able to send European flour at a price which totally excludes the American flour from the markets of Cuba and Porto Rico. Other articles of American growth are likewise taxed by Spain to the point of prohibition. This one sided commerce will seriously injure the shipping routes which are still in American hands largely, if not universally.

It would certainly be a very extraordinary policy on the part of our Government just at this time to open our markets without charge or duty to the enormous crops of sugar raised in the two Spanish islands, Cuba and Porto Rico, which furnish the United States with nearly or quite one-half of the sugar which we consume, and we are far larger consumers than

any other nation in the world. To give a free market to this immense product of the Spanish plantations, at the moment Spain is excluding the product of American farms from her markets, would be a policy as unprecedented as it would be unwise.

Our trade with the American republics, as well as with the West India islands, has been for many years in a most unsatisfactory condition. The aggregate balance of trade with all Latin America is heavily against us. A single illustration will suffice. Since we repealed the duty on coffee in 1872 we have imported the products of Brazil to the extent of \$821,806,000, and have sold to her only \$156,135,000 of our own products. The difference—\$664,671,000—we have paid in gold or its equivalent, and Brazil has expended that vast sum in the markets of Europe. You can readily see how different the result would have been if in return for the free admission of Brazilian coffee in our markets we had exacted the free admission of certain products of the United States to the Brazilian market. To repeat this error with sugar to an amount three times as large as with coffee will close all opportunity to establish Reciprocity of trade with Latin America. The charge against the Protective policy which has injured it most is that its benefits go wholly to the manufacturer and the capitalist, and not at all to the farmer. You and I well know that this is not at all true, but still it is the most plausible and, therefore, the most hurtful argument made by the Free Trader. Here is an opportunity where the farmer may be benefited—primarily and undeniably richly benefited. Here is an opportunity for a Republican Congress to open the market of forty millions of people to the products of American farms. Shall we seize the opportunity, or shall we throw it away? I do not doubt that in many respects the Tariff Bill pending in the Senate is a just measure, and that most of its provisions are in accordance with the wise policy of Protection. But there is not a section, or a line, in the entire Bill that will open a market for another bushel of wheat or another barrel of pork. If sugar is now placed on the free list without exacting important trade concessions in return, we shall close the door of a profitable Reciprocity against ourselves. I think you will find some valuable hints on the subject in the President's brief message of June 19th, with as much practical wisdom as was ever stated in so short a space. Our foreign market for breadstuffs grows narrower. Great Britain is exerting every nerve to secure her bread supplies from India, and the rapid expansion of the wheat area in Russia gives us a powerful competitor in the markets of Europe. It becomes us, therefore, to use every opportunity for the extension of our market in both of the American continents. With nearly \$100,000,000 worth of sugar seeking our market every year, we shall prove ourselves most unskilled legislators if we do not secure a large field for the sale and consumption of our breadstuffs and provisions. The late conference of American republics proved the existence of a common desire for closer relations. Our Congress should take up the work where the International conference left it. Our field of commercial development and progress lies south of us.

Very sincerely yours,

JAMES G. BLAINE.

Our readers will remember that in compliance with popular clamor in the United States to reduce the revenue, the Ways and Means Committee of the House of Representatives, of which Major McKinley is Chairman, determined to put sugar on the free list. The production of sugar in the United States is not a very extended industry, being confined chiefly to the State of Louisiana, the production in that country being but a small proportion of the entire consumption; and it was the view of the committee that if reduction must be made in the revenue, it would be well to place sugar on the free list.

One great object aimed at by Mr. Blaine in assembling the

recent convention of representatives of American republics, was to open up the markets of those States to a larger trade with the United States; and this Mr. Blaine thought could be effected by some reciprocal arrangement by which the duties on the products of those States would be reduced or removed, and in consideration for which those States should correspondingly reduce or remove their duties upon American products. It is not surprising, then, that Mr. Blaine should have felt a large degree of disgust at the proposal of the McKinley Bill to place sugar on the free list without any demand upon the sugar producing States for removal of their duties upon American products. While Louisiana is not generally in accord with the Harrison Government, its representatives in Congress oppose the placing of sugar on the free list, and in this it has the support of many other representatives; and while Mr. McKinley was able to get his Bill through the Lower House of Congress, it is now hung up in the Senate, where it will undoubtedly have to submit to considerable pruning. The object of Mr. Blaine in writing this letter to Senator Frye is to influence legislation in the way indicated.

Mr. Blaine points out the facts regarding the removal of the duty upon coffee; and in doing this he deals a staggering blow to the argument of the Free Traders who declare that if a country (the United States) desires to extend its trade with another country (Brazil) there should be no tariff restrictions upon that trade. This was always strongly urged previous to the time when the United States placed coffee upon its free list. Nearly all the coffee consumed in the United States was imported from Brazil; yet the value of the exports of American products to that country amounted to probably not more than one eighth of that of the imports of coffee. Mr. Blaine points out that since the repeal of the American duty on coffee in 1872 the imports of Brazilian products into the United States, chiefly coffee, have aggregated in value more than \$821,000,000, while during the same time the exports of American products to Brazil amounted in value to only \$156,000,000. Notwithstanding the free trade in coffee, the difference, more than \$664,000,000, has been paid in gold or its equivalent.

The study of the Reciprocity question as affecting the sugar interest, as disclosed by the facts as between the United States and the Hawaiian Islands, is interesting. In 1875 a Reciprocity Treaty was entered into by the two countries; and in 1876, the year previous to the taking effect of this Treaty, the imports of the United States from Hawaii were valued at only \$1,376,681. In 1880 these imports had increased to \$4,606,444, or 234.6 per cent. In 1885 the imports had advanced to \$8,857,497, an increase of 92.3 per cent. over those of 1880; and during the four years ending with 1889 there was a further increase to \$12,847,740, or 45.1 per cent. Of the imports of 1889, \$12,084,666 were sugar and molasses, which, under the treaty, were admitted free. The principal articles making up the balance of the imports included hides, skins and rice, the value of the free articles being \$12,832,910, and of dutiable articles only \$14,832. If the merchandise admitted free had paid the duty levied upon similar goods imported from other countries, the duty would have amounted to \$5,452,311 for the fiscal year 1889, and to \$43,897,977 for the thirteen years ending with that year, or since that treaty has been in force. The total value of imports into the Hawaiian Islands, as

reported in their statistical statements, is given at \$5,438,790 for the year 1889. Of this amount \$4,305,620 is credited as imports from the United States, which is 79.18 per cent. of the total importations.

But the export trade of the United States to these islands, while it has increased, has not increased to the same extent as their imports. In 1875 the American exports amounted to \$621,974; in 1880 to \$1,985,506—an increase of 219.2 per cent; in 1885 to \$2,709,573—an increase of 36.42 per cent., and in 1889 to \$3,336,040, an increase of 23.13 per cent.

It is claimed that the principal reason why the American export trade with the Hawaiian Islands is not larger in bulk and value is that the total population of the islands is, by the latest authority, only 92,000 souls.

A SUCCESSFUL CANADIAN MANUFACTURING CONCERN.

It will be remembered that last year while Governor-General Stanley was visiting the Pacific Coast, he and his party were guests on board H.M.S. *Amphion* when she struck on the rocks on her passage from Esquimalt to Victoria, B.C. The ship sustained great damage, and it was only through the great skill of the ship's officers and the discipline of her crew that she was returned to Esquimalt, where she was immediately placed in the dry dock. The damage sustained by the *Amphion* has been fully described in these pages, also the fact that the contract for repairing them was awarded to the Albion Iron Works Company of Victoria.

These repairs were recently completed, and the ship is again afloat in quite as good condition as ever. Before she was discharged from the dry dock, and since, she was inspected by Mr. F. D. Palmer, an Admiralty inspector, who was sent there by the British Government for that purpose. And this officer declares that the work, which has been completed in the most expeditious and satisfactory manner, was the largest and most extensive repairs ever done to any vessel in the service, either in Great Britain or anywhere else. The repairs necessary were even more extensive than those made to the *Iron Duke* at Hong Kong, China, some years ago.

When the Albion Iron Works Company undertook to do the repairs on the *Amphion*, there were no suitable facilities for doing the work at the Esquimalt dry dock, and all necessary tools, machinery and materials had to be taken there, and accommodations provided for the workmen, who had also to be brought from Victoria and other places. Mr. Palmer testifies to the energetic, enterprising and intelligent manner in which the contracting company took hold of the job. The men employed were most excellent workmen, and, although the requirements were of the most exacting description, they were complied with in every particular.

The iron work included in the repairs of the *Amphion* covers about all that would be required in the construction of such a ship from the keel up; and it will be a revelation to most Canadians, and to the world, to learn that such work can be done by a private concern in a Canadian dry dock yard on the shores of the Pacific. Canada is to be congratulated on the fact, and England is also to be congratulated; for in it we

see the nucleus of a large and most important industry, the value of which cannot be overestimated. The most extensive repairs ever done on a British war ship have been successfully accomplished in a Canadian dry dock by a Canadian iron works concern, who, on emergency, could undoubtedly build just such ships as now compose the British fleet in the North Pacific Ocean.

EDITORIAL NOTES.

Who pays the duty? Ask Sheffield.

WHEN the wheel of a passing wagon goes over a dog's tail, he howls.

WHEN a pig gets his head entangled under a gate he makes the circumjacent atmosphere musical with the echo of his voice—he squeals.

ACCORDING to official accounts, and the testimony of many reliable and well-informed gentlemen, there are practically inexhaustible supplies of the most valuable kinds of iron ores in Canada, and yet the Canadian production of pig iron is ridiculously small. The consumption of pig iron and iron products in Canada, however, aggregate about 300,000 tons a year.

DURING the recent run of furnace No. 1 on spiegel ore, 300 tons of that metal of the finest quality were turned out. We are informed that it was the best ever made here. This is one reason why the company is enabled to compete with Eastern mills. Spiegel made here costs only \$20 per ton, while the Eastern manufacturers are compelled to pay from \$75 to \$100 per ton for theirs, and the metal does not compare with that produced by the Colorado Coal and Iron Co. here.—The Bessemer, Colorado, *Iron Hand*.

THE "abandoned farms of New England" has been sung in verse, recounted in newspapers, declaimed about on the stump, and been made the theme of authors, lecturers and poets. Now a matter of fact collector of statistics presents official figures which show that Maine had 318,577 more acres under cultivation in 1888 than in 1870; New Hampshire, 139,690; Vermont, 68,271; Massachusetts, 200,998; and Rhode Island, 27,750. This is abandonment to some purpose.—Chicago *Industrial World*.

SIR RICHARD SISYPHUS CARTWRIGHT is proposed as the leader of the submission party in the Dominion House of Commons. Heretofore Sir Sisyphus has been a strong advocate of Free Trade, but now he has come out in favor of Protection. The Protection that he proposes he calls "Moderate Protection," i.e., a low tariff framed on the lines of the tariff that prevailed previous to the inauguration of our present National Policy of Protection to Canadian manufacturing industries. Sir Sisyphus wants not Protection that protects, but a tariff for revenue only.

CANADA has time and again rejected all overtures to return to the destructive "tariff for revenue only" policy that prevailed previous to 1879; but now Sir Sisyphus Cartwright proposes to sugar-coat the old pill and force it down the throat of Canada under the new name of "Moderate Protection."

Should this idea prevail it would prove a coffin of capacity sufficient to hold the defunct hopes of Canadian manufacturers, who would become the mournful pall bearers. Sir Sisyphus endeavors to make the country believe that if it should try his fad it will never use any other. But then dead men do not criticise their own coffins.

WHY should the Mayor of Toronto request the Dominion Government to place refined asphalt, used for street paving, upon the free list? He takes the ground that the article should be viewed in the same light as steel rails, which are imported duty free. The reason why Canada has no steel rail industry to-day is because there is no duty on the article, though more than 150,000 tons are consumed yearly on Canadian railroads; and the refining of the hundreds of thousands of tons of asphalt required yearly in Canada, would give occupation to large numbers of Canadian workmen instead of to foreigners, as it now does.

THE people of Canada do not pine to assume a share of the war taxes of our neighbors.—Toronto *Empire*.

Our neighbors don't lay awake 'o nights worrying about how they are to pay their "war taxes." In fact they have no war taxes to pay. Whatever moneys they have had to raise to pay for the preservation of the Union was raised by and through a system of Protection upon the manufactures of other countries; and this system has proved so successful that the American people will not abandon it. By the way; is it not really queer that the *Empire*, that claims to be an advocate of our Canadian policy of Protection, should lose no opportunity of having a fling at the American policy of Protection. Consistency is a virtue.

