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DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

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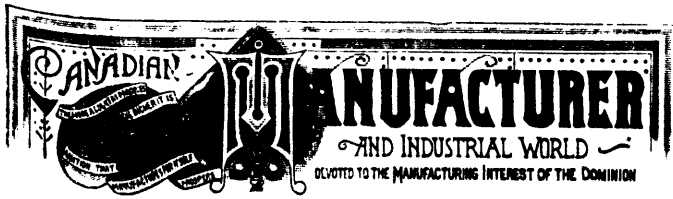
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BEET SUGAR INDUSTRY.

SOME of our late exchanges contain some interesting items with respect to this industry. *Sugar*, London, February 6th, furnishes the following:

"Germany. The weight of beets worked in the German factories during the last ten years was, in tons: 1881, 6,271,947; 1882, 8,747,153; 1883, 8,918,130; 1884, 10,402,688; 1885, 7,070,316; 1886, 8,306,671; 1887, 6,963,960; 1888, 7,896,183; 1889, 9,825,039; 1890 (estimated), 10,200,000. The most important feature in these figures is the fact that although the export rebates granted in Germany were reduced more than one-half on and since October 1, 1888, the production of sugar in that country during the two succeeding years showed a very large increase over the two preceding years of the higher counties, which shows that the prosperity of their industry is not so dependent upon the bounty system as is so generally maintained. The present export rebate is about 30 cents per 100 pounds. *Sugar* reports: 'The Alkien sugar factory at Kothen, Germany, the capital of which is 630,000 marks (a little over \$150,000), is stated to have declared a dividend of 64½ per cent., and to possess a reserve fund of 430,000 marks (a little over \$100,000).'"

Some time ago the London *Economist* showed that all of the stocks of trading companies in Germany, which are quoted in Berlin, suffered great depreciation in value during 1890, but those of beet sugar companies suffered less than any other. On the 1st of January, the average value of the stocks of all the beet sugar companies on the Berlin list was about 3 per cent. premium.

"Austro-Hungary. *Sugar* shows that the quantity of masse quite worked in Austro-Hungary during the last thirty years was 9,300,000 tons; the exports of sugar, 4,156,000 tons. The total amount expended by the Austro-Hungary sugar industry during 1889-90 was, in round numbers, \$35,000,000 for beets; \$12,000,000 for lime, coal oil, etc.; \$4,500,000 for repairs and working of machinery; \$8,000,000 for labor; \$14,000,000 for various taxes; \$8,000,000 for insurance sinking fund; or a total of \$81,500,000 during one campaign.

"France, during last campaign, worked about 8,000,000 tons of beet roots.

"Spain. *Sugar* says: "About the year 1888 the first beet sugar factory was started at Granada. The success of this enterprise was so great that there are now working in the neighborhood of Granada ten factories, seven of which were built in the single year of 1890."

"Bohemia. *Sugar* reports: 'A large factory, which is expected to deal in no less than 300,000 cwt. of raw sugar, is shortly to be established by a syndicate of English capitalists, at Aussig, in North Bohemia.'

"United States. The New York *Shipping and Commercial List*, 25th March, reports increase in beet root sugar manufactured in that country, from 200 tons in 1887 to 1,800 tons in 1888, 3,000 tons in 1889, 12,000 tons estimated for 1889-91."

The United States Government imported last year fifty tons of sugar beet seeds for free distribution, for which they had applications from over 2,000 farmers. They have established several experimental stations for testing the different kinds of seed and various methods of cultivation. Congress has granted a bonus of \$2.00 per 100 lbs. on all raw sugar made from native cane, beet or sorghum, for 14 years. Several States have voted bonuses in addition to the Federal bonus; Kansas has legislated \$2.00 per 100 lbs. The capacity of the Oxnard beet sugar factory at Grand Island, Neb., when fully supplied with beets, will be about 4,000 tons of refined sugar in each season. For this they will receive a federal bonus of \$160,000, and State bonus of \$80,000 in each year. Senator Sherman has stated that he estimates that before many years the United States Government will pay \$30,000,000 per annum for sugar bounties.

Canada. It has been conclusively established by experiments made during the seasons of 1889 and 1890 that a very large proportion of the soil of Ontario is eminently adapted for the production of large crops of sugar beets, and of fine quality. An experiment made this season at the Provincial farm at Guelph as to the preserving of the roots in pits was very satisfactory. Roots pitted there last October were opened up on March 13th and found in fine condition, with the sugar purity almost unimpaired. This gives good reason for expecting that the season during which beet roots can be profitably worked in Ontario will be fully a month longer than in France or Germany. This is an important advantage, as it reduces the cost per pound of sugar manufactured by the proportion saved in management and office expenses, interest on capital, wear and tear, and fire insurance on buildings and machinery, etc.

It is claimed by the promoters of this industry in Ontario, that, owing to the relative cheapness of rents of land here, as compared with Europe, this difference fully balances the cheaper rates of manual labor there, so that beets can be produced as cheaply here as there. Also, that on account of the greater skill and experience of Canadian farmers in root culture, the prospects for successful cultivation of sugar beets are much more promising here than in the United States. The prices and terms of agreement for purchase of beets as proposed here have received the general approval of all the farmers to whom they have been submitted, and at several points farmers are now prepared to contract for all the supply required for a large factory.

Owing to superior facilities for water supply and for drainage from the factory for refuse, and to cheaper fuel and lime

than at most of the factories in Europe, the cost of manufacturing will be fully as cheap here as there.

The quantity of sugar now consumed in Canada creates an immediate cash market for the product of about 30 beet sugar factories of large capacity. All late experience shows that the larger the factory the cheaper the cost of sugar.

The establishment and extension of the beet sugar industry in this Province or in the Dominion will prove of many advantages to the farmers, and will impart new life into almost every branch of commerce and industry.

All the elements which seem to be necessary to secure success appear to exist. Reasonable co-operation and assistance from the Dominion and Provincial Parliaments should be granted in order to induce capital into the enterprise. We hope that this will be forthcoming promptly and liberally. We understand that at several public meetings much interest in this industry has been evinced, and strong resolutions have been carried unanimously in favor of Government aid being granted. We feel confident that very general public approval will sustain all reasonable expenditure in this direction. If farmers are more directly interested, all others will participate—railway companies, manufacturers, real estate owners and traders, and all the industrial classes. The future of this industry is full of grand possibilities, and the matter merits the prompt and careful consideration of both the Dominion and Provincial Governments.

#### LOSING HER SUPREMACY.

MR. MEDLEY, one of the secretaries of the Cobden Club, has written a paper in which he criticises the scheme for giving the colonies preferential treatment in the British market. He holds that a fiscal union of the empire under protection is an impossibility; that if it were accomplished it would be very harmful in operation, and that the only practicable fiscal federation of the empire must be based on free trade, meaning that the colonies should adopt the free trade policy of the mother country. His reasons for saying that an imperial protective system would be difficult to establish, and still more difficult to carry out, are that discrimination against foreign products would immediately involve Britain in a war of tariffs; that she would at once forfeit the "most favored nation" treatment which she now receives; that some nations would discriminate against her products while others might proscribe them entirely, and that she would sacrifice three fourths of her entire commerce had with all the rest of the world, for the other fourth secured to her with her colonies. Mr. Medley asks the colonies to abandon this bad dream and turn to a fiscal federation based on free trade:—

"Under the non-protective system," he says, "Great Britain is supreme in manufactures, trade and navigation. She is queen of the realms of commerce, mistress of the seas, and creditor-in-chief of the human race. During the last twenty years the rest of the world has grown more and more jealous of her pre-eminence, and the great protectionist nations are in one ceaseless ferment as to the means by which her products shall be excluded from their markets. Constantly increasing doses of protection are the favorite means for attaining this object; but their efforts have been in vain. Her last year's foreign trade was the largest on record, and amounted to 748 millions sterling, an increase of 130 millions over that of 1886.

She invites her colonies to share her supremacy by adopting the policy which has led to such glorious results. She points not only to her own example, but to New South Wales and to India. The former, under her low tariff, has overtaken and is surpassing her adjacent sister colony, protectionist Victoria, in trade and population, while the progress of free trading India is the astonishment of the world. She calls on them to disregard the outcries which would arise from certain protected interests, which should never have been allowed to come into existence, and as quickly and as equitably as circumstances will allow to repeal all protective duties and to establish direct taxation in their place. Capital and labor would turn to the most profitable fields of industry, and the maximum of production would be obtained at the minimum of cost. The empire would then be commercially impregnable. The mother country, the colonies and India would reign supreme in each other's markets. In every other market they would compete successfully with all protectionist rivals. Such a fiscal federation would require no adjustments; it would avoid all disputes, all jealousies; it would form a bond of union which would defy the threats or blandishments of any scheming foreign power, and prove more durable than any other that could be conceived."

Mr. Medley's opinions regarding this matter are valuable only in that he is a secretary of the Cobden Club, and is supposed to voice the views of what was once a more influential body of men than what they now are. But free traders attach importance to these utterances, and although the arguments of the Cobden Club have been refuted time and again, there are those in Canada who advance them with much unctious.

Is it a fact that the discrimination of an imperial protective system would involve Britain in a war of tariffs with foreign countries any greater than that which she now confronts, and that such discrimination would forfeit the "most favored nation" treatment which she now receives? The chief commercial nations of the earth which now favor protection to a greater or less extent, aggregate a population of 450,000,000 souls, while Britain alone, with a population of 39,000,000 favors free trade: and it would be difficult to see how Britain could possibly become involved in any tariff war fiercer than that which now besets her; and as to the "most favored nation" treatment she is now receiving because of existing treaties, it is well known that those treaties are now about expiring, and that they will not be renewed. Can it be supposed that the United States could be induced to increase the duties levied under the McKinley Bill as retaliation against Britain for adopting a discriminating tariff?

Britain's treaty with Bulgaria expired in January, and with France in February. Her treaty with Montenegro will expire in May, and that with Portugal in June, and her treaty with Spain will expire in June of next year, and those treaties which most vitally concern Canada, those with Belgium and Germany, soon after; and even admitting that Britain would like to have these treaties renewed it is not at all probable that she would even request it, well, knowing that her doing so would be against the expressed wishes of all her colonies.

It was only last week Lord Salisbury wrote a letter to the Glasgow Chamber of Commerce, in which he alluded to the injurious effect likely to occur to British commerce, because of the lately negotiated reciprocity treaty between the United States and Brazil; and he states the fact that four years ago his Government had failed to obtain the Brazillian assent to

the most favored nation treatment for British merchandize. Why was the American Government able to obtain such treatment from Brazil, while Britain was unable to obtain it? Under its system of protection the United States possessed the power to force Brazil into the arrangement, while under her system of free trade, Britain had no extra inducement to offer, and no pressure that she could bring to bear. If Brazil wanted free access to the American market for her coffee, hides, sugar etc., she could have it by admitting certain American products free, and making a special reduction of 25 per cent on duties imposed upon certain other American products. Britain does not have it in her power to exercise any such leverage to obtain special favors from any country.

Mr. Medley asserts that under free trade "Great Britain is supreme in manufactures, trade and navigation," and that she is "Queen of the realms of commerce, and mistress of the seas." This sounds beautifully, but it is not the fact. When making such a broad assertion, the gentleman must have been thinking of the old claim:—

The winds and seas are Britain's wide domain,  
And not a sail but by permission spreads.

It may be that Britain's trade last year was the largest on record, but that does not prove that her trade increases as rapidly as that of nations observing protection. Time was when she may have been supreme in manufactures, but it is a fact that many British manufacturing industries are in a state of collapse, because of the competition in the British market of foreign manufactures made in protected countries. If she was "supreme" she ought to hold her own in these protected countries, and because she is not supreme the manufacturers of these protected countries are actually bearding the British lion in his own den, and doing it successfully, too. Neither is Britain supreme in trade and navigation, nor is she mistress of the seas as she once was. She might have remained so if she could have induced the 450,000,000 people of other countries to accept Mr. Cobden's theories, and have acted upon them; but to her sorrow Britain finds herself to-day the only free trade nation on the earth. We know the Americans are very much in earnest in re-establishing the importance of their commercial marine service; and their efforts will undoubtedly be successful. Europe, too, is competing in this direction, and in a way that is being painfully felt in Britain. London *Industries* alluding to this, says:—

"The large British shipping companies are beginning to feel rather keenly the competition from German and French lines of steamers, sailing not only from continental ports but also from British ports. A few days ago the new North German Lloyd steamer *Havel*, which was built by the Vulcan Company, at Stettin, sailed from Southampton, and is intended to form one of the regular German liners from that port, and great things are expected of her in the way of speed. She is the sister ship of the *Spree*, which ran nearly 20 knots an hour with an indicated horse-power of 13,000. Two other vessels to be added to the Atlantic fleet will also be of continental build. The Hamburg-American Company, the owners of the *Normania*, which was built at Fairfield, Glasgow, will in a few months place another German-built steamer, with a 20 knot speed, on the Southampton route, so that that port will be well supplied from German sources alone. The French *Compagnie Générale Transatlantique* is having a large fast steamer built at the *Forges et Chantiers de la Méditerranée* at Havre. This competition is evidently stirring up the *Cunard Company*, who, we understand, are about placing orders for four new steamers,

which are intended to beat everything afloat as regards speed. The Atlantic race is thus evidently far from ended, and it will be interesting to note the developments in marine engineering and shipbuilding resulting from this contest."

This does not indicate that Britain is "supreme in trade and navigation," or that she is "mistress of the seas."

Mr. Medley alludes to the progress of India as "the astonishment of the world," attributing it to free trade. In considering the progress of India it must be remembered that Britain, holding India with an iron grip, would not allow her to do what was allowed Canada and the other colonies—make their fiscal policies to suit themselves. She would not allow India to make a tariff which would obstruct the free entry of British manufactures. There were untold millions of consumers there who must be supplied with British goods, and British manufacturers should not be prevented from supplying them. India was a cotton producing country, and Indian cotton was necessary for Lancashire mills; and Lancashire cottons were in demand in India. It never occurred to Britain that India might become a manufacturer of cotton goods. As long as Indian cotton could be hauled to Liverpool and the finished goods returned to India, British shipowners, British mill owners, and British mill hands were profitably employed. But when it was discovered that it was cheaper to spin and weave in India, where the cotton grew, than in Britain thousands of miles away; when it was discovered that mill labor could be had in India for less than ten cents per day, and that Indian cotton goods were as acceptable as Lancashire goods, then the tune of the song was changed.

This competition is keenly felt in Britain, and it is seriously affecting the shipments of cotton goods from them to the far East. With a philanthropy born of selfishness alone, British mill-men are urging their Government to have the hours of labor of employes in Indian mills restricted. In 1870 there were only 400,000 spindles in India, and in 1887, 103 cotton mills containing 2,500,000 spindles, using 2,500,000 hundredweight of cotton. In 1890 there were 137 mills with 3,274,196 spindles, using 3,500,000 hundredweight of cotton. In the years 1880-84 the total exports of twist and yarn from India were valued at £7,800,000, in 1885-89 they reached a total of £18,230,000. That this development has been prejudicial to Lancashire, even during the last three years, is at once seen on reference to the Board of Trade statistics for December, which show that the British exports of cotton yarn and twist to Bombay, Madras, Bengal and Burmah have declined from 54,069,000 pounds in 1888, to 49,734,000 pounds in 1890; to China from 17,474,000 pounds to 14,756,900 pounds in the same year, and to Japan from 27,168,600 pounds to 23,100,500 pounds.

Mr. Cobden prophesied that the adoption of free trade by England would undoubtedly be followed by the general acceptance of the principle by all nations within ten years; but after thirty-eight years of British free trade Mr. John Bright admitted that through it "the agricultural classes of Britain had lost more than 150,000,000 pounds sterling."

Truly, under her non-protective system Britain is losing her supremacy in manufactures, trade and navigation; and she is no longer queen of the realms of commerce, mistress of the seas or creditor-in-chief of the human race. Her free trade policy has done it.

### MORE PROTECTION NEEDED.

A LAW has been in existence in Great Britain for some years requiring that certain manufactured articles imported from foreign countries shall be branded or marked with words showing the country of their origin. A similar law has recently been passed by the American Congress, but there is no such law in Canada. A recent investigation in England disclosed the fact that many of the swords and sabres in use in the British army were manufactured in Germany, although when the contract for them was made it was understood that they would be forged in British workshops. The fact is, German manufacturers can produce such goods much cheaper than British manufacturers, and the British law alluded to was passed to afford some measure of protection to British industries.

In the United States it was found that many lines of popular American-made goods—popular because of their superior excellence—were being closely imitated by British and other foreign manufacturers, the imitation extending even to the counterfeiting of the names and trade-marks of the American makers; and the demoralizing and ruinous effects these spurious imitations were creating in the American market induced Congress to enact the law alluded to.

As we have stated, no such law exists in Canada, although its necessity is apparent. It is necessary not only to protect Canadian manufacturers against the importations of spurious and inferior imitations of their products, but it is necessary also to protect Canadian consumers against having spurious cheap goods palmed off on them as genuine, and for which they pay the prices prevailing for the better articles. If such a law is necessary in Britain to protect the public against the spurious imitations of Germany; and if such a law is necessary in the United States for the same purpose, it is certainly much more necessary in Canada. Canada is not exempt from this imposition. Some of the shippers engaged in sending spurious and spuriously marked merchandise to this country are men of high standing, and it would be supposed that their respectability would have deterred them from engaging in such disreputable business. But that it does not is evident from a communication published in a late issue of the *Textile Mercury*, of Manchester, Eng., from the well known house of Messrs. Thos. Meadows & Co., of Liverpool, in which they say:—

“Goods entering the United States of America after March 1st next, are required, under the McKinley Act, to be branded with words showing the country of their origin, but by a Treasury Minute issued at Washington, January 28, 1891, and signed by Mr. Windom, it is decided that goods for Canada do not require to be marked, and as all goods for that country must at this season of the year pass through the States, we shall esteem it a favor if you will make this known in the columns of your paper. The terms of the Minute are as follows:—‘Goods which arrive in the United States on and after March 1, 1891, and appear by the bills of lading and other documents to be merely intended for transit to Mexico or other foreign country, the same not being importations within the meaning of the statute, do not come within the scope of section 6 as to marking, stamping, branding, etc.’”

Of course the object of Messrs. Thos. Meadows & Co. in publishing the fact that goods coming to Canada are not required to conform to any law identifying them as to their

origin, is to notify manufacturers and shippers that although they cannot thus impose on the American market, they can with impunity impose on the Canadian market.

All Canadian consumers; all Canadian manufacturers and all honest Canadian importers are interested in demanding that the next Dominion Parliament make a law for their protection similar to those now in force in Great Britain and the United States.

### AS TO PIG IRON.

IN another part of this issue is reproduced the essential parts of a paper recently read by Mr. W. H. Merritt, F. G. S., before the Geological and Mining Section of the Canadian Institute in this city. In this paper Mr. Merritt argues that if the production of pig iron in Canada, on a scale commensurate with the demands of the country is to be desired, it must be under a tariff protection high enough to ensure it. Of course this is the position this journal has persistently held to, and we are glad to have the co-operation of so valuable an ally as this gentleman.

Alluding to this paper *The Week* has this to say:

“The conclusion to which Mr. Merritt’s argument leads is that Canada should adopt a policy which says, ‘We are going to smelt our own iron and steel,’ this policy being, of course, one of protection to whatever extent may be necessary to keep out importations. That the paper establishes this conclusion we hesitate to affirm, notwithstanding its merits. Two difficulties at once suggest themselves. The one arises out of the peculiar geographical features of Canada, and the magnificent distances over which the weighty product would have to be carried, when manufactured, in order to supply the whole market; the other, closely connected, relates to the enormous increase of cost of an article of daily and universal use and necessity, which would almost surely result, for a time at least. Would it be fair that all the farmers and other citizens of the whole Dominion should be so heavily taxed in order that even a large number of men should find employment in a new industry, and a-half dozen or so of them perhaps be enriched by it? Would the users of iron and steel submit to such an impost or should they be asked to do so?”

We do not think these objections amount to unsurmountable or even serious difficulties. As far as the Maritime Provinces are concerned, the question is fairly answered in the fact that pig iron is now being made in Nova Scotia; and what is now being done on a comparatively small scale may to equal or better advantage be done on a scale sufficiently large to meet the demands of those provinces, and probably also of Quebec, or a considerable portion of it. These parts of Canada can be reached more readily from Nova Scotia than from any portion of the United States where pig iron is made. So, too, as regards Ontario and the Western part of Quebec. As this journal has frequently shown, there are immense deposits of iron ore lying between Lake Ontario, Georgian Bay and the Ottawa river, and also north of that river in Quebec, which can be mined very cheaply; and as Mr. Merritt shows, charcoal for smelting purposes can be had in abundance. Indeed the facilities for making charcoal are so great that large quantities of the article are now being shipped to American iron furnaces. This region embraces a very large proportion of the iron consuming manufacturing industries of Canada, and of course iron made in this region could be delivered to these consumers with much greater facility than from any point in

the United States. Sault Ste. Marie in central Ontario, and Port Arthur on the north shore of Lake Superior, are both as favorably situated for the manufacture of pig iron as any corresponding points in Michigan, Wisconsin or Minnesota. The ores in that part of Ontario are of identically the same character, and they are in equal abundance; charcoal fuel is also quite as available, and if coke is required the facilities of transportation for it are quite equal to those on the American side. West of Ontario, from Manitoba to British Columbia, Canada labors under no greater disadvantages as to distance from bases of supplies, or facilities for transportation, than Dakota, Montana or Washington, states that lie along the international border. This, we think, disposes of the first "difficulty" of *The Week*.

As to the "enormous increase of cost of an article of daily and universal use and necessity, which would almost surely result" from the imposition of duties that would induce the manufacture of pig iron in Canada. *The Week* asks: "Would it be fair that all the farmers and other citizens of the whole Dominion should be so heavily taxed in order that even a large number of men should find employment in a new industry, and a half-dozen or so of them perhaps be enriched by it? Would the users of iron and steel submit to such an impost or should they be asked to do so?" And to these interrogatories we say—Yes. And why not? In 1860 the United States had not adopted a protective policy, and the production of pig iron there in that year amounted to only 919,770 tons. But as soon as a high duty was imposed upon pig iron the industry began to flourish, and in 1873 the production was 2,868,278 tons—more than three times as much, and in 1882 the production was increased to 5,178,122 tons. This was a wonderful advancement, but the increase in output from 1882 to 1890 was phenomenal, the output in the latter year being 10,260,000 tons. Protection did it. *The Week* displays anxiety on account of the farmers. It thinks that it would be an injustice to Canadian farmers to increase the cost of iron and manufactures thereof by placing higher duties on the article. *The Week* seems to forget the fact that the prosperity of a country may be gauged and measured by the consumption of iron by the people. Measuring by this standard Canada is not as prosperous as the United States. No doubt *The Week* desires the prosperity of this country, and therefore it is fearful that higher duties on iron would interfere in that direction. It is evident, however, that such legislation as Canada now offers in the way of duties and bonus does not induce the manufacture of iron to any great extent; and it is also evident that under this regime of comparatively cheap iron the per capita consumption is ridiculously small. Under high duties in the United States the production of iron has increased to a point where that country stands ahead of even Great Britain; while the per capita consumption there, as compared with that of Canada, is one hundred and thirty-four times as much. In other words under a low tariff in Canada, the Canadian farmer consumes only one pound of iron to 134 pounds consumed by the American farmer under a high tariff. *The Week* suggests that the establishment of sufficient blast furnaces in Canada to supply the wants of the people would enrich "a half dozen or so" capitalists, and for that reason such establishments should be discouraged.

But Mr. Merritt shows that:—

"During the years 1886 and 1887 there were imported for consumption into Canada 345,000 tons of pig iron and 283,000 tons of steel. If to this is added the amount of pig iron consumed as such, it will be seen that excluding all the iron and steel entering into such highly manufactured articles as cutlery, surgical instruments, edge tools, machinery of all kinds, engines and many other hardwares and manufactures, there was a total consumption equivalent in pig iron in 1886 and 1887, respectively, to about 415,000 tons, and 356,000 tons. If made in this country this quantity of pig iron would represent to our makers at actual prices a value of about \$5,000,000; it would necessitate a yearly supply from Canadian iron mines of 1,000,000 tons of ore, and, before this ore could be smelted into pig iron and further made into the different mercantile articles of iron and steel, which are now imported, it would also require about 3,000,000 tons of coal. Taking this amount, say 400,000 tons, we have the product of twenty-seven to twenty-eight blast furnaces being used per annum in Canada."

Our esteemed contemporary should take pencil and paper and figure out what these facts mean. It might approximate to the number of millions of dollars that would be invested in these twenty-seven or twenty-eight blast furnaces. It might find out how many men would be employed in mining ore, in burning charcoal, in quarrying lime-stone, and in transporting these materials to the furnaces and carrying the products away; and it might form some idea as to the other millions of investments in steel plants, foundries and other iron-work establishments, and the thousands of men who would find employment in them. And it might also figure out the value of these thousands of consumers in the near-by home market to the farmers for whom it is so solicitous.

Mr. Merritt maintains that the conditions of manufacture of iron and steel in Canada, as determined by the abundance of ore, the location of mines, and as regards fuel and transportation, are at least as favorable as in the United States. There can be no doubt on this point, for, as shown in the Ontario Mining Commission report, the manufacture of charcoal iron especially can be carried on at lower cost in Canada than in many of the furnace regions of the United States.

It is evident, then, that if Canada is ever to become the manufacturer of the iron and steel consumed in the country, it can only be done by such means as have placed the United States on the proud eminence of being the greatest iron manufacturing nation on earth. The present duty, supplemented by the bounty on home production, does not answer. The duty should be increased to a point where this great desideratum would materialize.

Increase the duty on pig iron.

#### CUI BONO?

*The American Carriage Directory* for 1891, published by Messrs. Price, Lee & Co., New Haven, Conn., contains a list of carriage, wagon and sleigh manufacturers in the United States and in Canada. A classified list of these industries gives them by States, and in Canada by Provinces, and from this list we learn that in all the States there are 25,790 carriage and wagon manufacturers, and 4,601 sleigh manufacturers, while in all Canada there are 2,138 of the former and 191 of the latter industries. Thus, in the United States, with a population of 64,000,000 people, the numerical distribution of



these industries is one establishment to a little over 2,100 persons, while in Canada, with a population of 5,000,000, the distribution is about the same.

The claim is made by some unwise Canadian manufacturers that the Canadian market is too contracted, and that if they had unrestricted access to the American market they could better their condition. As we have shown, the per capita distribution of these industries is substantially the same in both countries, and therefore other things being equal, there would be no advantage to be gained by unrestricted reciprocity.

One argument upon which these reciprocitarians lay much stress is that the population of Canada being sparse, as compared with that of the United States, it would be to their advantage if they had access to the American market, although they would encounter American competition there. This advantage would offset any loss of custom they might sustain by the capture by American manufacturers of those parts of Canada remote from them and much more accessible from the American side. In other words, they say they would be willing to open the door to American competition in the Canadian market, if they had free access to the American market. According to their argument the manufacturers of Ontario and Quebec would willingly surrender their market in Manitoba and the North West Territories to Chicago and Minneapolis manufacturers, if in return therefor they could have access to the nearer market of New England and the border States. The vital question seems to be the great distance from the factory to the Canadian consumer.

According to the directory herein alluded to, including New England and the border States, the carriage, wagon and sleigh manufacturers are distributed as follows:

Connecticut.....	528
Illinois.....	2,597
Indiana.....	1,327
Maine.....	748
Massachusetts.....	1,340
Michigan.....	1,550
Minnesota.....	844
New Hampshire.....	494
New York.....	4,103
Ohio.....	2,302
Pennsylvania.....	3,171
Rhode Island.....	223
Vermont.....	621
Wisconsin.....	1,448
Total.....	21,293

The following is the distribution in Canada:

Ontario.....	1,553
Quebec.....	398
New Brunswick.....	113
Nova Scotia.....	176
Prince Edward Island.....	31
Manitoba.....	42
British Columbia.....	16
Total.....	2,329

Comparison of these figures elucidates our contention that unrestricted reciprocity would not benefit Canadian manufacturers of these vehicles. The figures relate to Canada on the north of the international boundary and New England and the other States adjoining that boundary on the south. In New England there are 3,951 establishments, and in all Canada only 2,329. "If Quebec, New Brunswick, Nova Scotia and Prince Edward Island only had access to their nearest 'natural' market they would no doubt be prosperous." So say the

reciprocitarians. The home market is glutted from over-production, and they must have an outlet for their goods. In these four Provinces there are but 718 vehicle factories, while in New England, which would be the nearest American market, there are 3,951 factories—more than five times as many. It does not appear that they would be any better off in gaining free access to the New England market: for it should be remembered that the New England manufacturers are also longing for an enlargement of their market, and that unrestricted reciprocity would give them the desired opportunity to deluge Quebec and the Maritime Provinces with their vehicles. Quebec might desire to have access to the New York market. Quebec has but 398 factories and New York 4,103—more than ten times as many. Ontario and Quebec together have less than two thousand factories, which is less than half the number in New York. The States contiguous to the manufacturing portion of Ontario are New York, Pennsylvania, Ohio and Michigan, and these four States have 11,186 factories; and it is difficult to discover wherein Ontario manufacturers would be benefited by gaining free access to the market of these nearby States, when they have more than seven times as many factories as she has, every one of which is anxious to send their surplus stock to Ontario.

Unrestricted reciprocity does not seem to offer any flattering inducements to Canadian manufacturers of vehicles.

FRIENDLY SENTIMENTS.

"Why should we make any sacrifices to help Canada? That country is owned and controlled by a nation which has for two hundred years been hostile to our industrial interests. Without help from us Canada must remain weak and poor. The population increases slowly, if at all. Her own people are coming across the border in swarms, and the Europeans who land on her shores simply pass through her territory on their way hither. The Government is heavily burdened with debt. Her domestic market is gorged with her own products. There can be no east and west commerce worth speaking of, as with us. Nature has made it imperative that Canadian commerce, to be successful, shall move southward into this country. When Canada has such commerce, untrammelled by tariffs, she will grow rich and strong. Why should Americans desire to promote that result? Sound politics, surely, are against a movement to build up, all along our northern border, an affluent and powerful empire with which England may menace us in the event of war. If we shall ever have another quarrel with England we shall realize the difference between having at the north a sparsely-settled and feeble row of colonies and a great and rich nation. It is blind folly to help England to strengthen herself in that quarter at the cost to us of the sacrifice of the system of protection which England hates more than she hates any other one thing. Sentiment has no place in such a matter as this. Our clear duty is to look solely to our own interests, and those interests are directly against the development of Canada, while the Dominion owes allegiance to Great Britain."—*The Manufacturer.*

The journal from which the above article is taken is the organ of a manufacturers' association in Philadelphia, among whom are numbered all, or nearly all, of the more important and prosperous manufacturers of that great city. These manufacturers are patriotic citizens of a great country, and they pride themselves on their loyalty and love of their country, which is all right and commendable, of course.