THERE is one very significant fact that should not be lost sight of by those interested in the trade question. In England, a free trade country, the tendency of wages is to increase; in the United States, a protectionist country, the tendency at the very best is for wages to continue at their existing rate.—Toronto *Globe*.

On the very day the *Globe* published this graphic and luminous remark, it gave much space to details concerning the strike among the postmen of London, who were refused an advance in pay that is now almost too meagre to support life; and but a few days before this it gave full accounts of the trouble growing out of the strike of the London policemen arising from the same cause. It is not true that the tendency of wages in England is to increase. The contrary is the fact.

THE London *St. James Gazette*, speaking of the American tariff, suggests that "it would be well to take cognizance of the fact that the hostile Tariff Bill, now under consideration in the American Congress, typifies a barbarous form of war, in that it assails not armies but homes." It is evident that it is not the duty or the prerogative of the American Congress to legislate in the interests of the homes of any people whatever except those of the American people; and it is equally evident that its proposed tariff legislation does not assail any American homes. The British Government, however, has it in its power to legislate in the interest of British homes, even to protecting them against the incursions of American products. Why do Britishers whine about the operations of American tariffs?

THERE is good reason to believe that many of the despatches, describing the grief and woe of European manufacturers at the prospects that the McKinley Tariff Bill will pass, are simply nothing more nor less than roorbacks, or lies invented to assist in passing the new tariff law. The fact that a single member of the British House of Commons, and a Protectionist at that, was foolish enough to suggest retaliation probably did more to popularize the Bill in the United States than all the speeches that have been made in its favor, and the Republican managers are shrewd enough to make the most of the silly belief of Protectionists that what is bad for a country they trade with must be good for them, and *vice versa*.—*Montreal Witness*.

Roorbacks indeed! Why don't the *Witness* read the news published in its own columns? What does it think of the great meeting called to be held in Sheffield to protest against the McKinley Bill?

THE growth of the railway system in Canada is remarkable even in these days of railroads. It may be compared to the building of a scaffolding which is to assist in the erection of a palatial edifice, and in some of its aspects it would seem that the scaffolding is somewhat in advance of the edifice. We have done a large share of work for posterity, and to those who think much of posthumous honor, Canadian railways present a large and hopeful field. The financial condition of our railroad enterprise is the result of covering a continent with the iron network of communication as never continent was covered before. We have taken two thirds of the railroad mileage that serves the few hundred square miles of the United Kingdom, with its 38,000,000 of population, and have spread it over sixty meridians of longitude. Under these circumstances we can scarcely expect fat percentages on capital.—*Toronto Mail*.

THE consumption of iron and manufactures of iron in Canada amounts to about 300,000 tons annually, while the production of iron amounts to only about one tenth that quantity. The reason why Canada does not produce more iron is because the iron-making industry is not sufficiently protected. The hope of the Government seems to have always been that the industry would become established under a low duty. Time has proven that that theory is wrong. Then the more unsatisfactory method of paying a bonus on the production was tried: but even with the \$4 duty and the \$1 bonus, the industry does not prosper, although the country abounds in inexhaustible stores of ores, fuel and fluxes. The Government now proposes increasing the bonus to \$2 a ton, but in our opinion this will not have the desired effect. The industry can only be established in Canada by doing for it what was done in the United States—placing the duty high enough to make it a pronounced success.

SOME time since the French Ministry of Commerce addressed inquiries to all the Chambers of Commerce in France and Algeria and to other similar bodies, asking their opinions as to whether the existing commercial treaties should be "denounced" at the end of 1891, and whether new treaties should be negotiated in place of them. Out of 104 Chambers of Commerce ninety-six have reported in favor of the denunciation of the existing treaties, and the other bodies consulted are almost all of the same opinion. Sixty-two of the Chambers of Commerce appear to be opposed to the negotiation of new treaties in place of those

about to expire, while only thirty-five Chambers of Commerce favor the conclusion of such treaties. This is taken as an indication that Protectionist sentiment is in the ascendant among the merchants and manufacturers of France, and is understood to point to a reversal of the commercial policy that has been in vogue since the conclusion of the Anglo-French Treaty of 1860.—*Bradstreets*.

THE daily papers publish a press telegram from London giving an account of a strike riot at gas works in that city, growing out of an attempt on the part of the gas company to substitute non union workmen for the union workmen who had gone out on strike. In the few lines required to state these facts, the word "blackleg" as applied to the non-union men is repeated a half dozen times. Why should the sender of press despatches persistently use a word that is exceedingly offensive to all decent self respecting people? These men were trying to do what they had a right to do, and what the law should protect them in doing—to work for their living. All sense of British justice is outraged in the first place by the authorities failing to afford sufficient protection to these men against the outrageous tyranny of the union men, and in the second by the world-wide publication of an obnoxious term as applied to men who only wanted to earn their living, but who were prevented from doing so by the rowdiness of the union men.

MR. A. BLUE, who was one of the commission appointed to report upon the mineral resources of Ontario, resents the idea advanced in this journal that the gentlemen composing the commission were all opponents of the Dominion policy of Protection. He says the assertion is "wild, rash and untruthful"—that they were not all such opponents. To prove this he points to two out of the five, one of whom has never taken an active part in politics, and is not a member of any political party—a mugwump as it were—the other being a supporter of the general trade policy of the Government and also a member of the Imperial Federation League. This latter gentleman, although a supporter of the general policy, is not declared to be an opponent of Reciprocity—we have heard of such—and it is clear that his views regarding Imperial Federation do not prevent his desiring closer commercial relations with the United States. Mr. Blue makes no allusion to the political views of the three other commissioners. Wherein, then, is his own suggestion wild, rash or untruthful? Mr. Blue proves too little or too much.

DURING the past six months the furnaces of the United States produced 4,250,000 gross tons of pig iron, and almost the whole of this enormous product has already been used. It is expected, moreover, that there will be a still greater output during the remaining half of the year, and yet there are no indications that the production will exceed the demand. The Canadian restrictionist, who not long ago argued that it was useless to dream of a market for our iron or ore in the United States because the supply in the latter country was excessive, was, to put it mildly, much mistaken.—*Toronto Mail*.

Those whom the *Mail* calls "restrictionists" never argued that it was useless to dream of selling Canadian iron ore in the United States. If the *Mail*, however, will read the report on the "Mineral Resources of Ontario," it will discover that those who are not restrictionists—to-wit, those who are

advocates of Unrestricted Reciprocity with the United States, are the ones who advance that idea. They all argue that mining iron ore in Canada is and must be a failure until they have free access to the American markets. But the report also proves that Canadian ore can be sold in American markets, duty paid, as cheaply as American ores, and in some instances much cheaper. The *Mail* is like the wolf that accused the lamb of muddying the water.

THE imports of foreign iron ore in the ten months ending April 30, 1889, amounted to 493,337 tons, against 993,364 tons in the corresponding period ending April 30, 1890—an increase of 500,027 tons. The Pennsylvania Steel Co., an Eastern contemporary alleges, with its recently opened mines in Cuba and its line of steamers, is largely responsible for the great increase in imports of iron ore; in the meantime imports of pig iron have diminished. The imports of iron ore are unnecessary; the country abounds with it and of all qualities, and its importation is a speculation "fad," made possible by the low prevailing duty on foreign ore. On the other hand, protected industry is able to produce crude iron from native ore at a price with which no foreign pig iron can compete; hence its importation dwindles.—*Chicago Journal of Commerce*.

And yet the Royal Commission, appointed by the Ontario Government to investigate and report on the mineral resources of the Province, and measures for their development, hire every Yankee owner of Canadian iron mines to help them howl for "Reciprocity." There is no manliness in this.

THOSE farmers who are constantly harping upon the complaint that they must export more of their products before they can hope for prosperity are evidently not aware of the fact that we import about \$250,000,000 worth of agricultural products every fiscal year, and of this amount about \$120,000,000 are sold in direct competition with American farm products. Secretary of Agriculture Rusk, after a careful and conscientious study of the matter, positively asserts that with the proper study our farmers can produce still more of the products now imported. If this is the case it would behove our agriculturists to look more closely into the requirements of the home market and then commence testing the possibilities of our soil and climate. If, as the Secretary of Agriculture says, we can produce on our farms \$250,000,000 more than we do, and in products not now cultivated in this country, it means an addition to the income of our farmers that certainly ought to make their pursuit very profitable. No one acquainted with the possibilities of our country, presenting as it does such great diversity of soil and climate, will entertain the belief that we are now producing all that we can or should, as regards diversity. Our farmers have too long been contented with cotton and cereals. The time has gone when he can depend upon these alone, and the time has come when he must make his land yield him something else.—*Farm Machinery*.

OTTAWA has had trouble with American silver coins, the intrinsic value of which is often so much below their nominal worth that the man who seeks to get legal tender for them is a loser. The banks in that city, therefore, agreed to the following stringent regulation: "On and after June 20th, the banks will receive American silver at the following rates only, viz.:—Silver dollars, 90c.; half-dollars, 45c.; quarters, 20c.; dimes, 5c. Half-dimes, nickels and mutilated silver will not be accepted." American silver dollars are not worth nearly 90c. in gold, and the resolution to pay so much is surely unwise

and may be productive of mischief if a considerable quantity of it be taken.—*Monetary Times*.

Our esteemed contemporary, although it poses as a financial and monetary journal, seems to lose sight of the fact that neither Canadian nor American silver coins were ever intended to possess, as bullion, their face value in gold. An American silver dollar, while it may not be worth ninety cents in gold, possesses the full efficiency of a gold dollar in trade. It is just this sort of fool business among bankers that restricts trade. An American coming to Canada with his pockets filled with good hard American dollars, is confronted with a charge of ten per cent. discount when he wants to make purchases. There is more bullion in an American than a Canadian dollar; and American coin—that which is not mutilated—should pass at its face value anywhere in Canada. Any American silver coin is warmly welcomed and freely received at face value for subscriptions to the CANADIAN MANUFACTURER.

WE do not blame our esteemed contemporary *Farm Machinery* for trying to put as good a face as possible on the destitution and suffering that prevails in Dakota; but the fact that hundreds of families of that State have migrated or are preparing to migrate to Manitoba, tells the pitiful story. It does not meliorate the situation, or enable the sufferings there to be told that the Pilgrim fathers and the Jamestown colonists of more than a hundred years ago had their "famine years," or that in the pioneer days of the Mississippi valley the settlers endured many years of hardships. If these people were frequently without breadstuffs of any kind: if they were clad only in buckskin: if there were no churches, schools or other conveniences of civilization: if crop failures were common: if the settlers were constantly menaced by famine and were far beyond the help of relief societies, these are not acceptable reasons for the Dakota sufferers to remain and endure the same things or worse, while a delightful Utopia lies but a short distance to the north of them in the more favored clime and soil of Canada. Some of the old time people our contemporary speaks of may possibly have lived to see the fruition of their hopes, but most of them did not, and many of them lost their lives while fleeing from the desolation they left behind them. The people of to-day are not called upon to endure such sufferings if they can avoid them, and the Dakotans know that fairer fields and brighter prospects await them in Manitoba.

WE announced the other day that the High Commissioner for Canada has been deputed by the Dominion Government to attend the forthcoming Conference at Brussels for the formation of an International Customs Bureau to supervise the publication of the tariffs in various languages; and it is right to point out that this fact emphasizes the higher position which the Colonies have of late years assumed in the negotiation of these international questions. Up to now they have not generally been directly represented at international conferences or in negotiations between Great Britain and other countries; but it has been the custom to get a clause inserted in the conventions or treaties concluded providing for the admission of any of the Colonies that might desire to participate. A happy departure was made when Sir Charles Tupper was deputed to attend the International Cable Conference, and signed, in conjunction with the representatives of the other Powers, the agreement to

which the Conference led. In the case of the present Conference the Colonies were formally invited to send delegates with full powers, and this is regarded as a further recognition of their growing importance, and of their right to a direct voice in any matters in which their interests are concerned.—*The Canadian Gazette*, London.