But it is strange that while their organ is so staunch and faithful in upholding the integrity of its country, and so quick to resent any imputation affecting the attachment of its patrons to the stability of its country's institutions and autonomy, it can talk as flippantly as it does regarding Canada, seeming to think that this country is for sale, and that the price of it is a mess of pottage known as annexation to the United States. We do not know, but can imagine the source of the information from which *The Manufacturer* forms its erroneous conclusions regarding Canada. Almost every assertion it makes is wrong. While it is true Canada owes allegiance to Great Britain, it does so through choice alone; for if she desired to throw off that allegiance to morrow the act could be done without bloodshed or trouble. Neither is Canada controlled by the Mother country, and this fact is seen in the exercise of the right by Canada to make her own laws, including a tariff that imposes as high duties against British goods as against the goods of any other country. With a territory even larger than that of the United States, and in many respects of superior value, Canada is not poor. A great element of the strength of the American people lies in the Anglo-Saxon blood that courses in their veins, but the blood that gives life to Canadians is purer and richer in that element than that of Americans, at least twenty per cent. of whom are negroes. Canada is not weak, for, having within herself all the elements of national strength, that strength is being used most judiciously to develop her resources and place her on as high a plain as that occupied by any nation on earth. Her population is growing, and there are but few disturbing elements in it tending to retard its growth. Canada is not threatened with an unsolved negro question, a Mormon question, nor a Chinese question such as now agitates the United States; and Canadians are not "swarming" across our southern border. On the other hand the deluded Canadians who were induced to migrate to the Dakotas and other Western States are swarming away from the blizzards and desolations that have made beggars of them. Canada's domestic market is not gorged with her own produce, making it imperative that her commerce to be successful shall move southward into the United States. Mr. Blaine seems to think, however, that the American market is gorged and congested to a most painful extent, hence his efforts to open South American markets.

*The Manufacturer* takes a most curious position, considering the fact of its being an advocate of tariff protection, in saying that Canada would grow rich and strong if her commerce with the United States were "untrammelled by tariffs." If Canada's commerce could be made "rich and strong" by free trade why would not free trade be equally good for the United States?

The fact is, if *The Manufacturer* is a fair reflex of public sentiment in the United States, the American people are jealous of the growing importance of Canada, and are averse to seeing "an affluent and powerful empire" built up along their northern border; the only way to prevent which is by annexation. But Canada does not desire to be annexed to the United States. She desires to work out a different destiny, and she will do it. It is not the disposition of Anglo-Saxons to be driven and coerced with impunity. Canada would be

pleased to maintain pleasant and agreeable trade relations with the United States, but she will not sacrifice her identity to that end. If the American people can divest themselves of the idea that their destiny is to absorb Canada: if they can reconcile themselves to the inevitable, and recognize the fact that Canada will never adopt the Stars and Stripes as her national emblem, then there will be hope for pleasant trade relations between the two countries. But they can rest assured that although McKinley bills may be brought to bear on Canada, and hostile legislation be enforced against her, Canada, like the Spartan youth, will suffer disembowelment before she will whine and beg for annexation. Anglo Saxon Canadians are not of that stamp.

### THE HOG QUESTION.

DURING the recent political canvas Mr. George Matthews, who operates a large pork packing establishment at Lindsay, Ont., in an address to the farmers of the County of Peterborough, explaining how unrestricted reciprocity would affect the hog raising industry, showed that he had during this season purchased 20,000 hogs from Canadian farmers at an average cost of \$5.75 per 100 pounds, the average dressed weight being 160 pounds. At this price for hogs the long clear bacon cost him \$7.50 per 100 pounds. Said Mr. Matthews:

"To-day I can buy long clear bacon fully cured in Chicago at \$4.50 per 100 pounds, which is \$3 less than mine cost me made from Canadian hogs, so that if we had unrestricted reciprocity, I could bring here from Chicago the same quantity of bacon, hams, lard, etc., that I made from the 20,000 hogs, for \$80,000 less money than I have actually paid Canadian farmers for their hogs. To be able to make long clear bacon and cure it for \$4.80 per 100 pounds (which is \$4.50 cost and 30 cents freight added), we could not pay over \$3.25 per cwt. for dressed hogs here, which would be \$2.50 per cwt. less than I paid this season, and on 20,000 hogs, weighing 3,200,000 pounds, a total of \$80,000 less than our farmers received for those hogs. The other pork packers of Ontario are in the same position as myself."

It is evident from this testimony that as far as the Canadian farmers' hog interest is concerned, unrestricted reciprocity would cost him an average of \$4 each upon every hog he raised. The Ontario Bureau of Industries in November last gives the number of hogs in this province at 1,140,559, which, valued at \$8 each, made the total value \$9,124,472. This average value of all the hogs in Ontario approximates quite closely to what Mr. Matthews paid for what he bought, and if under unrestricted reciprocity the farmers from whom he bought 20,000 hogs would stand to lose \$80,000, the farmers of Ontario would stand to lose about \$4,000,000. This would be paying very dearly for the privilege of selling hogs in the American market.

The importation of hogs and hog products into Canada from the United States is of immense proportions. During 1890 these importations were as follows:

Pork in barrels . . .	Pounds, 17,161,592 . . .	Value, \$830,015
Bacon, hams, etc. . .	" 4,344,200 . . .	" 323,513
Smoked meats . . .	" 1,020,652 . . .	" 108,137
Lard . . . . .	" 4,882,831 . . .	" 301,028
Total . . . . .	" 27,409,275 . . .	" \$1,562,693

Beside which the importation of live hogs was valued at \$82,984.

The valuation of the above enumerated hog products averages about \$5.75 per 100 pounds, precisely the price paid by Mr. Matthews for what he bought; and represents about 110,000 hogs, weighing 160 pounds each. Canadian farmers should have supplied in full this very large demand for hogs, at least they might have done so, and if they had supplied the Canadian demand under the tariff protection, they would have cleared to the extent at least of \$4 per head, or \$440,000. Other things considered they would certainly have cleared over and above the cost of production at least \$500,000.

A question for Canadian farmers to consider is whether it is not to their interest to feed their coarse grains to hogs, and raise enough of them to meet the home demand.

#### OPINIONS OF AMERICAN FARMERS.

A FEW months ago the *New England Homestead*, an agricultural paper published at Springfield, Mass., sent out a circular letter to a very large number of farmers in different sections of the United States, requesting their opinions regarding some interesting political topics. Postal cards were enclosed for replies, and 110,000 of these were returned with the views of the farmers indicated thereon. Their preferences for presidential candidates possess no interest to us, but their views on the tariff and reciprocity possess some value as showing the drift of opinion among American farmers. A canvas of the returns shows a considerable majority in favor of the McKinley bill, an overwhelming demand for Mr. Blaine's scheme of reciprocity, and an almost equally strong protest against unrestricted reciprocity with Canada. In answer to the question, "Will the new tariff help American farming on the whole?" There were 57,258 answers in the affirmative, and 39,133 in the negative. The loudest "yes" to this question came from New England with 20,879 votes against 9,408. "Will reciprocity with South America benefit our farmers?" Was answered by 67,405 yeas, against 28,143 nays, the strongest expression coming from the Middle States with 22,989 for, and 8,359 against. "Will Canadian reciprocity benefit farmers?" was answered in the negative by 60,237 votes, and in the affirmative by 32,902; the Middle States voting 22,245 against, to 8,128 for, while on this question New England voted against it by 20,968 noes, to 8,825 yeas. The large vote in favor of the McKinley bill and against reciprocity with Canada is due, as was indicated by the comments of the voters written on the post cards, to the fact that the increased protection on farm produce was making itself felt more especially in the New England and Middle States; reciprocity with Canada being very unpopular, especially in the Eastern parts of the United States where the competition of Canadian farmers was most felt.

In editorially discussing this consensus of opinion of American farmers the *New England Homestead* says:—

"The very considerable majority in favor of this tariff is, no doubt, largely due to the direct Protection on agricultural products, which is a striking feature of the new legislation. This Protection evidently appeals more forcibly and directly to many farmers than favors extended to other industries arouse the farmers' antagonism. It appears, therefore, that 57,258 farmers think that the good points of the new tariff will more

than offset its weaknesses and injustices so far as farmers are concerned, while 39,133 hold the opposite view.

"The tremendous majority for South American reciprocity is a marked tribute to the attractiveness of this proposition, and indicates that it will be one of the leading issues in the campaign of 1892. The opposition to such a trade with Canada is so decided as to warrant the conclusion that the proposed reciprocity with the Southern republics will maintain its popularity among our farmers, according to the extent to which it is shown that the circumstances involved differ from those which have developed such opposition to reciprocity at the north of us."

#### A JUDGE OF POLITICAL PHILOSOPHERS.

BRITISH journals are not remarkable as a rule for their perspicacity in discussing Canadian affairs, but it is exceedingly refreshing to notice that the *Manchester Textile Mercury* has developed this feature quite largely in an editorial discussing the relationship between Great Britain and Canada, and the meaning of the recent election in this country. Its estimate of the character and influence of Mr. Goldwin Smith, is very accurate. Speaking of Mr. Smith's prophecy that Canada's destiny is annexation to the United States, and his efforts to bring about that result, that journal says:

"Mr. Goldwin Smith, the Oxford ex-professor of history, is the prophet of this school of secession. About thirty years ago this gentleman seemed as if he had a future in this country as a politician, for securing which he made strenuous bids. But his dogmatism in the regions of the philosophy of history was too strong to be swallowed, and hence he became a disappointed man. He therefore shook the dust from off his shoes against us and left for the United States, the constitution of which was much more in accord with his theoretical views than the one under which he had been nurtured. The universities of the United States were next favored with his views of the "Laws of Destiny," "The Decrees of Fate," etc., etc., phrases under which the dogmatist generally veils his intolerant assertions. Mr. Smith, however, did not find that the theories of life he had formed fitted exactly with its practical exposition in the country of his adoption, and after a few years' experience he again placed himself under the protection of the folds of the Union Jack, in Canada. Here, for a time, he became comparatively quiet, but the sound of a political cry is to him as a red flag to a bull; the latter renders the animal furious, the former rouses the ex-professor into a state of exaltation, and he must prophesy and tell the world how Fate and Destiny had revealed their dispositions of future events unto him. Amongst these he found that it had been decreed that Canada should be annexed to its neighbor, and that any man might as well attempt to throw the earth out of its orbit as to prevent the occurrence of this event. 'Therefore let all blind patriots succumb at once, adopt and carry into effect the annexation policy of Cartwright, Laurier and "the Devil and Mr. Wiman," of which I, Goldwin Smith am the prophet.' It is not proper to look for incongruities in this policy, such as that it is the desire and hope of the prophet "to have free trade all over the world," while as a preparation for it he would carry a country, which is comparatively a free trading country, into annexation with one in which a tariff prohibiting free trade is in operation; and in doing this he would detach Canada from all connection with a country which has a policy of absolute free trade. These inconsistencies are only matters of detail which in the process of evolution will all come to be seen as parts of one harmonious whole. But when Sir John Macdonald discovers a plot amongst his opponents, and frustrates it before it is fully matured by dissolution 'he springs this upon the country without a shadow of constitutional cause.

and so snaps a fresh leave of power before the tide, which is running high in favor of reciprocity, should have risen beyond control.' Of course, Sir John has committed a gross political crime in not studying the convenience of Messrs. Smith, Cartwright, Laurier, 'the Devil and Mr. Wiman,' in dissolving. Of course Sir John could not do this as 'he has no policy but protectionism, to which he is bound by his sinister alliance with the protected manufacturers, but of which the country is sick.' The country is sick of protection is it? It may be, but when the learned professor proposes to give it a dose of the same medicine of tenfold strength, we would rather call in another adviser, because this is what it will get by taking his prescription.

"Protection in Canada is, according to Mr. Goldwin Smith, a manifestation of hatred to all the outside world, and especially so to Canada's nearest neighbors, the United States, but a policy of high protection, approximating to prohibition on the part of the latter, is a most virtuous policy, deserving the commendation of political philosophers and the admiration of the world; and especially is it kind, considerate and a manifestation of the greatest friendliness to Canada, the country's nearest neighbor. Once more the old quotation will apply:—

"Strange that such difference there should be  
'Twixt tweedle-dum and tweedle-dee

But so it is; these truths flow from a living fountain of political wisdom that was never yet known to be defiled—the lips of Mr. Goldwin Smith. When political philosophers write thus, we hardly need wonder if the world either in Canada or elsewhere prefers to consort with fools."

#### DUTY ON TEXTILE MACHINERY.

"MANUFACTURERS of textile goods have a just cause for grievance. So far as their machinery is concerned the protective tariff seems to work the wrong way, and it would benefit all classes if the duty on machines, which they are compelled to import, was removed, as it would have the effect of cheapening the cost of production and enable them to successfully compete with foreign manufacturers who have got these machines. We shall instance a few cases. On blanket hemmers the manufacturer has to pay a duty of 30 per cent. The cost of a machine of the most approved and latest style ranges from \$75 to \$110, the highest price being caused by a royalty of \$35 imposed by the United States Government. What object can be gained from a protective standpoint in making a manufacturer pay a duty of 30 per cent. on a machine that cannot be manufactured in this country? It would be folly for a manufacturer to start the manufacture of these machines here, for the simple reason that there is not the trade in this country to call forth a sufficient demand for them so as to even compensate him for the heavy cost of the requisite machinery. Then there is a duty of 30 per cent. on machines for making fashion goods and shape goods which cost from \$2,000 to \$5,000 each. They are made in England for the Nottingham trade. The duty forms a barrier in the way of people purchasing these machines for use in this country. Then take wool washing machines, which are very bulky. To get them of the most approved style they have to be bought either in the United States or England, and as they cost from \$1,000 to \$1,200 each, a duty of 30 per cent., besides commissions, freights, etc., and risks of breakage, is a heavy impost upon the manufacturer and tends to raise the cost of production. While looms and carding machines can be manufactured in this country, they can, we understand, be much more cheaply purchased in England and the United States, even with the duty of 30 per cent. added, and are better adapted for the purpose. Owing to the heavy duty and the constant wearing out of most of the machines, our mills, with the exception of ten or at the outside twenty, are equipped with second-hand, discarded machines from the United States. If it were not for the excessive duty the manufacturers could

buy new machines of the most approved styles, instead of these second-hand ones, which would be better and cheaper in the end for all concerned. The duty on woolen goods is 10 cents per pound and 20 per cent. ad valorem. This being the duty to protect the manufacturer from foreign competition, what protection is there for him by making him pay duty on all machinery he requires and on his mounting, such as silks, braids, and buttons? There is an anomaly somewhere. Money is dearer in this country, fuel is dearer, and all the cost of manufacturing, through difference in climate, is greater than in England or the continent of Europe, consequently manufacturers here are handicapped by these causes and by a heavy duty, and are thereby prevented from turning out the best classes of goods."—*Toronto Dry Goods Review*.

The *Review* is mistaken in some of its facts, and badly astray in its conclusions. It tells us that the United States Government imposes a royalty of \$35 on blanket-hemming machines. The United States Government do not impose a royalty upon any such thing—it is not in that line of business. Blanket hemming machines can be manufactured in Canada, and if blanket manufacturers import them from the United States it is because they can be had there cheaper than in England.

The *Review's* article seems to have been inspired by some such disgruntled textile manufacturer as Feodor Boas, who wants the Dominion Government to maintain high duties upon all such goods as he manufactures, and wants the duties removed from every article he uses in his factory. Canada is surcharged with just such selfish people. The N.P. was made to encourage the manufacture of textile fabrics, but it was also made to encourage the manufacture of machinery for the manufacture of such goods. Without the N.P. no textile manufacturing industry could exist in Canada, no, not if the machinery was admitted duty free. How ungenerous then to object to the success of machinery manufacturers and not to that of textile manufacturers. It seems from what the *Review* says that there are ten to twenty textile manufacturers in Canada whose factories are equipped with first-class machinery, and that the other mills "are equipped with second-hand, discarded machines from the United States." If these statements are true it indicates that the demand in Canada for such goods can be met by ten to twenty mills, or that there is not enough capital invested in the others to purchase first-class machinery. But no one ever hears complaints from the proprietors of the ten to twenty well equipped mills that the N.P. is injuring their business, such complaints always coming from those who should never have embarked in the industry. It is these latter who are always whining and grumbling at the N.P., laying the blame upon it for their non-success. It is not surprising that these men are not successful in business, for when they attempt to compete, using old, antiquated, second-hand, discarded machines from the United States, instead of the very best and most effective machines made, they are like attempting to draw a heavily loaded train of cars up a steep grade with a wheezy second-hand discarded locomotive. The attempt will certainly be a failure. If, instead of buying second-hand discarded machinery from the United States these now unsuccessful manufacturers would equip their mills with really first class machinery, there would be a demand for such machinery as would result in its production in Canada and at very reasonable cost.

When these unsuccessful textile manufacturers embarked in the business they were well acquainted with the operations of the tariff and knew that a duty was levied upon imported

machinery. If they had had sufficient capital they could have equipped their mills with first-class machinery of highest efficiency, and with this they would have been enabled to manufacture fabrics at a minimum cost; but being unprovided with sufficient capital, or not being experts in their business and not aware of the fact that "second-hand, discarded machines" were dear at any price, and unfit for such service, they foolishly equipped their mills with such rubbish, and are now whining because they are unsuccessful. They have none to blame for their failure but themselves.

#### THE COMMERCE OF THE GREAT LAKES.

ONE of the most interesting papers that has recently been given to the public is contained in a preliminary census report issued by the United States Census Bureau having reference to the freight traffic on the great lakes. The statistics of this report were collected by Mr. Charles H. Heep, regarding which he says:—"The chief point of interest in this exhibit is the fact that three commodities, coal, iron ore and lumber, comprise 75 per cent. of the total cargo tonnage of the lakes. If to these commodities be added corn, 82 per cent. of the total cargo tonnage is accounted for, and if to the commodities above named there be added wheat and mill products, there would remain scarcely 10 per cent. of total traffic. It is, then, the simplicity of this lake commerce which is its chief characteristic." Further: "This report shows that the average distance for which freight on the great lakes is carried, is 556 miles. From this it appears that the total ton mileage on the great lakes for the season of 1889 amounts to 15,518,360,000 ton miles. The aggregate ton mileage of railways for the year ending June 30, 1889, was 68,727,223,146, which shows that the ton mileage of the great lakes is equal to 22.6 per cent. of the total ton mileage of railways in the United States. In no other way could the relative importance of lake commerce be more effectually shown."

In a table in which the cargo tonnage is given for the season of 1889, trade between American and Canadian ports is included, but the coastwise trade between Canadian ports is excluded. The cargo tonnage as exhibited in the table, was compiled from returns from 107 ports, and amounted to 27,460,260 tons, distributed among these four classes of freight: *First*, products of agriculture, with an aggregate of 4,506,554 tons, or 16.41 per cent. of entire quantity, and divided into the following components: Wheat, 969,150 tons, 3.53 per cent.; corn, 1,929,614 tons, 7.03 per cent.; other grain, 503,117 tons, 1.83 per cent.; mill products, 992,066 tons, 3.61 per cent.; all other farm products, 112,607 tons, 0.41 per cent. *Second*, products of mines and quarries, with an aggregate of 14,448,551 tons, or 52.62 per cent. of entire lake tonnage, and subdivided as follows: Coal, 6,105,799 tons, 22.44 per cent.; iron ore, 7,677,107 tons, 27.96 per cent.; stone, all kinds, 311,015 tons, 1.13 per cent.; salt, 296,513 tons, 1.08 per cent.; other products of mines and quarries, 58,127 tons, 0.21 per cent. *Third*, other products, with an aggregate of 6,921,985 tons, or 25.21 per cent. of all tonnage, and separated into these two descriptions: animal products, 64,728 tons, 0.24 per cent.; lumber, 6,857,257 tons, 24.97 per cent. *Fourth*, manufactures, miscellaneous, merchandise and other commodities

comprising 1,583,170 tons, or 5.76 per cent. of the volume of lake commerce.

Another table gives the tonnage statement for the 107 ports in the aggregate and for each port individually. The collective receipts were 25,936,132 tons, and the collective shipments 25,266,974 tons, making the combined total tonnage 51,203,106. Chicago, inclusive of South Chicago, leads the list, Buffalo coming next in importance.

The traffic by separate lakes is given in a table by which it is shown that Lake Superior had 2,491,149 tons of receipts, or 9.6 per cent. of receipts for all the lakes; and 5,434,781 tons of shipments, or 21.51 per cent. of grand total of shipments. Lakes Huron and St. Clair had 1,029,356 tons of receipts, or 3.97 per cent. of all, and 2,344,451 tons of shipments, or 9.27 per cent. of all. Lake Michigan had 8,480,892 tons of receipts, or 32.7 per cent., with 10,090,366 tons of shipments, or 39.94 per cent. Lake Erie had 12,957,483 tons of receipts, amounting to 49.96 per cent., but only 6,386,392 tons of shipments amounting to 25.28 per cent. Lake Ontario had 485,220 tons of receipts, representing 1.87 per cent., while the shipments were 771,727 tons, representing 3.05 per cent. St. Lawrence river had 492,032 tons of receipts, making 1.9 per cent., 239,257 tons of shipments, making 0.95 per cent. As further indicating the extent of the traffic on the great lakes, the following statements are added as bases for comparison. The freight tonnage passing through St. Mary's Falls canal during the year ended June 30, 1890, was made up of these components: Coal, 1,894,483 tons; copper, 36,086; flour, 254,088; wheat, 583,794; grain, other than wheat, 76,065; iron ore, 4,404,935; pig and manufactured iron, 72,163; salt, 31,164; silver ore, 5,905; lumber, 541,591; building stone, 40,829; wool, 2,597; hides, 455; miscellaneous and unclassified, 344,425, making a total of 8,288,580 tons. The freight tonnage which passed through the Detroit river for the season of 1889 was distributed among the following articles: Barley, 38,294 tons; coal, 5,313,419; corn, 1,777,750; flour, 655,395; iron ore, 6,610,293; lumber, 2,545,792; laths, 23,699; oats, 262,896; pig iron, 94,337; salt, 47,737; shingles, 27,668; wheat, 824,451; other grain, 105,412; miscellaneous, 1,390,717 total, 19,717,860 tons.

Alluding to these vast aggregates of freight the Chicago *Industrial World* says:

"They possess a significance, however, which the census report does not point out. We mean that the great bulk of these multitudinous tons embodied only primary or raw materials—commodities in their crude state, as contradistinguished from what are known as finished products. This important fact indicates that the freight movement on the great lakes is, as yet, in the beginnings of its development. It is surely destined to a far grander and mightier future, to be realized when population shall have appropriated and utilized, occupied and devoted to industrial or other purposes, every acre of adjacent territory; when most of the cargoes shall consist of articles upon which the utmost of the converting power of labor has been expended; and when Chicago's outer harbor shall hold in safe anchorage the ships of all nations, come hither through canals made for the purpose, giving inlet and exit, via the St. Lawrence river or the Mississippi river, to the deep blue waters of the Atlantic. That will surely be a day of wonderful realizations; and the figures now paraded as extraordinary and indicative will appear, in contrast, as no more than the pigmies of a crude and weak past."

## EDITORIAL NOTES

THE editor of this journal will esteem it a favor if manufacturers would supply him with any items of interest regarding the manufacturing industries of Canada.

ITALIANS are finding out that Italians have no more justice accorded them in the South than negroes and white Republicans who offend Southern Democratic views of property.

THE Italian Government have withdrawn its Fava from the Washington Court. It is the un-Fava-ble outlook for good honest justice to overtake the New Orleans' murderers, at which Italy is justly disgusted.

It is claimed that there are some Canadian manufacturers who desire larger and wider trade relations between this country and the United States. If such there be, they should avail themselves of the invitation of Mr. Nicholls, Secretary of the Canadian Manufacturers' Association, to step forward and ventilate their views.

"It will now be in order for some genius to write to *The Empire* stating his opinion that the lynching of the Italians in New Orleans is a strong argument against reciprocity."—*Toronto Globe*.

It certainly is a strong argument against annexation, with which reciprocity is a synonymous term.

THE Democratic murderers of Italians who had been acquitted of crime by a jury of Democrats in New Orleans are high-toned gentlemen, whose views of States Rights prompt them to snap their fingers in the face of the American Government and enquire what is to be done about it. Their country is disgraced by the incident, but the States Rights flag still waves in triumph.

AT a meeting of the Maritime Stove Founders' Association, held in Halifax, N.S., March 27th, it was decided not to make any change in prices this year. A proposition by outside capitalists to purchase and operate all the foundries in the Maritime Provinces was not entertained. The proposition to amalgamate under one central management was discussed, but no decision arrived at.

THE *Bulletin* of the American Iron and Steel Association, published in Philadelphia, is giving much more attention to the discussion of tariff questions than to the presentation of technical and trade news, there appearing to be great need for educating the American people on the question of protection. The number of journals in that country which are devoted to the discussion of this subject is not too great to meet the crisis which is now impending.

"A NUMBER of Ontario farmers and their families, who settled in South Dakota some eight years ago, passed through Winnipeg last night on their way to Yorkton, Assiniboia Territory, with six car loads of stock. One hundred families of these Canadians are expected from Dakota in three weeks bound for Yorkton."—*Winnipeg Commercial*.

We commend this fact to the Grit orators who are constantly telling of the exodus from Canada. Repatriation like that alluded to by the *Commercial* is going on constantly.

A DESPATCH from Bradford, Yorkshire, the principal centre of the worsted and stuff manufactures of England, says that seventeen of the leading wool combers engaged in the worsted trade there have combined to raise the price of worsted and to control Botany wool. The increase in price commences in April. This is not in Canada, the United States, France, Germany or any other country having protective tariff laws, but in free trade England. And still the free traders insist that trade combines are a peculiar feature of protection.

ICONOCLAST is the name best suited to the fiery individual who thrust himself into the front of the battle and carried the banner of unrestricted reciprocity. Sir Richard Cartwright made a desperate strike for power, and the ruin of thousands of manufacturers and the loss of millions of money was counted as nothing, could success only be attained. It passes comprehension how a whole party could submit to the dictation of one or two men who framed this policy without consulting any but their own sweet wills. Truly, politics is a wonderful game.

"AT the next sitting of the United States Naval Committee it is reported that the question of treaty changes with Great Britain, to allow the building of United States naval vessels on the lakes will come up, and it is probable that a modification of existing treaties will be made to allow such work. If so, lake shipyards and lake steel mills will soon show what they can do."—Cleveland, O., *Marine Record*.

How would a fair measure of limited reciprocity work in this case? The United States wants its treaty with Great Britain modified so as to enable the building of naval vessels in lake ports, and at the same time prohibitory duties are imposed upon Canadian eggs, barley and other produce. It is a poor rule that won't work two ways.

BLAKE and Young stand out prominently to-day as patriots and true Canadians. Mr. Young's pamphlet on Commercial Union embraced nearly all the phases of unrestricted reciprocity, and his comprehensive grasp of the subject in relation to the effect of the new policy on Canadian industries was a timely warning which the people did not fail to heed. Blake's manifesto bears the stamp of the statesman, and while many of different trainings and opposite political leanings may dissent from many of his deductions, still there is very much that may profitably be taken into our reckoning for future guidance. We have no doubt he will follow up this farewell address to his constituents with something which will bear more directly on our future as a country and a nation yet to come.

IF there could now be an international convention between Washington and London as to the uniform spelling of the English language the recent copyright victory would be of more use to American publishers and printers. English houses could often profit largely by buying plates or sheets from publishers of American editions of popular books, but are restrained because the critics always attack the Transatlantic spelling of "waggon," "gaol" and all words which here end in "our." It has been long apparent that Americans cannot be expected to change their style for the longer and clumsier English fashion, any more than they can revert to music with

a "k." At least there is a gleam of light from this side of the deadlock. The printed forms for the new census, which will be taken next month, spell "labor" and laborer" without the sacred and senseless "u."

PROF. THOMSON, in speaking before the National Electric Light Association, called to mind the great work in the electrical field which has been accomplished in the last few years, and referred to the ever-increasing business and the call for larger machines. He said that dynamos up to 500 to 1,000 horse power are now frequently called for, where a few years ago it was thought an unusual thing to speak of a 150 or 200 horse power machine, and the tendency is towards machines of much larger capacity in future electric installations. With regard to heating our houses by electricity, Prof. Thomson thought it not at all likely that we will ever heat extensively by electricity, unless we can find some way of converting the energy of coal into electricity far more directly and less wastefully than is done in steam engines of the present day. He hoped, however, that the time might come when we shall have at our command an easy, direct method of obtaining electricity from fuel. Referring to the utilization of waste steam from electric light plants for heating purposes Prof. Thomson was of the opinion that much valuable work would eventually be done in that direction.

"THE CANADIAN MANUFACTURER, published in Toronto, one of the leading commercial journals of the Dominion, in its issue of the 6th instant, quotes largely from two editorials in *The Telegram*, in one of which we set forth Vancouver's claims to consideration as a prosperous, progressive and rapidly growing commercial centre—the future Liverpool of the Pacific, and in the other gave particulars of the new dry dock which is shortly to be built here. The publishing of these articles in Toronto by a paper of the standing of THE MANUFACTURER cannot but have a good effect in counteracting the false statements which enemies of this city seem to have taken pains to circulate in the east, and in setting before the people of Canada at large correct views as to Vancouver's present position and future prospects. The people of Vancouver are indebted to THE MANUFACTURER for the kindly assistance it has given, assistance entirely unsolicited by us, and therefore the more appreciated."—Vancouver, B.C., *Telegram*.

As representing the manufacturing interests of Canada, this journal knows no east, no west—it is for all Canada, and for Canada all the time. It is as much interested in the prosperity of Vancouver as of Halifax or Toronto, and it esteems it its duty, as well as it is its pleasure, to publish any facts tending to show the prosperity of any Canadian town.

MR. JAMES M. SWANK, general manager of the American Iron and Steel Association, has sent us a sixteen-page political tract entitled, "A Reply to Mr. Cleveland," which is a speech delivered by the Hon. Wm. McKinley before the Ohio Republican League in February last. Mr. Swank informs us that this is the first of a series of tariff tracts for 1891, to be published by his Association as commencing the great political campaign of 1892, which is to determine for many years the tariff policy of the United States. The management of this Association is impressed with the importance of the iron and steel manufacturers of the United States assisting in educating

the people of that country on the tariff question. These tracts are distributed gratuitously. If tariff protection is so important a question to American manufacturers, it cannot but be of intensified importance to Canadian manufacturers; and it is to be hoped that such good work as is being done by Mr. Swank and his Association may be successfully imitated in Canada. But this can only be done by Canadian manufacturers rendering such substantial assistance as is being afforded by their American bretheren.

At a wedding in Baltimore a few days ago, no sooner had the company been comfortably seated than the room burst into a flood of light from numerous varicolored incandescent electric lamps hidden among the decorations. The entrance of the bride and bridegroom was welcomed by the automatic ringing of electric bells and the playing of electrical musical instruments. After the first course the room was plunged into semi-darkness, when suddenly from the floral decorations upon the table there glowed tiny electric lamps. Not only the flowers, but the interior of the translucent vases in which some of them were gathered scintillated with flashes of light. After a while a miniature electric lamp, which in some unexplained manner had attached itself to the bride's hair, was seen to glow with dazzling brightness. A toast having been given two serpents slowly uncoiled themselves and issued from the wine bottle that stood beside the bridal couple. Cigars and coffee were served, and the cigars were lighted by an electrical lighter, while the coffee was prepared in full view of the company by an electrical heater. The speeches that were made were liberally applauded by an electrical kettle-drum placed under the table. As the company dispersed, the electric current set off a novel pyrotechnic display, amid the crimson glare of which the festivities ended.