RECENTLY, in speaking of the political sympathies of the gentlemen composing the commission appointed by the Ontario Government to report upon the mineral resources of the Province, we expressed the opinion that they were all opponents of the Dominion policy of Protection to Canadian industrial pursuits; and that it was observable in their report that no opportunity was neglected to denounce that policy, and to preach up Commercial Union, Unrestricted Reciprocity and Annexation to the United States as the only salvation of the country, and the only means by which its mineral resources might be developed. Mr. A. Blue, who was one of the commissioners, painfully feeling the force of our suggestion, works himself into a rage over it, declaring it to be "wild, rash and untruthful," and that there is not a word preaching up these heresies from the beginning to the end of the report. Mr. Blue really ought to read his own report. Beginning on page 231 under the caption, "Influence of Free Trade with the United States upon the Mining Industries of Ontario," and continuing through a considerable portion of the report, are given the opinion of a large number of political economists, American owners of Canadian mines and others, all tending to prove just what we charged them with saying—that closer political relations with the United States was the only salvation of Canada, and the only means by which its mineral resources might be developed. In the letter of transmission accompanying the report to Lieutenant-Governor Campbell, Mr. Blue, as one of the commissioners (see page xii), tells us that it was a part of the scheme of the report that the evidence of witnesses should constitute a part of it. There is no single word in the report as far as we can discover protesting against the political sentiments of these witnesses, but there are endorsements of them (see page xvi), and where the Dominion Government are lectured for imposing "restrictions by trade policies," meaning the failure of this Government to effect closer political relations with the United States with a view to "promoting the development of our mineral resources." In our last issue we reproduced the views of some of Mr. Blue's witnesses, and for his information we present them again in this issue.

A PERSON under the *nom de plume* of "A Blue," rushes himself into print to declare that what this journal recently said concerning the political proclivities of the gentlemen composing the Commission appointed to report upon the mineral resources of Ontario is not true. We had intimated that these gentlemen were opponents of the Dominion policy of Protection to Canadian industrial pursuits. Our cerulean friend says we are "rash" in stating this, and in explanation ventures the information that of the five commissioners one is an officer of the Dominion civil service, and has been since his boyhood, not being a member of any political party, and another is a supporter of "the general trade policy" of the Canadian Government, whatever that may mean, and a member of the Imperial Federation League. These definitions are

vague as regards two of the Commission, and as regards the others, no definitions of their political status being offered, we conclude our estimate to be admittedly correct. It may be that the policy of Protection was not discussed at any meeting of the Commission, as Mr. Blue says, but as he also tells us that the Commission "unanimously agreed upon the policy which in their judgment seemed best calculated to develop the mineral resources of the Province," and as the Commission in pursuing the course they had marked out, presented no inference or opinion which they did not believe warranted by the study and observation of its members, and on the testimony of what they believed to be high authority; as the gentlemen in their report, speaking of the office and duty of governments in relation to the industry, said: "Mining enterprises should not be weighted with restrictions imposed by trade policies"; as the Dominion Government had not only not placed any restriction on the Canadian mining industry, but had done everything possible to encourage it; as the only restriction in the path of that industry, according to the report, is the American duty, and as the only way of removing this restriction, according to the Commission and the witnesses produced by them, lay in the direction of Unrestricted Reciprocity with or Annexation to the United States, we think our inference fairly drawn when we said that the Commission were all opponents of the Dominion policy of Protection.

THE exclusion of Canadian iron ores from the United States market by means of high customs duties has crushed out the iron mining business in this neighborhood. While millions of tons of iron ore are being carried away every year by water and rail from the mines on the American side of Lake Superior to Cleveland, Detroit, Buffalo and other manufacturing centres, the Canadian iron mines are lying unworked. The Dominion Government's policy of trade restriction and high taxation has not developed our iron resources.—*Ottawa Free Press*.

The report of the Commission on the Mineral Resources of Ontario, tells us by the testimony of Mr. Joseph Bawden:—"We can send ore to Chicago from Kingston for less than it can be brought from the Lake Superior mines to Chicago;" by the testimony of Mr. B. W. Folger:—"The freight from Kingston to Cleveland is seventy-five cents, or less than half what it is from Lake Superior;" by the testimony of Mr. T. D. Ledyard:—"The freight to Buffalo from the mines would be \$1.50. The cost of mining would be from \$1 to \$1.50, and we would have an advantage of from \$1 to \$1.50 a ton in freight over the Lake Superior ores. The price at Cleveland of Bessemer ore is \$5.75:" by the testimony of Mr. C. J. Pusey:—"Taking the ores through that range in Haliburton and eastward, and comparing their analyses with those of the ores on Lake Superior, or any other point of the United States, or even the Spanish ores, there is a greater proportion of Bessemer iron in the Canadian ores than in the others mentioned." The report of the Commission was gotten up with special view to creating sentiment in favor of Unrestricted Reciprocity with the United States, and we accept the testimony of the witnesses. What do they tell us? That on their freight on ores from Kingston to Cleveland, seventy-five cents a ton can be saved over the freight on Lake Superior ores to the same destination. The American duty is seventy-five cents a ton, and this saving would enable the Canadian ore to compete on pre-

cisely equal terms with Superior ore in the Cleveland market. That in sending Canadian ore to Buffalo a saving of from \$1 to \$1.50 a ton is made in freight over Superior ore to the same city. This saving not only pays the American duty, but leaves a good margin of profit besides. The price of Bessemer ore at Cleveland is \$5.75; the cost of mining Canadian ore is \$1 a ton, the freight of it \$1.50, and duty, seventy-five cents, making the cost laid down in American markets, duty paid, \$3.25, leaving a clear profit on the sale of \$2.50 a ton. Do these Yankee owners of Canadian mines want the whole earth? A profit of \$2.50 a ton should satisfy them.

SPECIAL ADVERTISEMENTS.

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

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

A DYER—Blue vats and fancy colors in wool and piece. Fast carriage green cloths, tricots, flannels, etc., etc. Am at present engaged in the States, but desirous of coming to Canada. Address, GUBELINUS, this paper.

FOR SALE.—In town east of Toronto, Two Set Woolen Mill, fully equipped and in good running order; never-failing water-power, main building stone, 50x150 feet, three stories; picker house, brick, 24x30, two stories; railway and water convenient for shipping, will sell with or without machinery. For further particulars, address this office.

FACTORY TO LET.—Ten years lease; containing about 11,000 feet of floor space, fitted up complete with engine, boilers, shafting, steam heating, gas light and water service fixtures throughout; adjoining building can be had if desired: five floors, each 30x110, with hoist. Apply to Samuel May & Co., 111 Adelaide Street west, Toronto.

FOR SALE in Kent County, Michigan, the Buchanan Mill property consisting of a first class lumbering mill the extensive water power in connection with it including the entire power furnished by the river with real estate on both sides of sixteen acres, situate one mile from Main Street of Lowell, a rich farming country surrounding an excellent location for paper mill, furniture factory, woolen mill and the many uses that require power. Also a splendid home and farm of 87½ acres with buildings, fruit, evergreens etc. For further information all at the premises of JAS. R. BUCHANAN, Lowell, Michigan.

TO MANUFACTURERS—The Town of Thorold, Welland County, Ontario, is a splendid site for manufactures of all kinds, and reasonable encouragement will always be given for the settlement of bona fide industries. It is situated on the boundary between the Counties of Lincoln and Welland; population, 3,000; lighted by electricity (public and private circuits); electric street railway connection with the City of St. Catharines, four miles distant; nine miles from Niagara Falls; the New and Old Welland Canals, also the Welland (G.T.R.) and

Niagara Central Railways, all run through the town; water power from the canal; bonded debt small; situation, on the brow of the mountain, overlooking Lake Ontario, most picturesque; public health not excelled; five churches; first-class High school, also two Public and one Separate school. Any information desired will be cheerfully given by application to JAMES LAWSON, Mayor.

Santa Claus, that delightful friend of the young people, published by the Santa Claus Company, 1113 Market Street, Philadelphia, makes its weekly visits with unfailing regularity. It is only \$2 a year, and it is now far advanced into its second volume. *Santa Claus* is always filled with just such reading matter as will be sure to interest its readers, old and young, and that also imparts valuable information. Its low price places it within the reach of all.

THE Cleveland, O., City Forge and Iron Company, have a trip hammer that strikes a blow equaling 3,000 tons and is capable of forging a piece of iron weighing 150 tons. The bed on which this massive hammer rests is sixty-five feet in the ground, consisting of solid masonry. The block on which it strikes weighs 100 tons. The plant of this company is said to be the largest of its kind in America, and is second to only one other in the world, the Krupp Manufacturing of Germany.

THE second annual fair of the Detroit International Fair and Exposition will open on August 26th and remain open until September 5th. Judging from the success attained by this fair last year, that of the present year will certainly be one of the most interesting events occurring in neighboring American cities. The railroads will sell tickets at reduced rates, and doubtless large numbers of Canadians will avail themselves of the occasion to visit Detroit, one of the most enterprising cities on the continent.

Good Housekeeping has an article of much interest and merit on "The Teeth," which should be perused, especially by mothers and others having the care of children; while "Our Dinner Club" will particularly interest those who delight to entertain small parties of friends at dinner in a pleasing but inexpensive manner. Several papers treat of children—their dress and care, and in fact no department of the household is overlooked. With this model magazine for a guide, the most inexperienced young housekeeper cannot go far wrong in the conduct of her domestic affairs. Clark W. Bryan & Co., Springfield, Mass., publishers.

THE Western Fair Directors are evidently determined to make the Western Fair, Sept. 18th to 27th, the best of Canadian fairs from the handsome increase offered in prizes for live stock and agricultural classes, and the large amount set apart for the speed programme. Information is received that they are now arranging for the best attractions that money can procure to please their visitors. The principal manufacturers are coming to their assistance by placing in the main building machinery to manufacture their goods, in view of the public, which will be alike pleasing and instructive. They expect a large attendance from this section. Mr. Thos. A. Browne, their new Secretary, will be pleased to send prize lists to any one on receipt of post card.

A LITTLE book on German labor rates of wages supplies some good details about wages and hours of labor that are particularly interesting during the present eight hours' agitation. Here are some examples of the pay received:—Machine smiths and fitters earn 3s. per day of ten hours' work; joiners, locksmiths and upholsters, 3s. for eleven hours' work; painters, carpenters and glaziers, 3s. 2½d. for eleven hours' work; builders and plasterers, 3s. 6d. for eleven hours' work; cartwrights and farriers, 2s. 9d. for twelve and half hours' work. Laborers or unskilled men work the same hours as the skilled or craftsmen, and are paid 1s. 9½d., 2s. or 2s. 6d. for eleven hours' work, according to circumstances. Two shillings a day may be taken as the average laborer's pay. Nineteen shillings a week represent the average earnings of a workman.—*The Mechanical World, London.*

THE daily Press has grown excited recently over a report from Hartford, Conn., that a new and marvellous method of generating electricity has been discovered. It was described as a direct process by which electric currents could be generated by heat. Those most immediately interested in the invention are, however, quite conservative in their statements, and not inclined to make sweeping claims until further experiments have been made. It will be remembered by many of our readers that a similar report arose some eight or ten years ago, having for its tangible but insufficient basis a pyroelectric battery that soon disappeared from public view. More

recently, the pyro-magnetic generator created a briefer flurry. In view of past experience, we should be cautious in accepting reports of a similar kind, and should withhold judgment until the means taken to secure the alleged extraordinary result are made public, and experiments have proved or disproved the claims that, for the present, come rather from the newspapers than from the inventor.—*Electrical World*.

THE title "Jordan" begins, and the title "Legacy" ends Volume 21 of Alden's *Manifold Cyclopedia*, and between these titles will be found a wonderful amount of interesting and valuable information. The editorial skill in selecting the subjects treated, the amount of space given to each of the various topics, and the clearness and conciseness of treatment, are most commendable, and stamp this cyclopedia as, above all others, the cyclopedia for the people. A feature of very great importance not found in any other cyclopedia is the pronunciation of all titles, the names of persons, countries, etc., as well as the ordinary words found in a dictionary. Among the great number of interesting subjects treated in this volume we notice: Jurisprudence, Jury, Jute, the States of Kansas and Kentucky, very full and brought close down to date; Knights of Labor, Latin Language and Literature; also biographical sketches of such noted and interesting characters as Josephus, Junius, Kent and Kant, Clara Louise Kellogg, Mrs. Kemble, George Kennan, Louis Kosuth, Lafayette, Gen. Robert E. Lee. The *Manifold Cyclopedia* cannot be too highly commended for the use of families and schools, and especially for all young people who are attempting to educate themselves. The low price, also, quite beyond comparison with any other cyclopedia of similar character and magnitude, is a gratifying feature. Specimen pages and terms will be sent on application by the publishers, Garretson, Cox & Co., New York, Chicago and Atlanta.