GOVERNOR RUSSELL, of Massachusetts, has sent a message to his Legislative Assembly regarding the "sweating system" of making clothing in tenement houses, and recommending a full inquiry into the matter through the proper legislative committee. The Governor said he deemed the matter of sufficient importance to call for a thorough investigation, and by his direction such investigation has been made both in New York, and, locally by members of the Massachusetts State police force. The Governor submits with his message extended reports made by these officers, whose personal investigations are therein detailed, and which may be summarized in the language of Chief Wade, of the State Police, who represents the reports of the Governor. The Chief says: "The investigations made by this department fully corroborate the testimony of others in their complaints of the uncleanly and often filthy surroundings attending the manufacture of clothing in New York tenement houses, and the large amount manufactured of ready made clothing for dealers in Boston alone calls for legislative intervention for the protection of our citizens from the infected product of New York tenement houses." The unrestricted reciprocitarians who desire the privilege of buying in the cheap American market also desire to force the women and girls of Toronto, who are employed in the manufacture of clothing to accept such prices for their services as the "sweaters" of New York have established.

THE *Northwestern Miller*, of Minneapolis, in a long and doleful article upon the condition and prospects of the flour milling industry, sums up the situation as follows :

"Capacity enormous; cost of the raw material almost always out of proportion to the price of the manufactured article, the latter fact due to speculation; annual increase in mills sufficient and more than sufficient to meet the increased domestic consumption caused by natural increase of population; actual domestic demand, even on short crop, less than actual production of flour; foreign market in several directions formerly open, now closed; foreign trade with United Kingdom becoming more and more limited by improvement and renewed energy of British mills, and more especially by delay in transit and unsatisfactory bill of lading; western mills finding it difficult to hold trade on account of delay in transit, but piling up more and more flour into eastern markets as their foreign trade becomes more circumscribed; eastern mills fighting their western competitors and each other for the possession of the domestic trade. Under these conditions does it not seem that the war for business is getting down to a hand to hand struggle for supremacy, from which even the strongest must emerge covered with scars, and in such a demoralized condition that the dearly bought victory will seem worthless? We do not think the picture is overdrawn; there may be small patches on the battle ground where the fight is not waging so fiercely, but these cannot long remain comparatively free from action, and a general survey of the field would warrant the description we have given of it."

And this in the sixty million market that some short-sighted Canadian millers desire to have access to.

"THE following table shows the volume of foreign trade per head of population for the nations mentioned :

Holland.....	\$203 10
Great Britain.....	94 70
Germany.....	51 70
France.....	51 40
United States.....	23 60

Holland has no tariff for protection and but little for revenue, and its foreign trade is immense in proportion to its population. Great Britain, with a heavier revenue tariff, comes next, being away ahead of either France or Germany, which have protective tariffs. Away down at the foot of the list is the United States, which has the highest and most restrictive tariff. The figures admirably illustrate the effects of tariffs upon the foreign trade of nations."—*Montreal Herald*.

These comparisons are exceedingly silly. They prove absolutely nothing. Holland is almost the smallest nation in Europe, and certainly the most densely populated. Its area is less than 13,000 square miles, upon which live over 4,000,000 people. There is very little room in the country for any other than manufacturing and mercantile pursuits, and it is to all intents and purposes a nation of traders. The *Herald* lays great stress upon the foreign trade of a country as the indication by which alone the prosperity of that country must be measured, and it points to the fact that the foreign trade of the United States averages only \$23.60 per capita, while that of Holland is more than eight times as much. Suppose the city of New York were politically isolated from the United States. The population of that city is only about one-third that of Holland, yet the foreign trade of New York is actually greater than the foreign trade of Holland; the foreign imports and exports of that city last year amounting to \$865,478,484. Why not compute the prosperity of the United States by the interstate commerce? If this were taken as the standard it would be seen that that country is the most prosperous one on the face of the globe.

MR. FREDERIC NICHOLLS, Secretary of the Canadian Manufacturers' Association, has sent a circular letter to a large number of manufacturers in which he alludes to the fact that certain politicians desire some sort of reciprocity with the United States: that they claim that the manufacturers are the ones who most strongly object, and that if it were not for this opposition the way would be clear for entering upon closer trade relations with the United States. He also quotes that portion of Mr. Blaine's letter to Congressman Baker, of New York, where he says: "There are no negotiations whatever on foot for a reciprocity treaty with Canada, and you may be assured that no scheme for reciprocity with the Dominion, confined to natural products, will be entertained by the American Government" Mr. Nicholls desires to learn from the manufacturers to whom his letter is addressed if they consider that their particular industries would be benefited or damaged by having such goods as they manufacture placed in the list of articles that might be exchanged with the United States free of duty as an inducement for that country to place upon its free list certain or all Canadian products: and if they would be willing to have such goods as they make enter Canada from the United States free of duty, in consideration of the United States receiving goods similar to theirs, and other Canadian products on the same terms. It has been claimed that there are some manufacturers in Canada who are in favor of enlarged reciprocity with the United States, and this circular letter of Mr. Nicholls will enable those who desire to do so to express their views on the subject.

THE *Cleveland Iron Trade Review* publishes the following letter which was addressed to it:—

CLEVELAND, O., March 18, 1891.

Mr. S. J. Ritchie, formerly an officer of The Canadian Copper Company, has ceased to hold any connection with the company as a director, officer or stockholder, and he does not represent the company in any capacity whatever. It has recently come to the knowledge of the company that Mr. Ritchie has assumed a position of hostility to it, that he threatens it with malicious law-suits and interference with its business. All persons having any business with the company will oblige us by paying no attention to any correspondence or interview of Mr. Ritchie. The company will, through its proper officers, attend to its affairs and the performance of all its contracts.

By order of the President.

THE CANADIAN COPPER CO.  
By H. P. McINTOSH, Sec'y-Treas.

Regarding which our *Cleveland Contemporary* says:—

The Canadian Copper Company, as is well known, is the possessor of valuable nickel-copper deposits and smelting plant at Sudbury, Ontario, special attention to which was recently brought by reason of the appropriation by the United States Government of \$100,000 for the purpose of experimenting in the manufacture of nickel steel for armor plate, with a view to contracting with the Canadian company for a large amount of the nickel ore. Mr. Ritchie (who is an Ohio man), is widely known throughout the United States and Canada not less as a promoter of heavy mining enterprises than as a diplomat acquainted in all the higher official circles at Ottawa and Washington. Next to Erastus Wiman we presume no American business-man is better known throughout Canada. It was he that organized the Anglo-American Iron Company to operate iron mines at Coe Hill, Ontario, and the Central Ontario Railroad, to carry the product to market. The ores proved too refractory for use in the blast furnace, but we see it stated that Mr. Ritchie is about to erect a plant with which to treat them preparatory for the market. Whether he retains his interest in the Coe Hill enterprise and what the causes are that led up to the severing of his connection with the Canadian Copper Company we are not advised.



What's the matter now? Mr. Ritchie has the floor. Meantime we again urge that the Canadian Government impose an export duty upon nickel ore and matte.

"A RESIDENT of the United States who is thoroughly well-informed as regards the ship-building interests, said the other day:—"If we only had those Sudbury nickel mines in the United States, we would move the ship-building interests from Great Britain to our Atlantic seaboard. We could then build ships so much superior to any that it would be possible for them to build, on account of superiority of the metal that we would have substantially the whole trade." However, that may be, there can be no doubt of the important future before these mines. The United States naval officers have, it will be seen, by the statement given elsewhere, reported that the amount of ore taken from the three mines up to October 1st, was 160,000 tons, while they estimated that there are 653,000-000 tons of ore above the ground, of which no less than 650,000,000 belong to the Canadian Copper Company, the Dominion Company and Sir Hussey Vivian's Company, having 2,500,000 and 250,000 tons respectively."—*Canadian Gazette*.

Our American friends have a good idea of the value of our nickel mines and know the immense benefit that would accrue to their country if they possessed them. If they had them, without doubt they would soon build up an immense ship-building interest on account of the superiority of the metal. Experiments have demonstrated that with the use of nickel steel an immense saving could be effected in the weight of materials far exceeding in compensation for the greater cost; and it is because of this fact that the Americans are envious of Canada's wealth of nickel. If the Americans controlled our nickel mines they would make strong efforts to "move the ship-building interests from Great Britain" to their own country; but as it is, both British and American ship-builders will have to depend upon Canada for their supplies of nickel. This is Canada's opportunity; and if Canada does not profit largely by it it will be her own fault. There is no valid reason why all the nickel to be used in British and American ship-building, and for all other purposes should not be exported in a refined condition from Canada. But if Canada allows the free and unrestricted exportation of nickel ore and matte, refined nickel will never be manufactured here. The way to ensure the manufacture of refined nickel in Canada is by the imposition of an export duty upon nickel ore and matte. Impose the duty.

## 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. Subscription \$1.

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 call at the premises of JAS. R. BUCHANAN, Lowell, Michigan.

FOR SALE, A VALUABLE CANADIAN PATENT.—The Trenholm Improved Perpetual Hay Press, patented 1882, has been manufactured in New Brunswick for nine years, and stands without a rival in the Maritime Provinces. As it has not been introduced in the Upper Provinces, the purchaser can, if he manufactures there, get practically a complete control of the business in Canada, as this machine is cheaper, stronger, earlier running and more durable than any other Press of its class, and is well protected by patent. Full investigation invited. Terms easy. Write for particulars to A. J. TRENHOLM, Sussex, N.B.

A RISING TOWN.—The Town of West Toronto Junction possesses exceptional residential and business advantages, and promises to speedily become the chief manufacturing centre of the Dominion. This town has the following railways, viz: Grand Trunk Main line (Carlton West Station); Northern Division of the Grand Trunk (Davenport Station); The Toronto, Grey and Bruce, and Credit Valley, and Ontario and Quebec Divisions of C.P.R., and Belt Line Railway (now in progress). The town offers to large manufacturers free sites, water at cost and exemption from taxation. Any information regarding the same will be given upon application to ROBT. J. LEIGH, Town Clerk, or D. W. CLENDENAN, Mayor.

WEST TORONTO JUNCTION'S ENTERPRISES.—The ten large factories which have located at West Toronto Junction during the past three years are all doing large trades. The "Barnum Iron and Wire Works," the "Toronto Rolling Mills and Forging Company," and others about to locate will swell the paying industries of the town and augment its population. A large number of fine residences and business blocks have added to its appearance and to its facilities for supplying the peoples' wants. A perfect fire alarm system, (the "Gaynor") and an efficient system of water-works, both now in operation, with sewers, electric lights, and improved streets now contemplated, will add to the protection and the comfort of the people and their houses. Free sites, free water, and exemption from taxes are inducements offered to first-class manufacturers, and it is now acknowledged by all that Toronto's western suburb, with its great continental railway connections, is destined to be among the most prosperous cities of Canada. Dr. Carleton is Chairman of the Factory Committee.

In the Easter number of the *New York Ledger* Mrs. Amelia Barr started a Scotch serial entitled "A Sister to Esau;" Mrs. Frances Hodgson Burnett contributes "Eight Little Princes," right in the line of her "Little Lord Fauntleroy;" George Bancroft supplies "A Day With Lord Byron," and other well known and highly appreciated writers of the *Ledger* staff also enliven it with entertaining contributions.

THE April number of *Our Homes* maintains the high standard of excellence which has characterized this publication since its inception, and easily keeps it in the front rank of Canadian magazines. It contains an abundant supply of fiction, pure and healthy in tone, while the departments of Interior Decoration, Home Furnishing, Fashions, etc., contain much that will prove exceedingly interesting to the lady readers. The young folks are not forgotten: and their department contains an excellent story, recounting the heroic deed of a little colored boy. In connection with the Young Folks' Department we notice that the publishers announce a Bible Competition for the young readers, for which they offer liberal cash rewards. The magazine is issued by Our Homes Publishing Company, Brockville, Ont.

THE *Columbian Cyclopaedia* is the new name and new form of what has heretofore been known as *Alden's Manifold Cyclopaedia*, and which has won great popularity by its high merit, combined with

its amazingly low price. The *Columbian Cyclopaedia* will comprise 82 volumes, of about 800 pages each (the *Manifold* was 40 vols., of 640 pages each), being about equal in size to Appleton's *Cyclopaedia*, and about 50 per cent. larger than Johnson's. The entire set will contain about 7,000 illustrations; it is very handsomely printed and bound, and, like the *Manifold*, is almost fabulously cheap, the entire set being furnished in cloth binding for \$25, with easy instalment terms to those who want them. Of course subscriptions to the *Manifold* will be completed in uniform style with the early volumes delivered. Whoever is interested in the cyclopaedias will do well to secure (free) specimen pages of the *Columbian*, which may be had by addressing the *Columbian Publishing Co.*, 393 Pearl St., New York, or 242 Wabash Ave., Chicago.

*Good Housekeeping* for April opens with an illustrated "Lesson in Palmistry," while among the abundance of good things contained in its generous pages will be found Miss Parloa's "Ten Mornings in the Kitchen," with valuable and sensible papers on "Paying for Wedding Presents," "Founding the Home," "Housekeeping in India," "The Succulent Bivalve," "Tea as a Beverage," "Coffee," "Hardwood Furniture," "The Renovating of Lace," "The Family Medicine Chest," and a variety of other interesting topics, all of which are pertinent to the home and its attractions. This magazine is showing a steady progress since becoming a monthly, the successive numbers containing most commendable array of articles relating to the various subjects which concern the home and its happiness. Besides such as relate directly to the culinary department, the abundant verse, the various special features of wit, humor, prize puzzles, and the like, there are instructive papers on literary topics, health and sickness, etc. Such an array of topics makes it interesting to every one, and accounts for its remarkable popularity. Clark W. Bryan & Co., Springfield, Mass.

SOME predict that the great change in the fashioning of the clothes which are to be worn by women this coming season is the most wonderful victory of the nineteenth century—if fashion leaders can be induced to adopt it, and appear just once in public so arrayed. Men will hold their breath in wonder at the marvelous change it makes in lovely woman. "Few of the fair sex can help being beautiful in these glove-fitting costumes," says a writer in a recent number of *The New York and Paris Young Ladies' Fashion Bazar*. "This magazine is the only one in Europe or America which makes a speciality of giving those inclined to stoutness an unrivalled appearance of sculptured slimness," said Her Royal Highness the Princess of Wales. Madame Patti has ordered from the Paris house four magnificent costumes, the designs of which appear in the April number of this *Fashion Bazar*—and in this magazine only. Mrs. Harrison is greatly fascinated with the exquisite gem, costume No. 4, in the April number. It is expected she will give an order for an exact counterpart of it, the whole front of which will be incrustated with pin-head diamonds. This gown alone will be worth a king's ransom.

THERE is all the sunshine of spring and the fragrance of flowers in *The Ladies' Home Journal* for April; the exquisite Easter cover, designed by W. Hamilton Gibson, is a fair index to the charm of the whole number. The pervading Easter spirit finds perhaps its happiest expression in the fiction, Mrs. Whitney's delightful serial, "A Golden Gossip," being continued, while Maud Burton and Carolina A. Mason contribute seasonable short stories. The "Mrs. Rossiter Lamar" of the latter, an exceptionally strong story, forms as attractive a feature as the clever sketch of Mrs. T. De Witt Talmage, which is accompanied by a fine wood-cut portrait. Other articles which will be widely quoted are Amelia E. Barr's "Mothers as Match-makers," dealing with a question of universal interest, and the third of George W. Cable's masterly papers on "Teaching the Bible." Among such an "infinite variety" it is difficult to mention everything that is good, but the article by C. F. Klunder, the New York florist, on "Flowers in the Home"; those upon "Bee-keeping as an Occupation for Women," and Mrs. Mallon's delightful pages of "Spring Fashions," will no doubt be especially appreciated. The number is complete in every part, and richly illustrated throughout. Issued at ten cents per copy, or one dollar a year, by the Curtis Publishing Company, 435 Arch Street, Philadelphia.