In the Lomb Prize Essay on Practical Sanitary and Economic Cooking we have a new departure in cook books—we have a book which stimulates thought and encourages study of cookery problems, and does not leave the reader with the usual bewildered mind. This little book ought to lay the foundation of a school of American Cookery which shall in time be as famous as the French Cookery is to-day. Let us be barbarians no longer, but let us use intelligently the great abundance of good material with which our markets abound. Because the title page says "for persons of moderate or small means" let no one lay the book aside as unsuited to a rich man's needs. The same nutritive principles must be found on both tables, and health is as essential for the rich as for the poor. Mrs. Abel has succeeded in the difficult task of making clear to the unscientific mind some of the fundamental scientific principles on which the preparation of food depends, and she has not hesitated to expose many of the fallacies which have hitherto ruled our kitchens, because she was in a position to be sure of her ground. Every High school laboratory should place this little book alongside of its text-book on Chemistry. This book comes to us by direction of Mr. Henry Lomb, through the American Public Health Association, whose headquarters are at Rochester, N. Y., and the attention of the public, especially of the persons for whom it is principally intended, of employees, and of charitable associations, is called to it. The essay has been translated into German and bound so that the English and German texts are opposite each other, and it is expected that it will also soon be translated into other languages.

"ENGLAND'S" Folly, a paper read before the silk section of the Jubilee Exhibition, at Manchester, England, by S. Cunliffe Lister, High Sheriff of Yorkshire, and President of the National Fair-Trade League. This is an exceedingly interesting pamphlet that discusses the question whether Fair Trade, meaning Protection to British industries, or Free Trade is better for Britain. The discussion of Mr. Lister is mainly in the interests of British silk goods manufacturers, showing that that trade had been seriously crippled—almost annihilated—by the free importation of foreign goods, and that Free Trade was the cause of all the loss and trouble in that trade. But his argument, of course, went into a general analysis of Free Trade and its effects upon all the manufacturing industries of the country, showing that free imports cannot raise the wages of British workmen; that England, with Free Trade, had not prospered as much as contiguous European countries and the United States, under Protection; that the present position and future prospects of England are not as bright as they would be under Fair Trade; that a tariff is the wisest form of taxation; that tariff Protection acts favorably upon labor; that foreign trade is not necessarily advantageous to a country, and that Free Trade lessens the power to compete with protected countries. Mr. Lister explains what "Fair Trade" is and what its objects are; shows how other nations have prospered under Protection, and points out that the only sure method of lifting Britain out of the industrial

depression that burdens most of her industries is that of Fair Trade.

THE scarcity of ice in many parts of the country is turning attention to the methods of making ice on the spot. Most of the ice used in Southern cities is made in this way, and it comes cheaper than bringing it from the North. Ice is a necessity in many kinds of business. A plant for producing ice is necessarily costly, but it is said that one fitted to produce twenty-five tons per day can be put up for \$20,000. This will leave a good profit with ice at \$3 per ton. It will be seen therefore that necessary as ice is it cannot be made a monopoly. The home-made ice ought to have better guarantees for purity. Surely no one would think of making ice from impure water. Where the ice grows naturally the character of the water is less apt to be considered, as it will look clear in any event. If the scarcity of ice should lead to disuse of it in food or drink of any form it would be a gain to public health. Water for drinking should be cooled by ice outside the vessel containing it, not in it. Drinking very much water that has been thus chilled is not safe in the hottest weather.—*Manufacturer's Gazette*.

FARMERS, it is asserted, are not protected, but are taxed in the interest of those who are. If this were true it would not only be an injustice but a monstrous crime. But it is not true. Under Free Trade we are told there would be an increased demand for agricultural products and higher prices. Where is the evidence of that? Simply in the minds of theorists. Can American farmers compete with those of India, or Russia, or Germany, or France? Certainly not, for the reason that labor of all kinds is cheaper in those countries than in the United States. This is undeniable. Furthermore, ninety-four per cent. of the agricultural products of this country is consumed at home, and six per cent. is exported. This is a stubborn fact that confronts and beats sentimentalism and all sorts of theories. The market for the American farmer is, therefore, the home market. To choose anything else at the expense of the latter would be as wild and unsubstantial as the chasing of a rainbow. The true policy is to stand by and fairly protect home industries. This is what has made our country. It accounts for the enormous increase in population and wealth.—*Cincinnati Commercial Gazette*.

E. A. HARTSHORN, of Troy, the energetic organizing agent of the American Protective Tariff League, was to the rooms of the League on west Twenty-third street on Saturday, when mention was made of the opposition of importers to the McKinley Tariff Bill. "Certainly the importers are kicking against it," said Mr. Hartshorn. "It is a Protection Bill. It operates against European manufacturers, of whom they are the representatives. They only obey their masters. If European manufacturers did not fight the Bill there would be something wrong about it. It is not strange that the people of England are manifesting more interest in the Bill by far than we are in this country. Why shouldn't they? The markets of the United States are worth more to England in certain lines of business than all the other markets of the world. The linen trade is an example. The more kicking there is by importers against the Bill the more certainty the Bill will pass. Protection to home industries and free foreign trade will mix no better than fire and water. The kicking indicates that heretofore we have enjoyed protection only in spots, but now it is about to break out all over. The free-traders tell us it is a fearful disease, but the queerest thing about the scourge is that it kills the other fellow."—*N. Y. Press*.

AT the Bengal Iron and Steel Company's works near Barrakur arrangements have been made for the production of 30,000 tons of pig iron per annum from the ironstone and coal found in close proximity on the property. In the foundry preparations have been made for turning out cast iron water pipes, sleepers and other railway material in very large quantities, the moulding being accomplished by hydraulic machines of the latest pattern, at rates which, it is expected, will render European competition difficult, if not impossible. The output of these works will not be confined to pig iron and castings, but as soon as practicable the production of wrought iron and steel, and its manufacture into blooms and bars will be commenced, and eventually the rolling of rails, girders, joists, and all sections of iron and steel in common use on railways and for building purposes. With iron and steel at their present prices in England, and with the probable continuance of high rates for some considerable period, the project has been launched at a most favorite time; a large development of business is expected, and every preparation has been made to meet it.—*Indian Engineering*.

THAT the exports of American machinery are on the increase is an unquestionable fact, and it is stated upon the most reliable authority that the returns for the past year will show an unusually

large expansion in this branch of our foreign trade. The demand from abroad for American textile machinery has of late been more active than ever before, and is undoubtedly to be attributed to the numerous patented improvements that have been and are constantly being added to American machines for cotton and woolen manufacturing, and which are now bringing them prominently to the front. These devices, the result of American ingenuity and invention have been patented both in this and foreign countries, thus fully protecting the rights of inventors and manufacturers, and foreigners are not slow to recognize their merits. In the case of the American loom this is especially true, for it is generally admitted that for speed and good workmanship combined, it is superior to all its foreign rivals. As a result it is being gradually introduced into many English factories, where practical test has clearly demonstrated its advantages. In the United States the ring spinning frames are largely taking the place of mules in many of the mills, and they are now beginning to force themselves upon the attention of foreign manufacturers, who, though slow to adopt new methods, and conservative in the extreme, cannot afford to neglect any improvements from whatever source they may come, which will give them any advantage, however slight, over their competitors. The same is true with regard to many other machines used in the textile industry, in which the inventive genius of the new world has suggested valuable improvements over existing methods, and which are certain to come to the front in foreign countries as soon as their value is appreciated. During the past twelve months the value of cotton and woolen machinery exported from Boston alone has amounted to nearly \$325,000, which shows an increase of almost \$100,000 in comparison with the year previous.—*Manufacturers' Review*.

J. D. DEVEREUX, a Detroit carpenter, has invented a life-saving boat. The boat is constructed of galvanized iron and may be of any size from ten to 200 feet. It is in the shape of a dynamite shell, with double conical ends. The passengers could be seated in the interior upon a long seat swung from a shaft extending from end to end in the centre. Upon what might be termed the top of the boat is a square man-hole for ingress or egress. When everything is in readiness the trap door of this man-hole is closed. The operator then seats himself on the swing seat and grasps with either hand levers which project inwardly from both sides of the man-hole, and the boat, to which are attached on opposite sides four fins, which are arranged in spiral form and act upon the same principle as do the blades of a propeller wheel. The operator begins a rotary movement, and the action of these fins upon the water gives the boat its forward or reverse momentum, as the case may require. The inventor would also, if necessary, do away with these fins, and at the stern place a propeller wheel, which would be operated from the inside by levers. In this case the boat would maintain a steady position. A rudder would be attached to the stern in either case, by which the boat would be steered. The inventor claims for his device that it will necessitate the abolishment of the ordinary life boat, life car or breeches buoy. In answering the question as to how he would make a landing with his hollow iron boat, loaded with shipwrecked passengers, upon a rock-bound coast in a heavy sea, the inventor said he would fill the boat with just enough water to lower her under the surface, and would there remain until the storm had ceased and the seas had calmed down. While under water he would provide an atmosphere for the inmates, by innumerable holes in the boat, thus allowing the water to enter, forming a spray that would purify the oxygen. The inventor claims that in time of war the boat could be used as an under-water destroyer. He would also provide the bow of the boat with a huge auger, with which a hole could be bored in the bottom of a vessel by the same rotary motion before described.—*Cleveland, O., Marine Review*.

ELECTRIC WELDING.

We give below a list of the different materials which have been successfully welded together by the Thompson process, which may be of interest, inasmuch as the term welding is ordinarily used with especial reference to the joining of two pieces of material of the same or closely allied composition :

Metals.

Wrought iron,	Tin,	Aluminum,
Cast iron,	Zinc,	Silver,
Malleable iron,	Antimony,	Platinum,
Wrought copper,	Cobalt,	Gold (pure),
Cast copper,	Nickle,	Manganese,
Lead,	Bismuth,	Magnesium.

Alloys.

Stubs steel,	Fuse metal,
Cast brass,	Type metal,
Gun metal,	Coin silver,
Chrome steel,	Solder metal,
Musket steel,	German silver,
Crescent steel,	Silicon bronze,
Bessemer steel,	Aluminum brass,
Steel castings,	Phosphor bronze,
Brass composition,	Aluminum bronze,
Various grades of tool steel,	Various grades of gold,
Various grades of mild steel,	Aluminum alloyed with iron.

Combinations.

Copper to brass,	Wrought iron to mild steel,
Copper to wrought iron,	Wrought iron to tool steel,
Copper to German silver,	Gold to German silver,
Copper to gold,	Gold to silver,
Copper to silver,	Gold to platinum,
Brass to wrought iron,	Silver to platinum,
Brass to cast iron,	Wrought iron to Musket steel,
Tin to zinc,	Wrought iron to Stub steel,
Tin to brass,	Wrought iron to Crescent steel,
Brass to German silver,	Wrought iron to cast brass,
Brass to tin,	Wrought iron to German silver,
Brass to mild steel,	Wrought iron to nickel,
Wrought iron to cast iron,	Tin to lead.
Wrought iron to cast steel,	

It will be seen from the foregoing that materials heretofore impossible to weld to pieces of similar composition, have been welded, and not only this, but different combinations have been made, entirely impossible by ordinary methods.

PROSPECTS OF THE IRON ORE SUPPLY.

THE importation of iron ore into the United States shows remarkable fluctuations, which are not to be accounted for entirely by variations in the demand in this country, or the condition of its iron business, but must, to some extent, be due to fluctuations in cost of mining and in the demand for ore in other countries than our own. Here are the figures :

IMPORTS OF ORE DURING THE FISCAL YEARS ENDING JUNE 30TH.

IMPORTED FROM	1885	1886	1887	1888	1889
French & African Mediterranean ports.....	25,360	107,366	215,760	163,496	78,137
Italy.....	16,213	20,982	114,423	98,343	66,812
England.....	11,890	15,033	72,546	56,090	29,216
Canada.....	47,860	7,906	18,430	13,380	9,284
Greece.....	7,700	44,173	25,707	13,480
Spain.....	243,906	428,586	522,719	416,138	190,460
Cuba.....	28,209	51,268	109,928	117,504	225,525
Total all countries.	373,438	638,841	1,097,979	890,658	612,914

The decline in imports during the last three years, in the face of greatly increased production of pig iron, indicates that our mines are more than keeping pace with our blast furnaces in increase of production. Cuba is now the largest source of our foreign supply, and Spain has taken a second place. The mines in Cuba were opened only a few years ago by an American company, and they might almost be considered part of our domestic supply, as is also that from the American-owned Canadian mines. Leaving out the importation from Cuba, the total of foreign ores imported is less than 4 per cent. of our domestic consumption. The increasing cost of ore in Spain and other European countries indicates the probable cessation altogether of our importations from these sources, and will leave us dependent upon our own country, Cuba and Canada. Fortunately in these countries, our near neighbors, as well as at home, there is a constant increase in the development of iron mines, and no prospect of any scarcity in either source for a long time to come.—*Engineering and Mining Journal*.