THE *Illustrated American* presents, by way of supplement to the issue of April 4, a strong cartoon by Nast on the recent tragedy at New Orleans. The central figure is a member of the Mafia, in slouched hat and long mantle, who, dagger in hand, has just written on a door the warning, "Americans Must Go," portrait of William S. Parkerson, leader of the regulators, and of other prominent actors in the affair are given, and there are also sketches of scenes of the tragedy made on the spot by a special artist of the *Illustrated*

*American*. George C. Munzig, who seems to be the portrait painter-in-ordinary to American Swelldom, is the subject of an illustrated article, and "Parnell's Last Chance" is described with pen and pencil. The recent fatal accident in the Fourth Avenue railroad tunnel in New York city suggest a review of the terrible record of the car stove as a cause of the loss of life in railroad accidents, and the urgent necessity of suppressing it is once more brought in a striking manner to the attention of railway managers. Portraits are striking of Senator-Elect John M. Palmer, of Illinois, and of Dr. Windhorst, the deceased German statesman; the curious character of Marshal Lefebvre, one of the First Napoleon's generals, is described; Daudet's new play "Betrothed" is analyzed, and there are, in addition, the usual features of this weekly news magazine.

OF *Outing* it may be truly said that age does not pall, nor custom stale its infinite variety. Month after month, and year after year, it comes to us fresh and breezy, as crisp as the morning, and bears us away in imagination to all the delights of sea and shore, forest and stream. The April number is no exception to its perennial flow of welcome reading, except it may be that in fitness and variety it is more than usually richly laden. Would you foretaste the joys to come with the opening of spring? then it's "Anglers' Outing" wafts you in imagination to the rippling trout stream. Would you know where the summer's woods and streams will yield their abundant harvest of game in fin, fur and feather? then "With Rod and Gun in Northwestern Woods and Waters" is an invaluable itinerary. And there is instruction, too, of a technical nature, to be found in scarce any other publication. The "Evolution in Yacht Building" will be as welcome reading to all who expect to be "rocked in the cradle of the deep," as its article on "The Greek Athletes" will be to the modern devotee of the track and gymnasium, whilst the cyclist and tourist abroad will be drawn towards the woods and ports of Yorkshire by two of the most admirable stories ever published by *Outing*, "Mademoiselle," the adventure of a cyclist, and "Herring and Heart Fishing at Scarborough"; whilst last, but not least, the National Guardsmen of the Badger State will find in Capt. Chas. King's glowing numbers a record of which they may well be proud.

*Six Centuries of Work and Wages*, a history of English Labor, by J. E. Thorold Rogers, M.P., late Professor of Political Economy in the University of Oxford. Abridged, with charts and appendix by the Rev. W. D. P. Bliss; introduction by Richard T. Ely, Ph.D. Associate Professor of Political Economy in Johns Hopkins University. Price 25 cents. The Humboldt Publishing Company, Astor Place New York. This is the first number of the Social Science Library, which puts at the disposition of the public a record that is invaluable. It is the story of a struggle of the English poor against the avarice of priest and king, landlord and capitalist; a story told by the records of thousands of court rolls, and stewards' accounts, compiled by unconscious historians who little dreamed of the tale the figures they so patiently added up would one day be made to tell. From the beginning of the thirteenth century, when almost everyone not only possessed land, but cultivated it; when a landless man was looked on as an outlaw and a stranger; when the use of the common pasture was without stint, and the arable land of the manor was usually communal. From that remote date to modern times, Prof. Rogers conducts the reader through the successive stages of a drama whose motive was the cheapening of labor for the benefit of the monopolist. And surely no time could be more fitting than the present for publication of this work which, with its special charts, clear type, good paper and elegant made up, is destined to have an extensive sale.

THE Thomson-Houston Electric Company, Boston, have sent us an interesting publication, containing separate maps of all the States in the union, and showing in each map the location of the central station electric lighting plants, and electric railways and systems which are in operation. The maps have been prepared from data collected from original sources, and with evident impartiality and disinterestedness, the sole object being to locate correctly every city or town having central station electric lighting, the system in use being designated by symbols employed for that purpose. In some central station plants, however, there are dynamos of more than one system, and in such cases the symbols given are intended to cover the types of all makers in use. In the recapitulation which is furnished, it appears that there are 666 Thomson-Houston systems of electric lighting plants, and 103 electric railways of the same system in use. In both branches of the business the figures given show that the Thomson-Houston system leads by a large per centage. The book is in Atlas form, and has over 100 pages, the maps all being executed with neatness and clearness, while the press work and typography are admirable.

The collection and compilation of the statistics in the volume proved to be a work of the most engrossing character, and the Thomson-Houston Electric Co. believe that the result is as nearly correct in every particular as the changing character of the electric lighting business at this time will permit. The publication should prove one of permanent value to all interested in the subject.

HERBERT SPENCER'S views on socialism, published in the April *Popular Science Monthly*, are sure to attract wide attention. His essay is entitled, "From Freedom to Bondage," and its aim is to save the working classes from the governmental tyranny with which they seem to be infatuated. "Street Cleaning in Large Cities," is another timely subject treated in this issue. The article is by Gen. Emmons Clark, of New York, and contains practical suggestions for properly performing this important work. There is an article by the Duke of Argyll, entitled "Prof. Huxley on the War Path," which aims to convict the professor of treating theological questions inconsistently with his treatment of scientific subjects. "What Keeps the Bicyclist Upright" will be explained in an illustrated article by Charles B. Waring. "A Brief History of the Ohio River," describing some wonderful geological changes, with maps and cuts, is contributed by Prof. Joseph F. James. A paper by Prof. Henri Marion, under the title, "Training for Character," gives valuable hints on the care of young children. "Social Changes in California," by Charles H. Shinn, sketches the development of a community such as the world will never see again. There is a brief account of Dr. Schliemann, with a portrait, in addition to the regular sketch and frontispiece portrait, the subject of the latter being "Prof. Daniel G. Brinton, of Philadelphia." "The Badger and the Fox," with six illustrations; "Race Influence and Disease," by G. H. Hoffmeister, M.D.; "Scientific Jottings in Egypt," by Dr. H. C. Bolton; and "Whale-catching at Point Barrow," by John Murdoch, are all very readable articles. The Editor's Table contains a conservative view of "Koch's Consumption Cure," and some remarks on "Intellectual Liberty" suggested by the McQueary heresy case. The Index for the past six months, in this number, shows that the high character of the magazine is being well sustained. New York: D. Appleton & Co. Fifty cents a number, \$5 a year.

It is now about ten years since the American dry lead producers have been exporters to this market. Since then our manufacturers have obtained their supplies from Great Britain. During the past couple of weeks the usual order of trade has been reversed, and American lead has been placed with our manufacturers instead of the British product. Whether the displacement will be permanent or not remains to be seen. It may be only temporary. Prices on the American markets are not any lower, but there is surplus for which the Trust has to find buyers. The most convenient outlet is Canada and it is generally believed that it is their intention to supply us in future at figures just low enough to prevent British competition. Great Britain will have to pay greater attention to this market if she would hold it. Not only are the Americans underselling her in lead, but also in pig iron. Representatives of British firms have been through Ontario lately, and with few exceptions they have not booked a single order. Although their prices are low, American pig iron men can go lower.—*Toronto Hardware*.

THE new "Kew Bulletin" contains an interesting section on the properties and uses of the Jarrah wood, a species of eucalyptus, native of Western Australia. The main difficulties in connection with its use in this country are the cost of freight for such heavy timber from Australia, and its intense hardness, which makes it difficult for ordinary English carpenters' tools to work it. The tree which produces it grows generally to a height of 100 feet, and sometimes 150 feet. It is found only in Western Australia, extending over the greater portion of the country from the Moore River to King George's Sound, forming mainly the forests of these tracts. According to Baron Muelder, when selected from hilly localities, cut while the sap is least active, and subsequently carefully dried, it proves impervious to the boring of insects. Vessels constructed solely of it have, after twenty-five years' constant service, remained perfectly sound, although not coppered. It has been tried at three places in the Suez Canal, and, after having been down seven years, the trial samples were taken up, in order that a report on their condition might be sent to Paris. From certain correspondence between Kew and some London vestries, it appears that jarrah has lately been used by the Chelsea vestry for paving the King's Road, and by the Lambeth vestry in the Westminster Bridge Road.—*Engineering*, London.

## 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. Subscription \$1.

THERE are forty-one saw mills now built or under construction in British Columbia.

THE centre Simcoe Fanners' Milling Company will erect a roller grist mill at Philpston, Ont.

MR. A. B. WHITE, of Pilot Mound, Man., will erect a flour mill with two run of stones and one set of rollers at Holmfield, Man.

THE chicory factory of Count de Roffignac at Whitewood, N.W.T., was destroyed by fire March 21st. The works will be reconstructed immediately.

THE moulding shop of the stove foundry of Messrs. A. Robb & Sons, Amherst, N.S., was damaged by fire to the extent of about \$7,000 on March 27th.

THE Galt Axle Works, for some time in the hands of Messrs. Fraser and R. Scott, have been sold to Mr. J. G. Scott, a competent, practical man.

MR. H. DE SORAS, who resides near Whitewood, N.W.T., is negotiating with parties in France for the establishment of a woollen factory at or near Whitewood.

THE British Columbia Robunte Explosive Company has been organized at Victoria, B.C., with a capital stock of \$50,000 to manufacture robunte and other explosives.

MR. DAVID PRITCHARD and associates at Carmen, Man., are organising the Carmen Farmers' Elevator Company with a capital stock of \$10,000, and will build a grain elevator.

THE extensive saw mill, planing mill, foundry and agricultural implement works of Messrs. C. Russ, Son & Co. at Beamsville, Ont., were destroyed by fire March 27th. Loss, about \$25,000.

THE National Cash Register Company of Dayton, Ohio, purpose establishing a plant for the manufacture of their cash registers in Canada, their object being to secure the full benefits of their patented rights in this country.

THE Calvin Company, Kingston, Ont., are building a barge for the lake trade of the following dimensions: length, 200 feet; breadth of beam, 37 feet; depth of hold, 16 feet. It will have a capacity to carry 1,650 tons of freight through the Welland canal.

THE Albion Iron Works' Company of Victoria, B.C., will erect and equip suitable shops at Esquimalt, B.C., in the immediate vicinity of the dry dock there—the better to enable them to carry on that branch of their business calling for repairs to vessels in the dock.

MESSRS. F. W. WHEELER & Co., West Bay City, Mich., have just finished the construction of a large car ferry steamer for the Canadian Pacific Railway Company, and are endeavoring to get a contract from that company to build two steel passenger steamers which they will have constructed.

MESSRS. GOLDIE & McCULLOCH have added another branch to their already large line of manufactures, viz., that of wood split pulleys. They are, we believe, the only manufacturers of these pulleys in Canada. The new addition to their works now in progress is intended for this branch of their business.—*Galt, Ont., Reformer*.

THE new bottling machinery of the Wilmot Spa Spring Co. was put into operation last Tuesday. The company are now turning out about thirty barrels of ginger ale per day. Some idea of the extent of the business can be gathered from the fact that for the first month's orders over \$1,000 worth of corks will be needed.—*Kentville Star*.

WHAT is said to be the largest isolated incandescent electric light installation in Canada is that recently placed in the Government printing bureau at Ottawa by Messrs. Ahearn & Soper, electricians of that city. There are 1,100 lamps in the building. The power for this plant is supplied by a 150 horse power engine built by the Polson Iron Works' Company, of Toronto.

The G. & J. Brown Manufacturing Company, of Belleville, Ont., were the contractors for the superstructure of the new Bay of Quinte bridge, connecting Belleville with Prince Edward county, which was opened for traffic last week. This bridge is of steel, 1,900 feet long, the northern approach being 800 feet long. About two years was occupied in its construction, and its cost was \$105,000.

ZINC, placed upon the fire in a stove or grate, operates as an effective extinguisher of chimney fires. When a fire starts inside a chimney, from whatever cause, a piece of thin sheet zinc, about four inches square, should be put into the stove or grate connecting with the chimney. The zinc fuses and liberates acidulous flames, which, passing up the flue, are said to almost instantly put out whatever fire there may be.

THE Stillwater, Minnesota, correspondent of the St. Paul *Pioneer Press* says: "For some time past Captain Young and Hugh Hall have been at work securing patents on the self-threading sewing machine needle invented by Mrs. Hall, and have had experts of note with good results making the needle at Paris, Ont. Capitalists are interesting themselves to have the factory established here, and from present appearances it looks as if it will be a success."

THE election excitement had a paralyzing effect upon all kinds of business and manufacturers were in a state of great uncertainty for a time. Confidence is restored, and trade is picking up. The iron industries of Galt, Ont., have shown a marked improvement during the past week. Already orders are beginning to come in in gratifying numbers. Goldie & McCulloch's works are getting busy again on engines, for which they are justly famous.

It is announced that the Dominion Government have reiterated their intention of abandoning the present Beuharnois canal, and propose constructing a new canal on the north shore of the St. Lawrence at Coteau. The canal will be 14 miles long with six locks. The course is almost a direct line, with a single easy curve on the last five miles at the eastern end. It is designed to give fourteen feet depth of free navigation, will be 100 feet wide at the bottom, the locks being 170 by 45 feet.

W. L. TAIT, of Winnipeg, paid a visit to this city about two months ago, and was so favorably impressed with Vancouver that he returned with his family a few days ago, and is now erecting a shingle mill on the other side of False Creek, just at the end of Granville street bridge. The mill will not be a very large one at present. It will have a daily capacity of from 35,000 to 40,000. Most of the machinery has arrived. The engine is of 65 horse-power, and the boilers will be about 100 horse power.—Vancouver, B. C., *News*.

THE Grand Trunk Railway Company are preparing to build a rolling mill and forge works at Point St. Charles, near Montreal, at a cost of about \$50,000, the intention being to have the establishment in operation by the ensuing fall. It is proposed to manufacture all the bar iron necessary for the various purposes in the construction of cars, and also car axles. In this way the company will utilize their scrap iron. The buildings will be 200 feet long by 75 feet wide, and the works will be equipped with a 12 inch mill and several power hammers.

ANDREW McLAUGHLIN, manager of the Canadian Pacific Lumber Company, has returned to his home at New Westminster, from the East, where he successfully floated the stock of the company. A mill will be built this summer. A portable saw mill is now on the way. The company has large timber limits, and logging camps will be established immediately. The exact site of the mill has not been selected, but will either be at Liverpool or Sapperton. It will be one of the largest mills and most extensive employers of labor on the coast.—Vancouver, B.C., *Telegram*.

SINCE the middle of February the Grand Trunk shops at Point St. Charles, Que., have been turning out engines at the rate of one a week. In the next six months fifteen more new engines will be built there. The Canadian Locomotive and Engine Company shops at Kingston have an order for ten, which will be turned out at the rate of one a week. By next October the shops at Point St. Charles will build ten new cars, such as are run on the elevated railway in New York, and a special engine for the new belt line at Toronto. The G. T. R. is also commencing to build box freight cars having a capacity of 60,000 pounds.

THE Kerr Engine Company, limited, are in full working order. Last week they finished and shipped an engine for the Collingwood waterworks, capable of pumping a million and a half gallons of water. They also shipped this week an engine for Haines & Fader, of South Woodslee, which had been under repairs. On Wednesday they shipped repairs for the steamer "United Empire," of the North West Transport Company, are now fitting up a

compound engine for the steamer "Africa," of the Thompson Company, and are hard at work on the erection of machinery for waterworks at Niagara.—Walkerville, Ont., *Mercury*.

THE advantages of new and improved machinery are not appreciated by many of our woolen manufacturers who cling to old methods, as it were, on principle. The proprietor of an Ontario woolen mill, which has made much progress of recent years in the style and quality of goods he produces, told a representative of this journal that in the last three years he had doubled the capacity of his mill, without increasing the number of his hands, and while he had doubled his producing capacity he had greatly improved the quality of his goods. All this had been accomplished by introducing new and improved machinery. Our manufacturers should more fully understand that the best machinery is of more importance in a country like Canada than in European manufacturing centres, because the item of labor which these machines so largely substitute is a far more serious item here than in England, France or Germany.—*Journal of Fabrics*.