Six years ago what is now the flourishing manufacturing town of Trenton, N. S., was a wilderness. Within the past few days the third glass factory has been put in operation there.

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.

MR. M. S. DAVYS is building a steam lumber mill at Nelson, B.C.

MESSRS. A. CAMERON & SONS are building a fifty horse-power steam saw mill at Sherbrooke, N.S.

THE Keewatin Milling Company, Keewatin, Man., will build a large grain elevator at Griswold, Man.

MR. WM. H. HUTCHINS' grain elevator at Sarnia, Ont., was destroyed by fire July 9th, loss about \$6,000.

MESSRS. CAMPBELL, CARR & Co., Sherbrooke, Que., are erecting large new buildings for their foundry and machine shop.

THE saw mill of Messrs. Setterby Bros., at Barbrook, Ont., near Ottawa, was destroyed by fire, July 6th, loss about \$30,000.

THE Dominion Paper Company has been organized at Montreal with a capital stock of \$300,000 for the manufacture of paper, pulp, etc.

THE Hagersville Milling Company, Hagersville, Ont., has been organized with a capital stock of \$40,000 to erect flouring mills, etc.

MR. H. WENTZEL, who has recently embarked in the business at Bridgewater, N.S., is manufacturing some most excellent and attractive riding carriages.

A KILN house connected with the works of the Hamilton and Toronto Sewer-pipe Company at Hamilton was destroyed by fire July 10th, loss about \$700.

THE foundry, machine shop and planing mill operated by Messrs. Dodwell and Saunders, Claremont, Ont., were destroyed by fire July 13th, loss about \$3,000.

THE G. & J. Brown Manufacturing Company, Belleville, Ont., are building two steel turntables for the Northern Pacific Railway, to be placed at Winnipeg, Man.

THE storehouse of the Windsor Varnish Works, at Windsor, Ont., containing a large quantity of the company's products, was destroyed by fire July 11th, loss about \$8,000.

THE large shingle mill in Gambier Island, Howe Sound, B.C., owned by Messrs. W. L. Johnston & Co., of New Westminster, B.C., was destroyed by fire July 1st.

THE Ottawa Brick Manufacturing Company has been organized at Ottawa with a capital stock of \$45,000 to manufacture brick, terra cotta, tile, clay ornaments, etc.

THE name of the Uxbridge Cabinet and Organ Manufacturing Company, Uxbridge, Ont., has been changed to the Uxbridge Piano and Organ Manufacturing Company.

THE Eagle Sulky Harrow Company has been organized at Brantford, Ont., with a capital stock of \$100,000 for the manufacture of agricultural implements, farm machinery, etc.

MESSRS. RHODES, CURRY & Co., Amherst, N.S., are manufacturing the interior hardwood fittings for a large hotel being erected at Jamaica, West Indies, by the American Hotel Company.

THE Glencoe Salt Company has been formed at London, Ont., with a capital stock of \$10,000 and will immediately put down salt wells and engage in the manufacture of salt at Glencoe, Ont.

THE Canadian Locomotive & Engine Company, Kingston, Ont., are building a high speed 100 horse-power Armington & Sims steam engine for the North-West Electric Light Company at Winnipeg.

THE Truro Foundry and Machine Company, Truro, N.S., are building a fine locomotive for Mr. T. G. McMullen, who operates extensive lumber interests, including a railroad, in Colchester county, that Province.

THE Saint John Electric Light Company has been organized at St. John, N.B., with a capital stock of \$50,000 for furnishing electric light to cities, towns, etc., and for manufacturing electric machinery, etc.

THE Waterous Engine Works Company, Brantford, Ont., having made suitable arrangements with the Preston Aerial Ladder Works

Company, of Chicago, will manufacture the Preston trucks for the Canadian market.

IT is understood that the Canadian Edison Manufacturing Company, whose works are now at Sherbrooke, Que., will remove their plant, machinery, etc., to St. Catharines, Ont., where they have secured a most desirable site and power.

THE Repair Shop of the Erie and Huron Railway at Chatham, Ont., was destroyed by fire July 12th, together with three locomotives, one passenger coach, several freight cars and a quantity of valuable machinery, loss about \$25,000.

MR. J. J. RUSSELL, of Muscatine, Iowa, and associates, will erect works at Vancouver, B.C., for the manufacture of patent ventilated barrels for fruit, vegetables, etc. The company will also manufacture other sorts of barrels and other articles.

THE Thompson-Houston Electric Company, whose works and headquarters are at Lynn, Mass., will probably establish a branch works in Canada from which to meet the demands of this market. A number of cities and towns are offering inducements.

MR. GEORGE T. KANE, Nelson, B.C., is building a steam lumber mill, the capacity of which will be about 80,000 feet of lumber a day. It is being built on Kootenay lake, about twenty miles from Nelson, and will include shingle machinery, planers, matchers, moulders, etc.

MESSRS. JAMES HARRIS & Co., St. John, N.B., have contracted to supply the Chignecto Ship Railway with 600 car wheels, which will support the cradles upon which vessels will be transported over this railway. These car wheels will weigh about 1,400 pounds each.

THE Waterous Engine Works Company, Brantford, Ont., have been awarded the contract by the Ontario Department of Public Works for three large boilers for public buildings in Toronto; six boilers for public buildings in London, Ont., and four boilers for public buildings in Orillia, Ont. These boilers are to be of locomotive type, and will each weigh from eight to nine tons.

THE Canadian Locomotive and Engine Company, Kingston, Ont., have recently built five locomotives for the Canadian Pacific Railway Company, one for the Quebec Central Railway Company, and one for the Northern Pacific Railway Company, with much other similar work in hand. It is rumored that the Canadian Pacific Railway Company have recently acquired a controlling interest in these works.

AN interesting experiment is being tried at Carlisle, Eng., by utilizing factory chimneys as sewer ventilators, with good results, twenty-nine now being used. The velocity of the rising air has been measured by Surveyor McKie, and found to be 1,291 feet per minute in ordinary weather. The owners of the factories make no objection to this use of their chimneys, and the practice seems to meet with general approval.

THE United States Baryta Company is loading its first two cargoes of baryta, a clay used in the manufacture of crockery, on the steam barge *Lothair* and consorts from McKellar Island, near Port Arthur, to Cleveland. The rate is \$1.50 per gross ton, free in. McKellar's is a rocky islet outside of Pie Island, and badly exposed in rough weather. The company expects to ship 10,000 tons this season.—Cleveland, O., *Marine Review*.

THE sculptor, Friedrich Beer, in Paris, is said to have discovered a process for making marble fluid, and moulding it as bronze is moulded. The name of the marble thus treated is "beryt." The new product costs little more than plaster, and is especially well adapted to the ornamentation of houses and the construction of floors, baths and small pillars. A stock company has been organized in Paris to place beryt on the market.

THE Nanaimo, B.C., *Free Press* says the Union Coal Company have succeeded in making a lucky strike of a splendid eight-foot seam of coal about forty feet below the surface, which is claimed to be of the best quality. This strike has created a new spirit in the vicinity, and it is looked upon as extremely fortunate, as it will be the means of employing a large number of men, the consequence of which means that the town of Comox will now boom.

THE National Electric Tramway Company of Victoria, B.C., who have recently introduced electricity as the motive power in moving their street cars, and have also extended their system to Esquimalt, some miles from Victoria, are equipping their road with the very best and most efficient motor cars and the most comfortable passenger coaches. The patronage of the road has increased so rapidly that the streets are being double-tracked, the service being every twelve minutes, and the Esquimalt system is to be supplied with motor cars by the Thompson-Houston Company, of Lynn, Mass., that will travel at a speed of twenty miles an hour.

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THE Shanghai correspondent of the *British Trade Journal* writes as follows: "There is a first class market in China for Canadian products, such as flour, meal and fruit. Salt fish again is in great demand, and cod, herrings, pilchards, halibuts, mackerels, etc., all meet with a ready sale in the Celestial Empire. Another industry which would find a profitable outlet in China, is that of condensed milk, the population having taken a great fancy to this form of nutriment. Our Canadian cousins might find it to their advantage to give the subject their attention."

MR. S. B. JENCKS, President of the Jencks Machine Company, Sherbrooke, Que., died at that place, June 28th. Mr. Jencks was a pioneer captain of Canadian Industry, having immigrated to Sherbrooke from Rhode Island in 1845, establishing a machine shop in copartnership with Mr. A. M. Porter. This establishment was destroyed by fire in 1853, after which Mr. Jencks went into the same business, this time with Mr. Thomas Crabtree. In 1871 Mr. Jencks went largely into the manufacture of saw-mill and other machinery, associating his son with him in it in 1878; but in 1889 this business had become so large that the concern was made a stock company, under the name of the Jencks Machine Company.

A NEW and interesting invention has, according to the *British Warehouseman*, recently been given a practical test, namely—machine for making cloth from waste glass. Besides utilizing hundreds of tons of a broken and useless substance, the textile product will have many advantages over all other fabrics; it is incombustible, can be manufactured in all colors and of any desired strength or thickness. The one property of incombustibility will render it invaluable to those working near or with fire. It is also used for ladies' dresses, and for other purposes, in place of silk, and it is said to be more glossy and lustrous and is more easily washed. It is stated to have all the appearances characterizing silk, being as soft and even more elastic. Its usefulness will, of course, depend much on its durability.

ON Thursday the first trial trip of Vancouver's Street Railway took place, and was in every satisfactory. The system was inaugurated under the supervision of Mr. Winslow, formerly of the Victoria company, whose rolling stock that of Vancouver very much resembles. All the experiments were of the most assuring character, the speed attained and the power to control the apparatus being amply demonstrated. The company has spared no expense in mak-

ing ample provision for the car service as well as for street lighting. The company has four motor cars with two trail cars, all built by the John Stevenson Car Company of New York. The motor cars are fitted with Stevenson trucks, on each of which are two 10 h.p. motors, made by the Thompson-Houston Electric Company. These are operated by levers at either end of the cars.—Victoria, B.C. *Colonist*.

THE Chatham Wagon Works have just received an order from Massey & Co., Winnipeg, Man., for four hundred sets of sleigh bobs, to be supplied for the coming winter's trade in the North-West. This, we think, is the largest order of this kind ever received by one firm from one firm in Canada. In addition to this order, the filling of which will be at once entered upon, we understand that the Chatham Wagon Works Company have already disposed of this year, no less than one thousand five hundred wagons of their celebrated make. These wagons are now to be found traversing almost every highway in the Dominion, and it is admitted on all sides that there are none better now made anywhere. The energetic manager of the Chatham Manufacturing Company, Mr. D. R. VanAllen, and the Directors, are to be congratulated upon this manifestation of their success.—Chatham, Ont., *Planet*.

IRON CONSUMPTION AND PROTECTION.

Few are aware of the increase in consumption of iron under protection in this country, and fewer still realize how much the protective policy has done to render possible such an increase in consumption. The consumption of pig iron alone has more than doubled within the last ten years, for it was 7,748,817 tons last year, and only 3,409,211 in 1879, but it also nearly doubled in the previous decade, and more than doubled in the decade beginning with 1859, when it was only 827,609 tons. In 1860, the entire consumption of raw iron, including domestic and imported pig and imported scrap iron and steel, was only 64½ pounds per capita; now it is 267½ pounds. Then nearly a tenth of the raw iron was imported, and now less than a fortieth, or about 6 pounds per capita.

The total importation of manufactured iron of all kinds was last year only 19½ pounds per capita, but more than half, 11½ pounds

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per capita, was in the form of tin plates alone. In 1860 nearly 16 pounds per capita of other imported iron was used, but in 1889 less than 8 pounds. The imports of tin plates have steadily increased, more than 50 per cent. in the last decade and nearly 90 per cent. in the decade preceding. The imports of rails have been very variable, rising to 28½ pounds per capita in 1871, falling to practically nothing in 1877, rising again to 13½ pounds in 1880, and falling again in 1889 to only a fifth of a pound per capita. In the following statement of consumption per capita, the "imports for consumption" are included for years except the last, but as that official statement is not published for the last calendar year the imports for that year are used :

	1889	1879	1869	1859
Consumption, domestic pig.....	261.40	126.06	102.43	54.61
Consumption, imported pig and scrap.....	6.20	51.59	19.63	5.88
Consumption, total raw iron.....	267.60	177.65	122.06	60.49
Consumption, imported rails.....	.21	4.85	17.28	8.93
Consumption, imported tin plates.....	11.39	7.58	3.99	2.37
Consumption, imported, other manufactured	7.69	6.56	7.43	14.51
Total consumption.....	286.89	196.64	150.76	86.29
Per cent. foreign.....	8.9	37.5	32.1	36.7

To appreciate how improbable it is that consumption could thus have grown had this country been as dependent upon foreign works as it once was, it is only necessary to remember that the American production has increased 4,900,000 tons in ten years, but the British production, "with all the markets of the world open," as Free Traders are wont to say, has increased but 4,600,000 tons in thirty years. Of that increase, moreover, no less than 330,000 tons was shipped to this country in the form of tin plates, and was therefore caused by failure to put an adequate duty on that product.