MESSRS PARKE, DAVIS & COMPANY, manufacturing druggists of this town, have been exceptionally busy during the past week. Large shipments of their goods have been made from Charlottetown, in Prince Edward Island, on the Gulf of St. Lawrence, on the east, to Victoria, B.C., on the Pacific, on the west. Their Canadian business is extending not only in the immediate vicinity of the County of Essex, but throughout the Dominion, as is shown by the following places to which shipments has been made recently, besides those mentioned above: St. Johns, N.B., Port Arthur, Ottawa, Winnipeg, St. Roche, Quebec, Hamilton and Port Hope. This firm is now fully equipped with fire protection; in every department there has been placed a vault attached to which is hose and nozzle from twenty to forty feet long, according to requirements, at a moment's notice, and connected with the splendid system of water works, which is one of the things which Walkerville may well be proud of.—Walkerville, Ont., *Mercury*.

MESSRS BRUSH & Co., of Toronto, have introduced a new American idea, which is not only applicable to ladies' wear, but to the upholstery, furniture and carriage-making trades. This is a new principle in a wire spring, by which a twist is given to the wire in the formation of the spring, immensely increasing its elasticity and durability. Springs made on this plan are called the torsional braided wire springs, and some remarkable tests have been applied to prove their strength. Mattresses have been pressed quite flat by machinery 60,000 times in quick succession—equivalent to many years wear—without showing any apparent weakness. As a mattress the torsional braid system enables an upholsterer to dispense with a great deal of hair or other padding, while it affords a cushion of air in the mattress, which is a vast gain to the user from a hygienic point of view. The saving in hair, the increased durability and lightness, and improved hygienic qualities, are not the only advantages of the torsional spring, about which we hope to speak further in a future issue. Meantime, the subject is well worthy the attention of all who use wire springs for upholstery or other purposes.

It is in contemplation to manufacture Martini-Henry ammunition at the Government cartridge factory at Quebec. Major Prevost, superintendent of the factory, in a report to the department, says very little is required in the matter of machinery to enable the factory to manufacture Martini-Henry ammunition. Most of the

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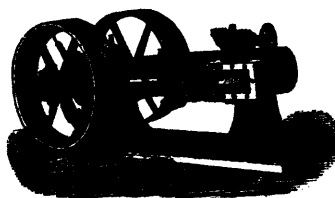
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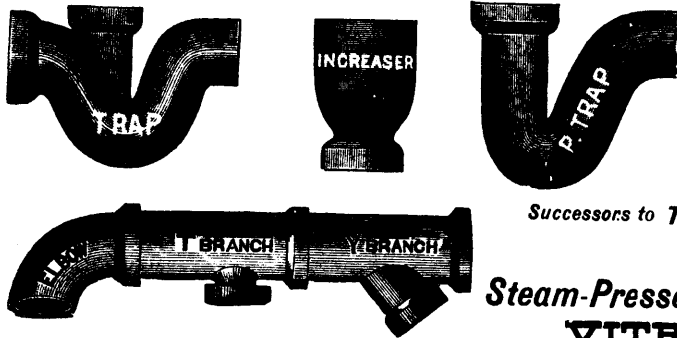
Excellent facilities for prompt shipment.

component parts of the cartridge can be made with the present plant, and a few additions at a trifling cost are all that is wanted to meet a demand actually existing in this country, and which is sufficiently important to make it worth while adding to the yearly output of this establishment, with a view of reducing as much as possible the general expenses, which must of necessity fall heavily on a limited production. Major Prevost's suggestion bears on a point quite distinct from any question of re-arming of the militia with Martini-Henry rifles, which may or may not be contemplated. His proposal is merely to supply a demand which can be met by manufacturing at Quebec what until now has been imported. He says if made in Canada it can be sold to the rifle associations at a cheaper rate than the imported ammunition now costs.

THE British Columbia Iron Works at Vancouver, B.C., are turning out some heavy but exceedingly well-finished castings. A few days ago they turned out a 1500-pounds cable grip wheel of a

new design invented by Mr. Kendall of New Westminster. In describing it the Vancouver *Telegram* says:—"It has on the outer edge a series of pockets for the cable and between each of these are grooves for the grip arms which are socketed in the centre. The wheel is intended more particularly for handling logs both at the camp and the mill, and will also be adaptable to replace the jack ladder in the conveyance of mill refuse. With it the cable is always held secure, thus preventing any possibility of accident from a slip. Mr. Kendall has studied the matter thoroughly and has perfected the leverage system that will be used far beyond the conjecture point. This is the first casting of the kind ever made in this Province, and was, therefore, something of the nature of an experiment. The result fully establishes the company's ability to handle work of this magnitude and of this character, where skill and care are required. Mr. Kendall intends introducing his invention throughout the Province, and, as it is just the thing that lumber men have been looking for, it will, no doubt, find a large sale."

A. E. CARPENTER, Pres. J. H. NEW, Vice-Pres. HENRY NEW, Sec.-Treas.



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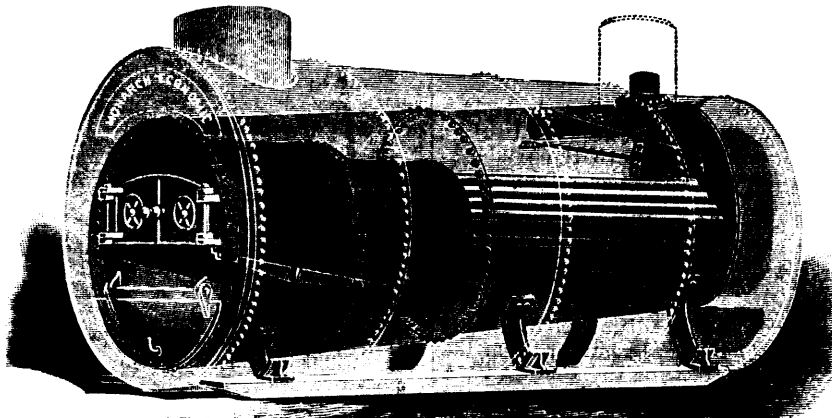
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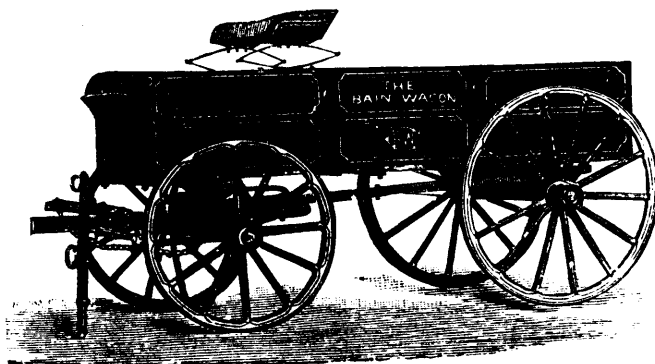
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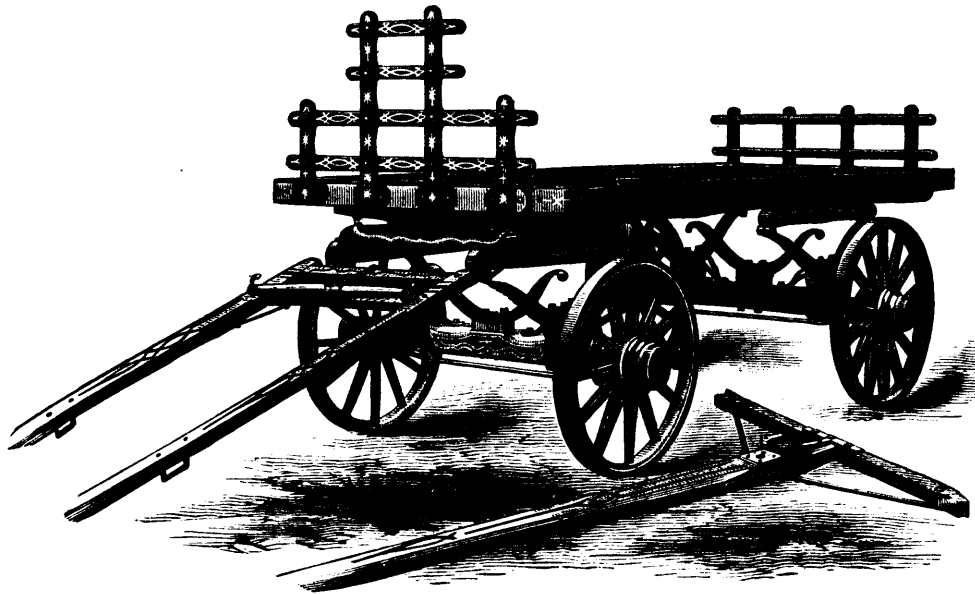
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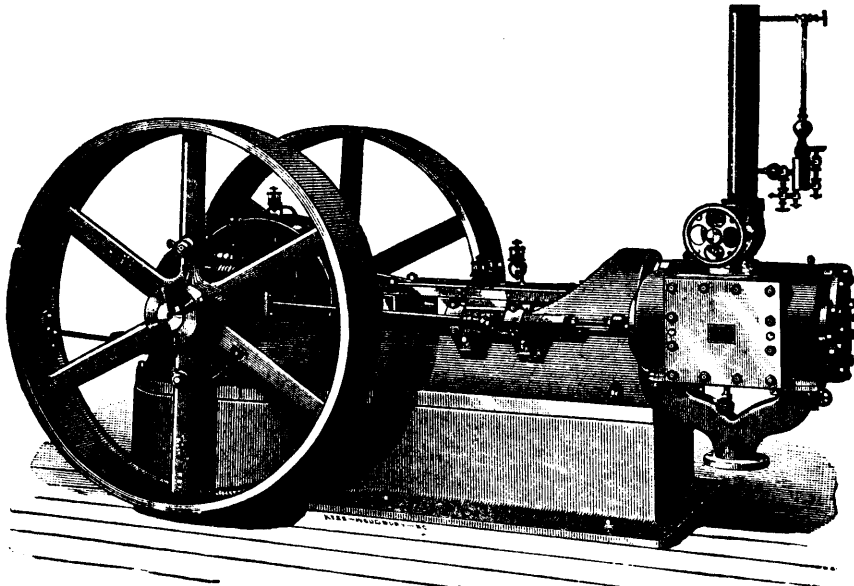
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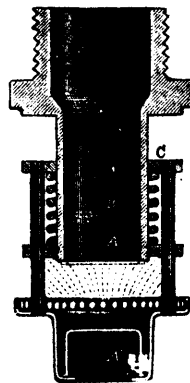
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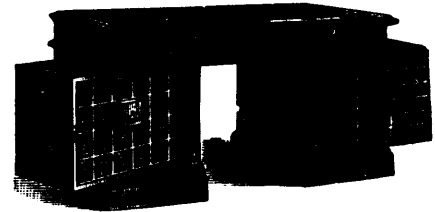
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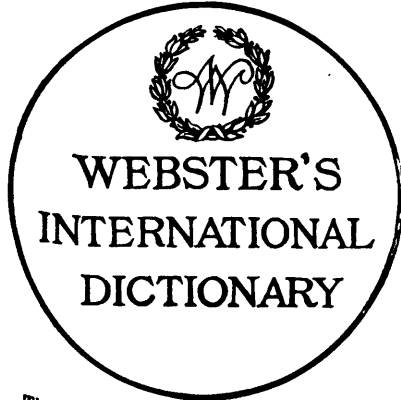
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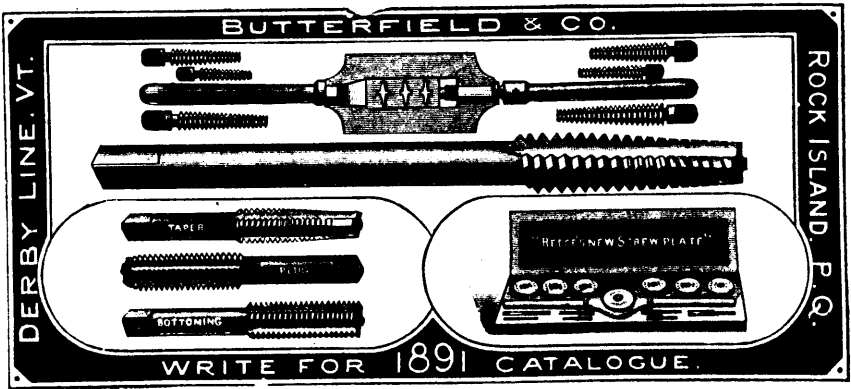
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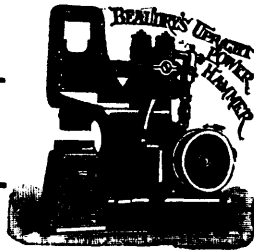
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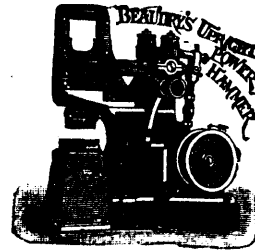




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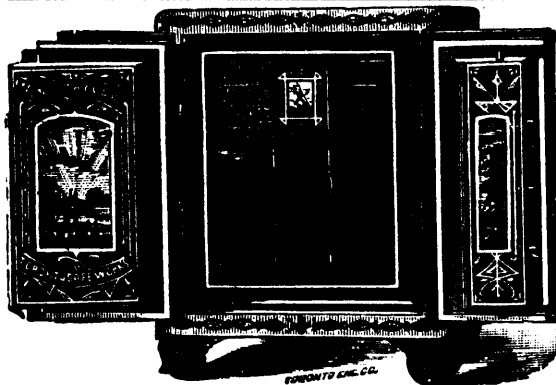


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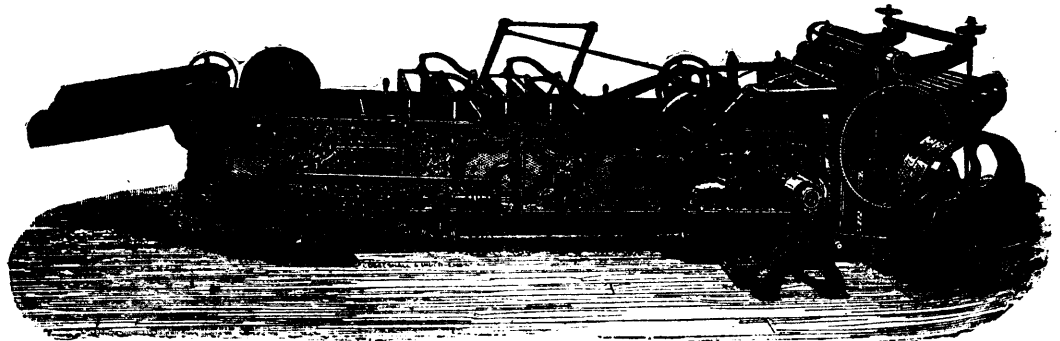
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*Best Belt Surface, Lightest, Strongest, Best Balanced, and Most Convenient Pulley in the World.*

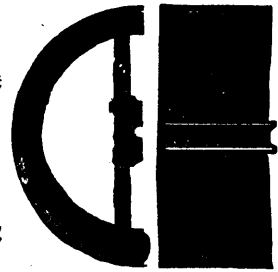
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*The hole in every pulley can be readily bushed to fit any sized shaft. Bushings furnished with each pulley. Guaranteed to give from*

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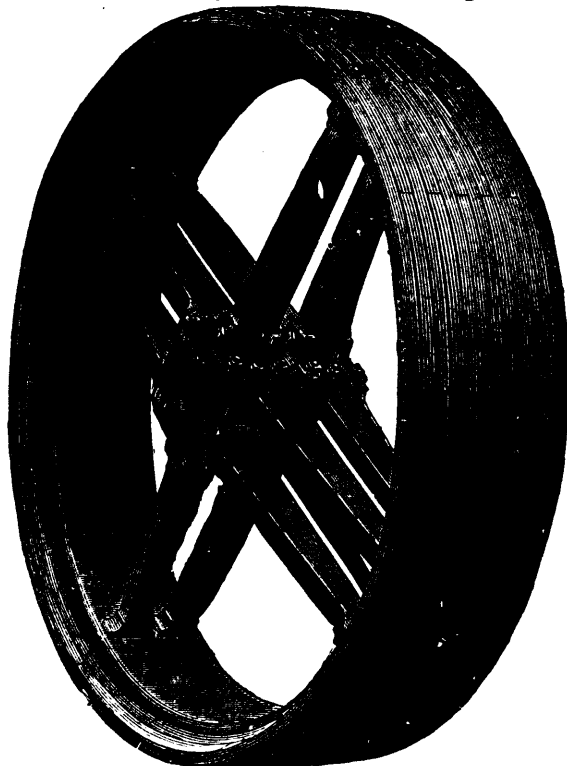
**EVERY PULLEY WARRANTED.**



*We will furnish a Pulley for any service for 30 days free of charge, if it does not meet the warranty. Prices as low as any other good Pulley. Send for Catalogue, Price List & Guarantee*

## 70 PER CENT. LIGHTER THAN CAST IRON

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



### READ THE FOLLOWING :

Messrs. LEITCH & TURNBULL, Machinists, Hamilton, Ont., in their latest Catalogue, say :

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To THE DODGE WOOD SPLIT PULLEY CO., ADELAIDE STREET, City.