Thirty years ago more than a quarter of all the iron and steel consumed in this country was in the form of rails, 21½ pounds per capita, and only 64½ pounds in all other forms. Now the consumption of rails has indeed more than doubled having been 50½ pounds per capita in the year 1889 and still larger in several previous years, but the consumption of other iron has risen in far greater proportion, amounting to 236½ pounds per capita in the year 1889. This latter increase has been 85 pounds during the last decade, or nearly 60 per cent.; 50 pounds in the decade preceding, or about 50 per cent.; and 37 pounds during the decade ending with 1869, or nearly 60 per cent. It is because the American manufacture has been so encouraged that it is able to furnish beams and bars, plates, tanks, pipes and materials of every kind for buildings and bridges, that the consumption in this country has so greatly increased. Out of the entire increase in consumption per capita during the last thirty years, which has been 200 pounds per capita, about 170 pounds, or nearly seven-eighths, has been neither in rails, domestic or foreign, nor in other forms of manufactured iron and steel imported, but in forms other than rails; much the greater part of it has been in those special forms of iron and steel which are produced either upon specification and orders to meet contracts in this country, or to satisfy the ascertained local demand in other departments of industry.—*New York Tribune.*

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NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for the St. Lawrence Canals, will be received at this office until the arrival of the Eastern and Western mails on *Wednesday, the 23rd day of July* next, for the construction of a lift dock, weirs, etc., at Morrisburg, and the deepening and enlargement of the Rapide Plat Canal. The work will be divided into three sections, each about a mile in length.

A map of the locality, together with plans and specifications of the respective works, can be seen on and after *Wednesday, the 9th day of July* next, at this office, and at the Resident Engineer's Office, Morrisburg, where printed forms of tender can be obtained.

In the case of firms there must be attached to the tender the actual signature of the full name, the nature of the occupation and residence of each member of the same, and, further, an *accepted cheque* on a chartered bank in Canada for the sum of \$4,000, must accompany the tender for Section No. 1, and an *accepted cheque* on a chartered bank in Canada, for the sum of \$2,000 for each of the other sections.

The respective *accepted cheques* must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for the works at the rates and on the terms stated in the offer submitted. The cheques thus sent in will be returned to the respective parties whose tenders are not accepted. This Department does not, however, bind itself to accept the lowest or any tender.

By order,

A. P. BRADLEY,
Secretary.

Department of Railways and Canals,
 Ottawa, June 18, 1890.



MILITIA.

SEALED TENDERS, marked on the left-hand corner of the envelope, "Tenders for Militia Store Supplies and Necessaries," addressed to the Honorable the Minister of Militia and Defence, will be received up to noon of Monday, the 4th of August, 1890.

Printed forms of tender, containing full particulars, may be obtained from the Department at Ottawa and at the following Militia stores, where also sealed patterns of all articles may be seen, viz.:—The offices of the Superintendent of Stores at London, Toronto, Kingston, Montreal, Quebec, Halifax, N.S., and St. John, N.B.

Every article to be supplied (as well as the material therein) must be of Canadian manufacture.

No tender will be received unless made on a printed form furnished by the Department, nor will a tender be considered if the printed form is altered in any manner whatever.

Each tender must be accompanied by an accepted Canadian bank cheque, for an amount equal to ten per cent. of the total value of the articles tendered for, which will be forfeited if the party making the tender declines to sign a contract when called upon to do so. If the tender be not accepted, the cheque will be returned.

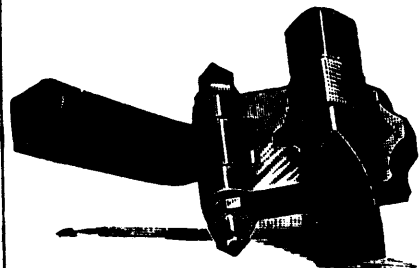
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A. BENOIT, Capt.,
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Department of Militia and Defence.
 OTTAWA, June 23, 1890.

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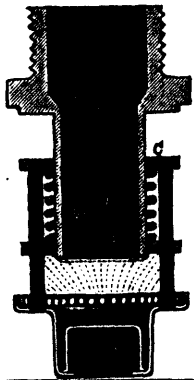
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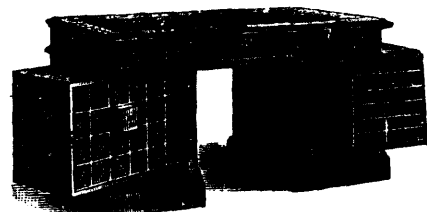
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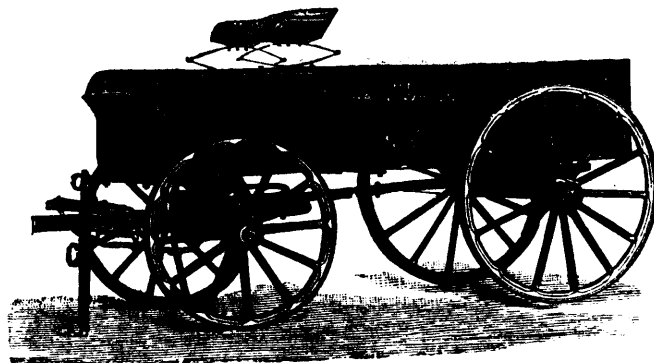
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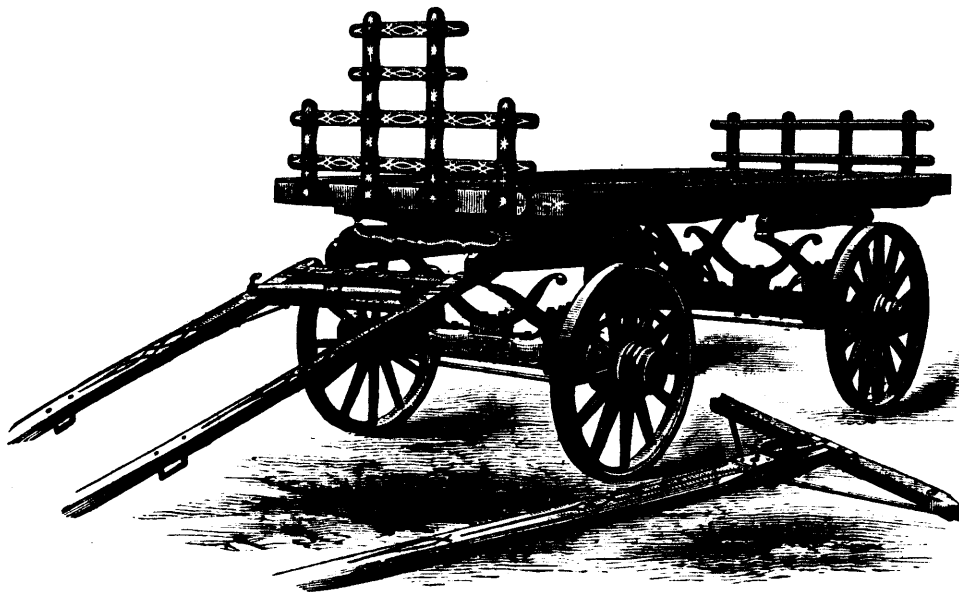
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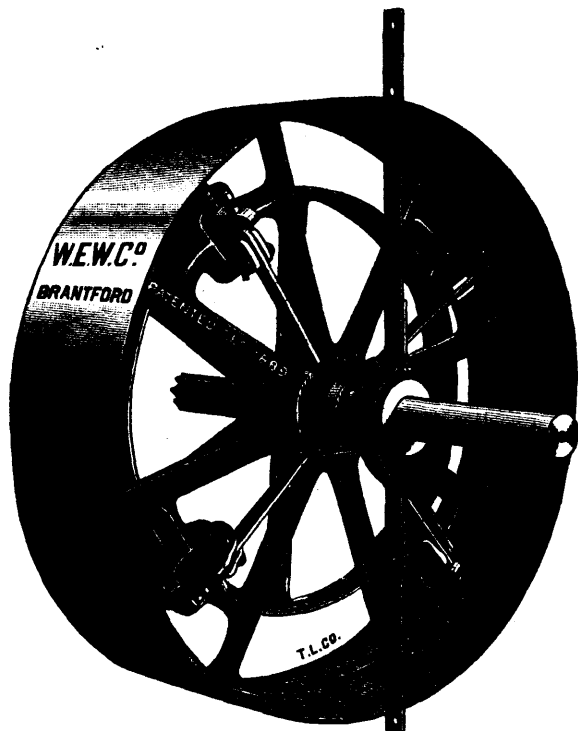
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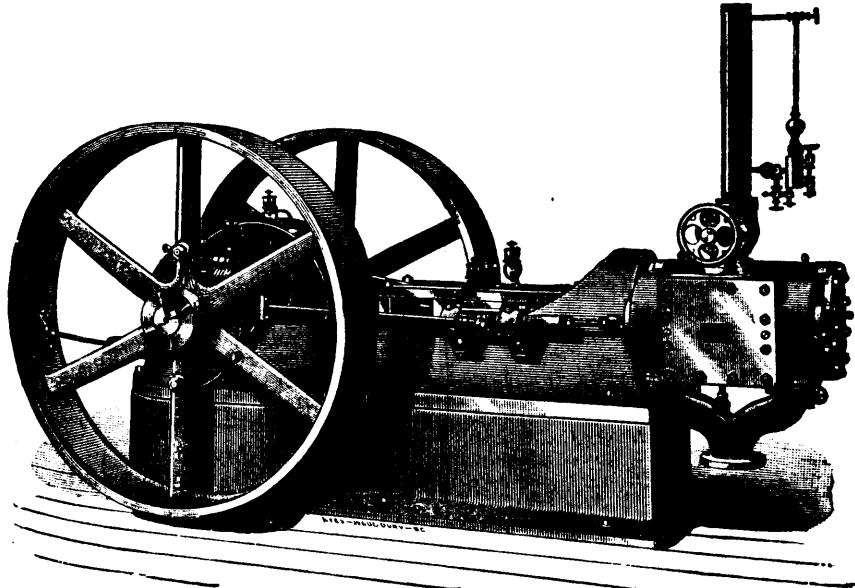
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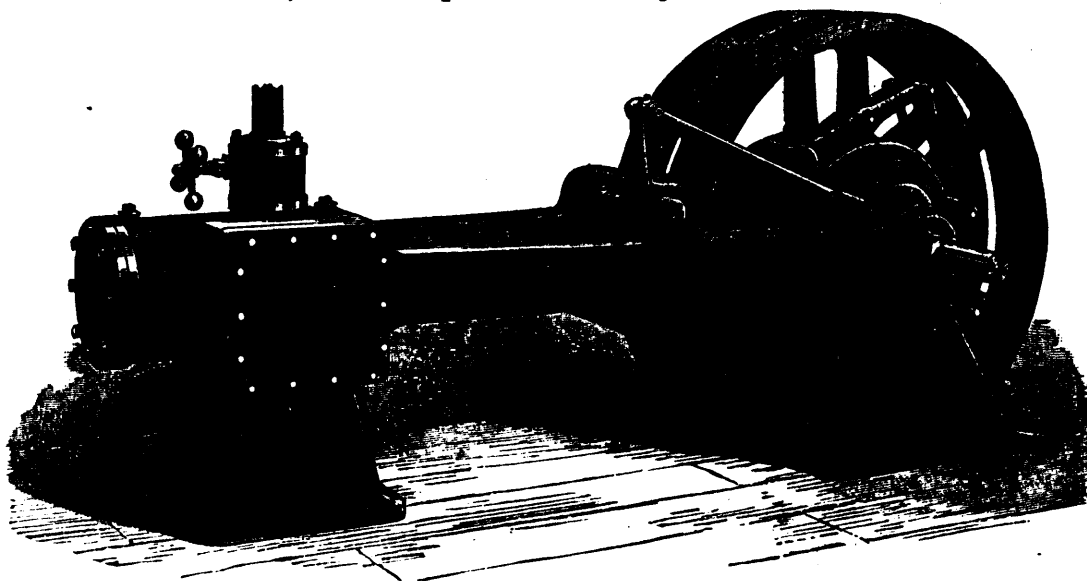
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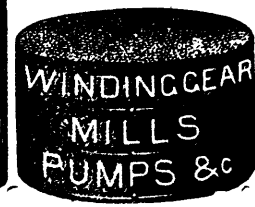
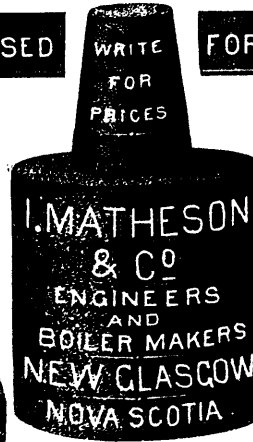
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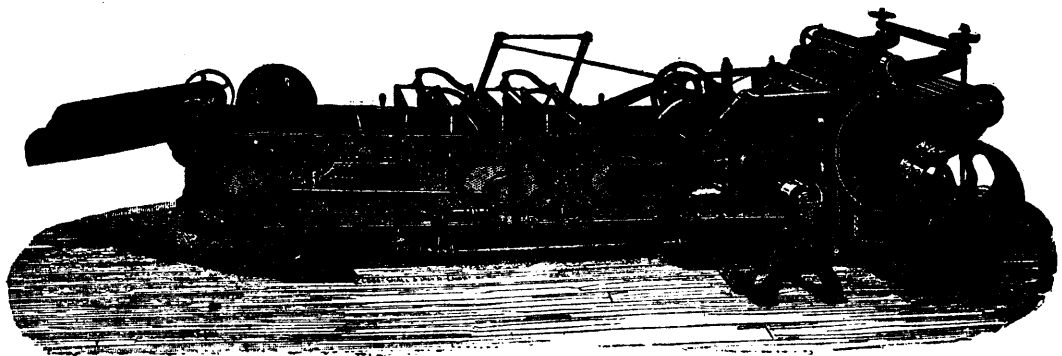
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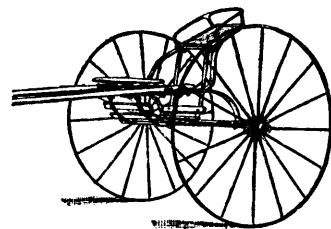
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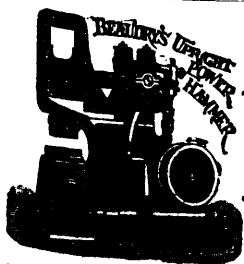
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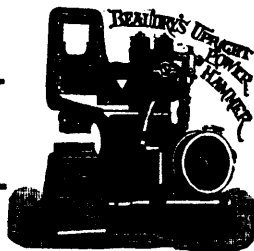
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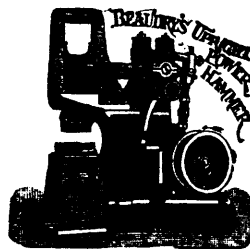
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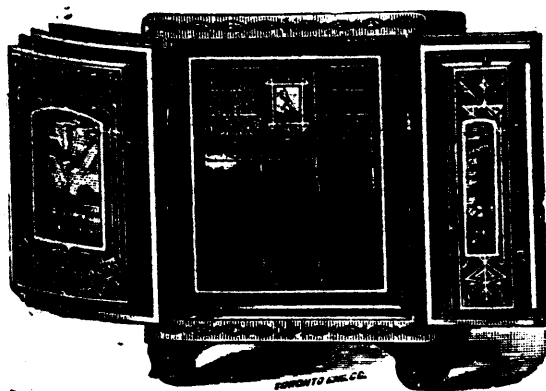


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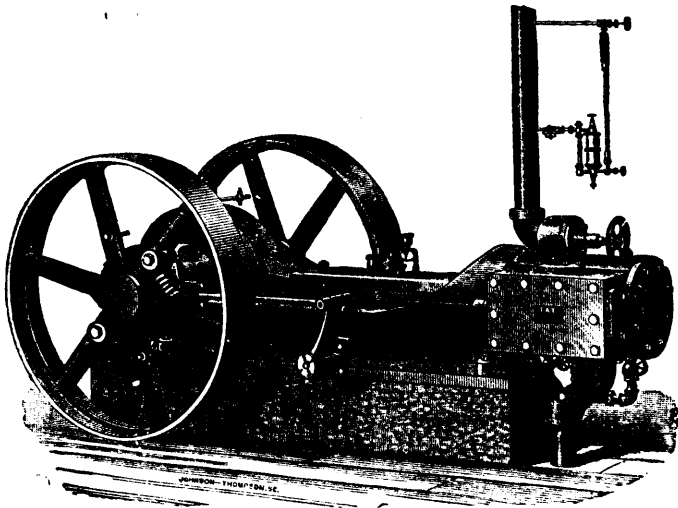
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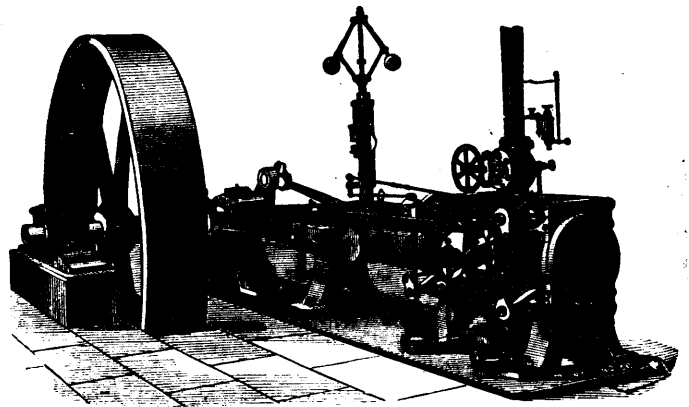
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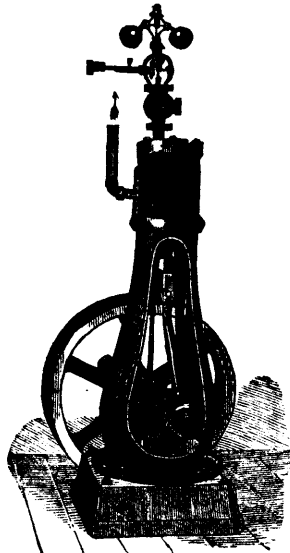
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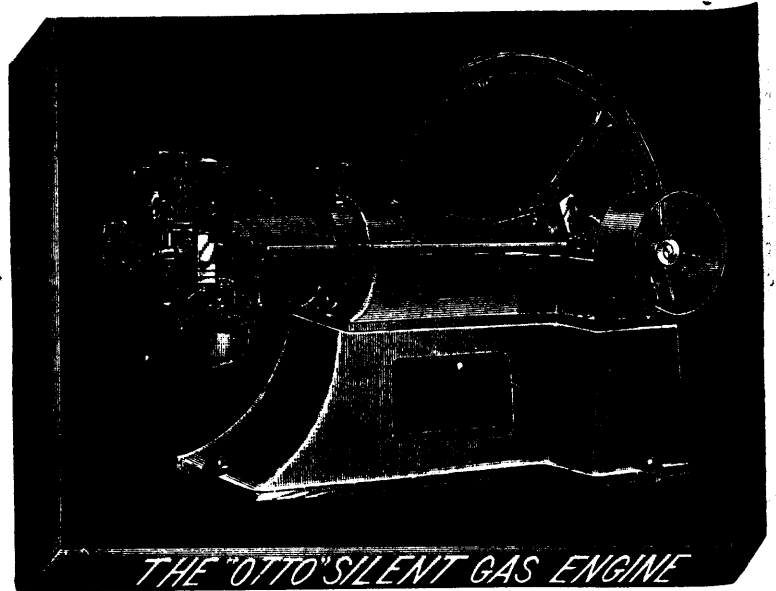
Armington & Sims Electric Light Engines.



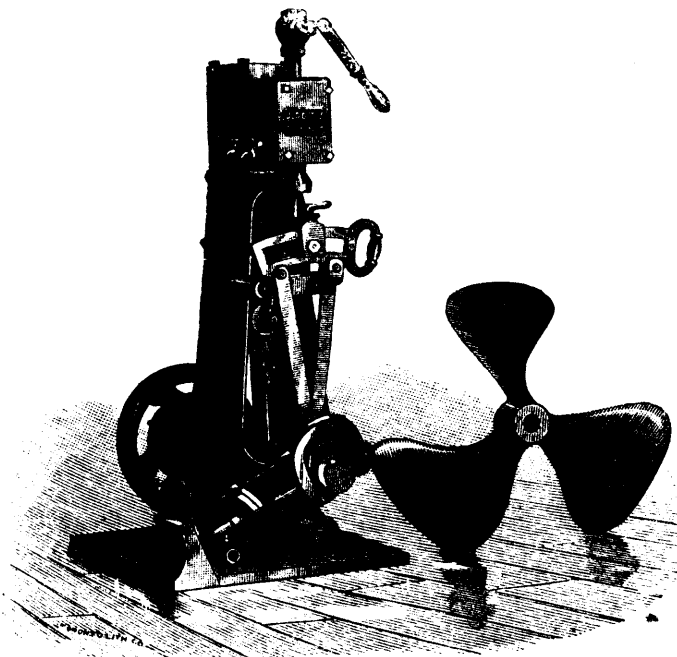
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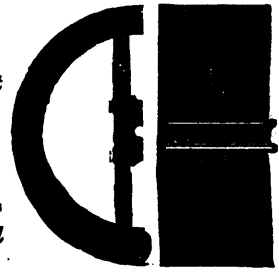
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70 PER CENT. LIGHTER THAN CAST IRON

And 50 per cent. Lighter than Wrought Iron or Steel Pulleys.

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

OFFICE OF NEWTON WAGON CO., }
C. L. RICE, AGENT, CHICAGO, ILL. BATAVIA, ILL., Feb. 17, 1885. }
Dear Sir: Replying to your favor, will say that after using the Dodge Wood Split Pulley for a year or more we are satisfied they are a good thing, if not the best Pulley made, and shall use them hereafter in preference to any other we know of.
Yours truly, NEWTON WAGON CO.

We have sold these pulleys for one year, and they have been put to every kind of service, and their popularity is wonderful. We refer to the following users for proof of the above statements: Pillsbury & Hulbert Elevator Co., Minneapolis; R. M. Pratt & Co., Elevators; Northern Pacific Elevator Co.; The Pacific Elevator Co.; Minneapolis Harvester Works; Minneapolis School Furniture Co.; M. & St. L. R. R. Co.; Willford & Northway; Washburn, Crosby & Co.; St. Paul Electric Light Co.; St. Paul Roller Mill Co.; Minneapolis Brick Co.; N. W. Mfg. & Car Co., Stillwater, Minn., and very many others.
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THE WORLD'S INDUSTRIAL AND COTTON }
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Yours very truly, S. H. GILMAN, Chief Consulting Engineer.

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According to the best scientific authority it costs one horse power to keep in motion one ton of metal or weight; thus for every unnecessary 2,000 pounds weight on your line shaft, cost you one horse power. To maintain a horse power costs from \$25 to \$125 per year. Any manufacturer who will take the pains to investigate the unnecessary weight by Heavy Iron Pulleys, too tight belts, etc., will be surprised to find the enormous waste of power consumed in this manner. 60,000 Dodge Patent Wood Split Pulleys now in use. Our capacity being now equal to 100 Pulleys per day, we shall hereafter keep in stock for immediate shipment all sizes.

Send for Illustrated Circular and Reference List.

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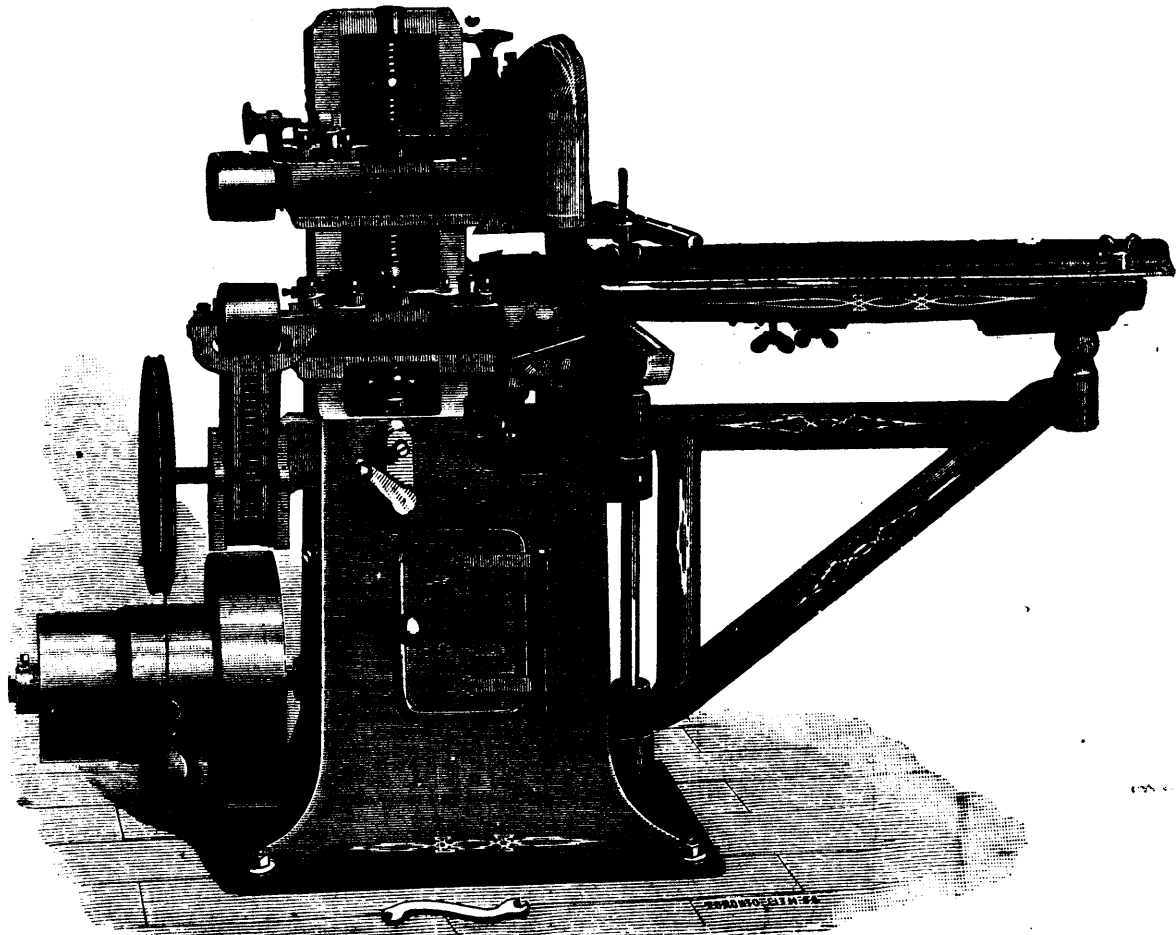
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TAKE NOTICE:—Our List of Prices for the DODGE PATENT WOOD SPLIT-PULLEYS is for ALL SPLIT-PULLEYS.

We beg you will note this fact when comparing our List with others which are for SOLID RIM, and NOT for Pulleys in HALVES.

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Pedestal Tenon Machine.



This is an entirely new style of Tenon Machine. The frame is cast in one piece, and the working parts stand solidly on a pedestal, avoiding all vibration.

The Cutter and Cope Heads are connected and are moved all together, or separately, as required. The Upper Head and Boxes also adjust horizontally to suit shoulder of tenon, the Cope Knives moving with the Heads to prevent re-adjustment.

A special feature in this machine is the Bed, or Carriage, which is at once light and strong. The outer end works on rollers and is moved very easily.

In cutting the tenon the Bed and Carriage move entirely past the Heads and Cutters, the operator having full control of the work. It has also the advantage of leaving the Heads and Cope Knives clear, and of ready access by the operator.

The Carriage is so arranged that it cannot tip over the Slides nor be thrown into the Cutters, and is also supplied with extension bar for long stuff, as in all Tenoning Machines.

This Machine is supplied with single or double Copes, as ordered, and for furniture work it is without Copes, and with an adjustable cut-off Saw.

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“Galt Foundry” Engine and Machine Works, GALT, ONTARIO, CANADA.

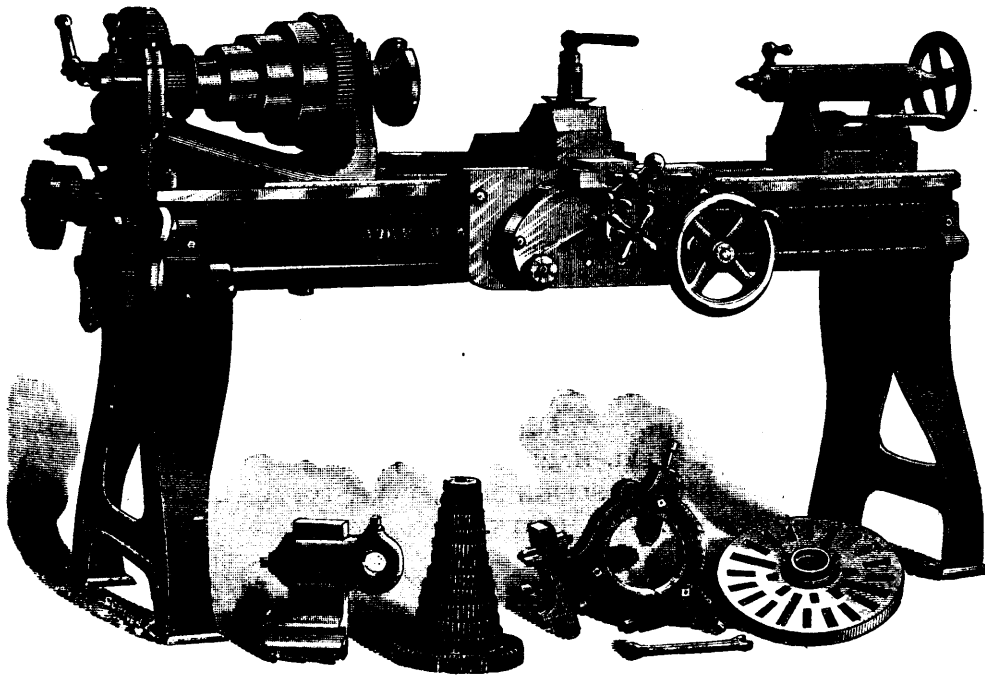
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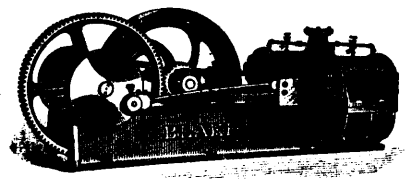
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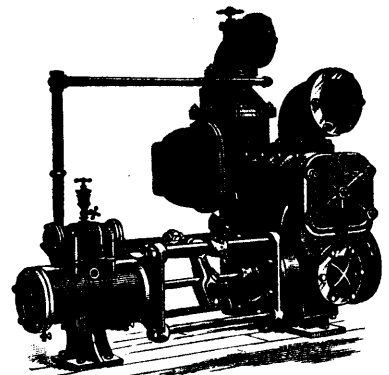
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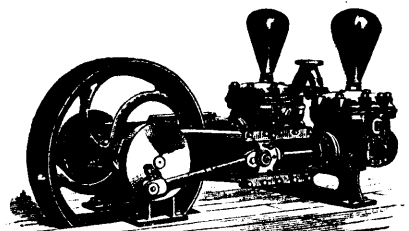
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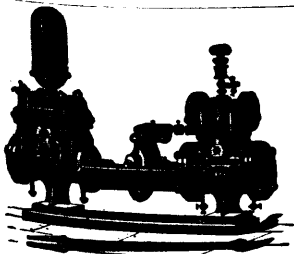
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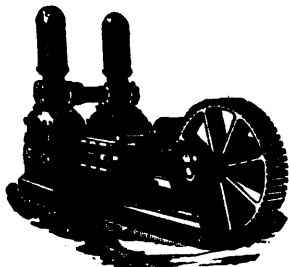
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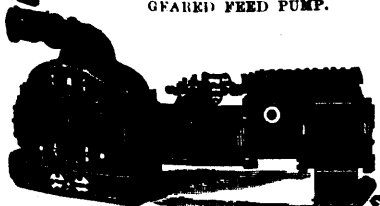
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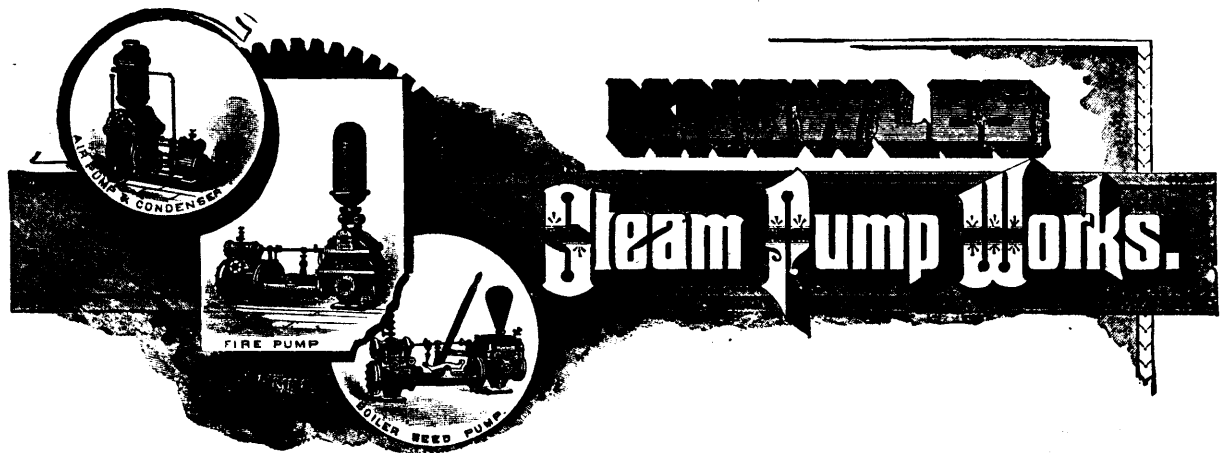
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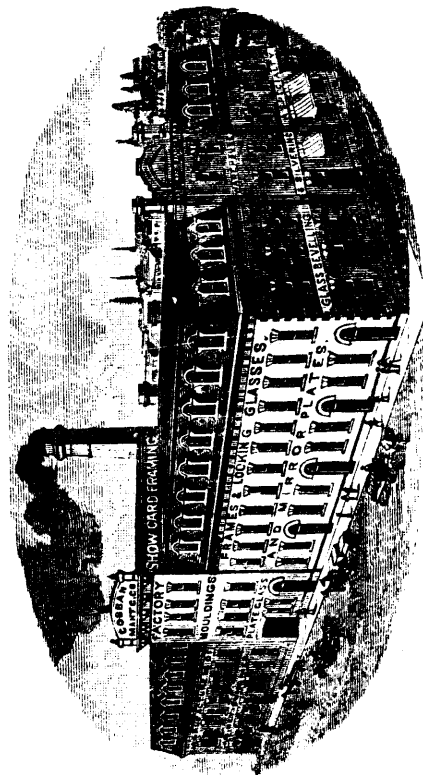
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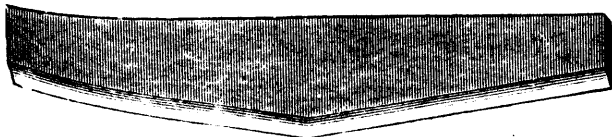
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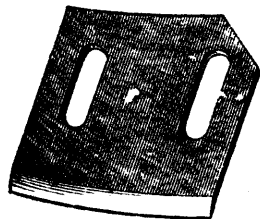


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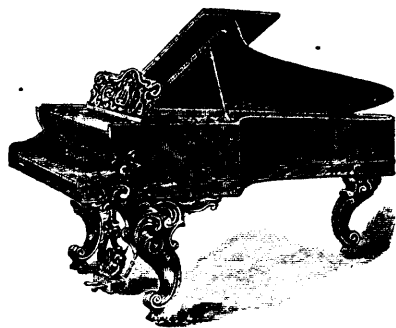
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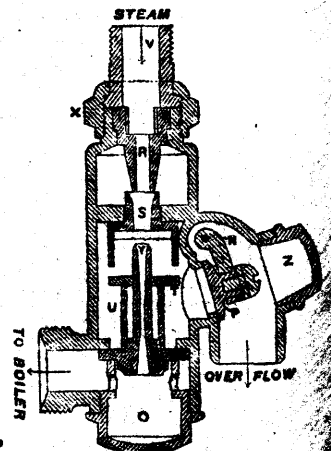
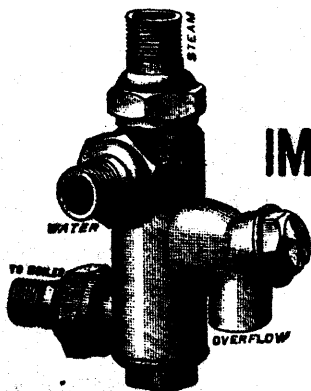
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