Toronto, Dec. 6th, 1886.

DEAR SIRs,—In reply to your favor asking how we like your split pulley, we would say : We are very much pleased with them. We are using about seventy of them, from 25 in. face by 48 in. diam. down to 9 in. diam., every one of which is giving satisfaction. We don't have to take down our shafting to change a pulley or put on a new one. We are not troubled with set-screws breaking or slipping ; for these and various other reasons we prefer your pulley to any other we know of.

Yours truly,

FIRSTBROOK BROS.  
Toronto Packing Case Factory and Planing Mill.

To THE DODGE WOOD SPLIT PULLEY CO., 81 ADELAIDE STREET W., CITY.

Toronto, Dec. 6th, 1886.

GENTS,—The Wood Split Pulleys we purchased from you have given perfect satisfaction. We have much pleasure in stating that we have found them to be everything you claim for them, and much superior to the old kind.

We remain, yours truly,

MCDONALD, KEMP & CO.

To DODGE WOOD SPLIT PULLEY CO., TORONTO.

Dec. 10th 1886.

GENTLEMEN,—We have given the Wood Split Pulley a thorough test in our works, and we are well pleased with their working, and can recommend them to our customers and others requiring pulleys.

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JOHN DOTY ENGINE CO.

F. W. Doty.

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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 cost fr. m \$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.

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# THE DODGE WOOD SPLIT PULLEY CO., TORONTO.

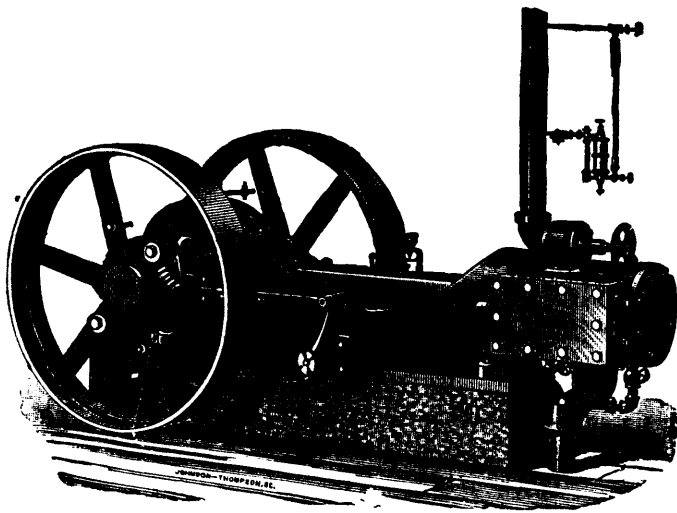
FACTORY.—  
West Toronto Junction.

GENERAL OFFICES.—  
83 King Street West, City.

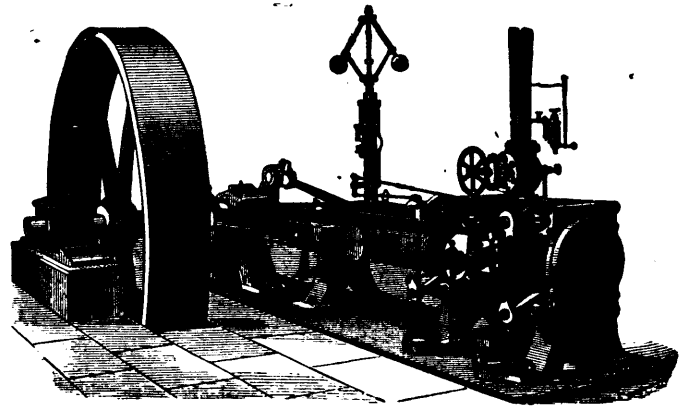
**TAKE NOTICE.**—Our List of Prices for the Dodge Patent Wood Split Pulleys is for all Split Pulleys.

We beg you will note this fact when comparing our List with others which are for Solid Rim, and not for Pulleys in halves.

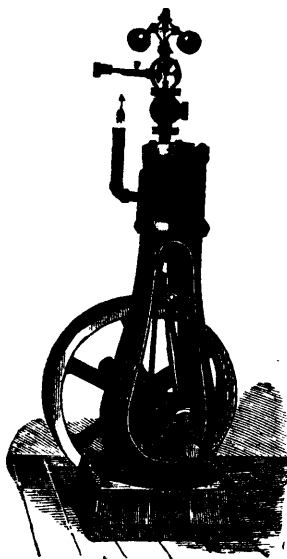




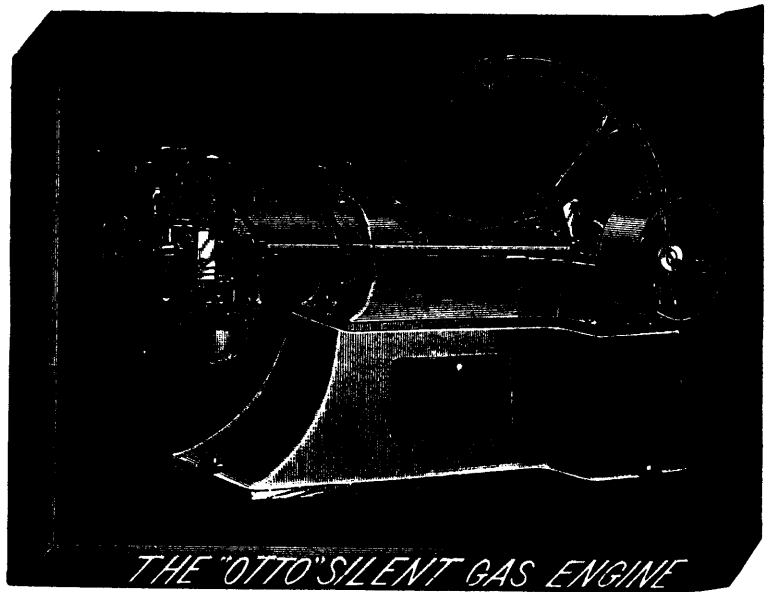
Armington & Sims Electric Light Engines.



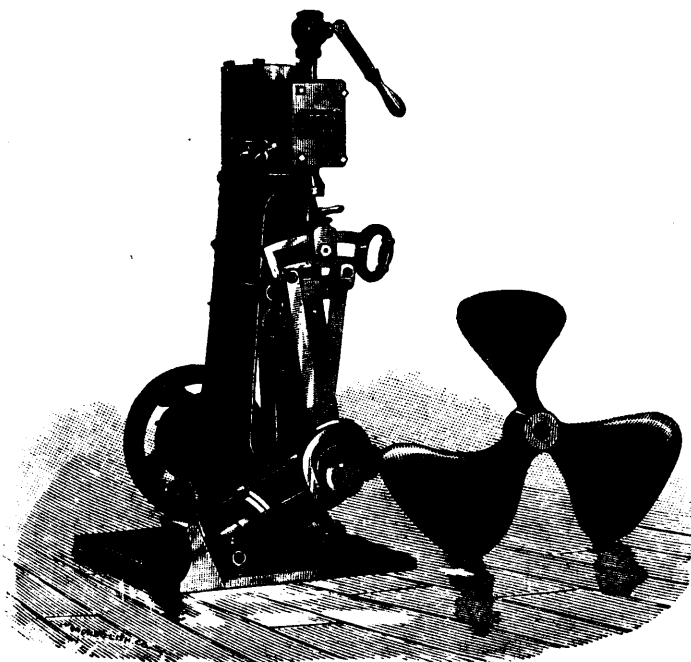
Reynolds-Corliss Engine.



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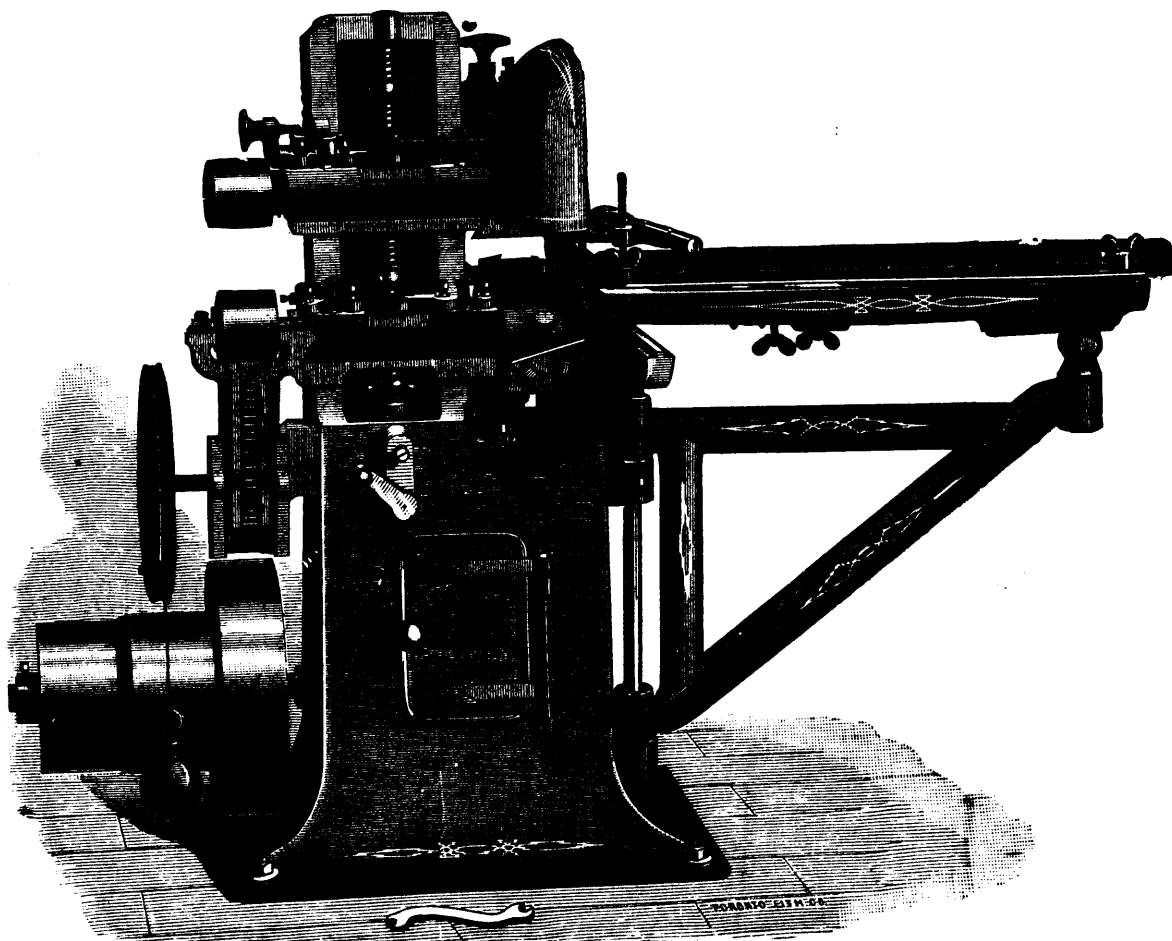
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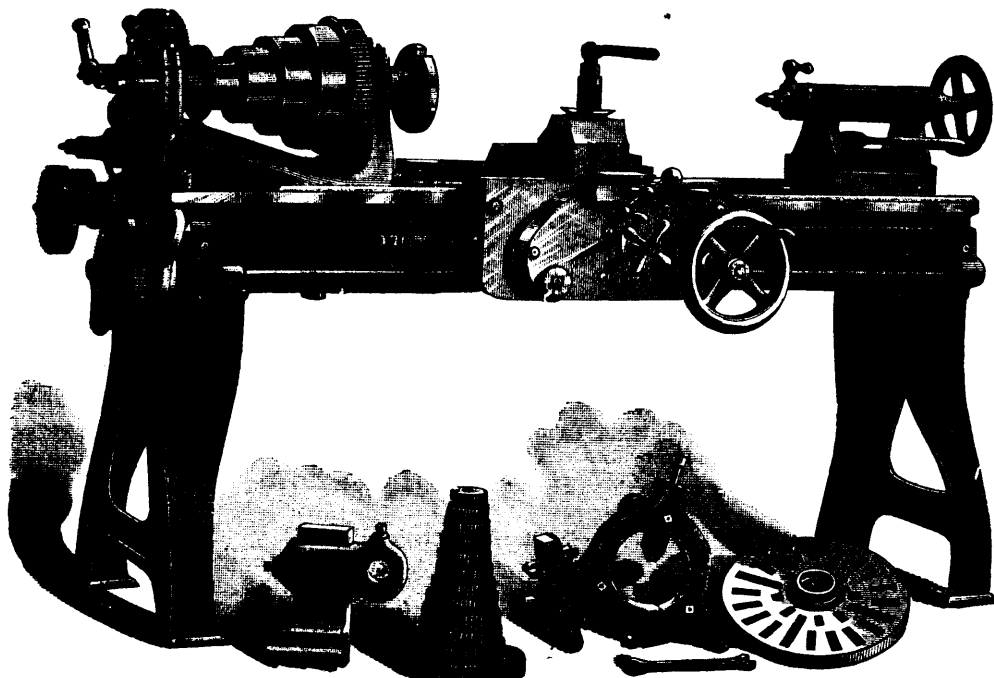
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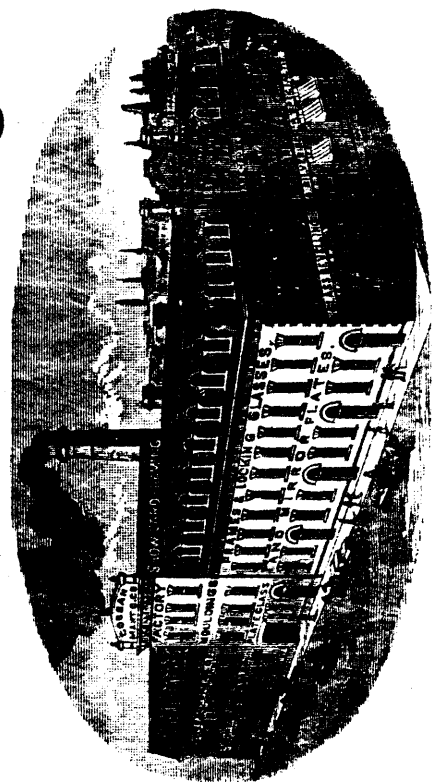
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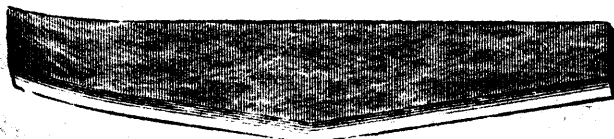
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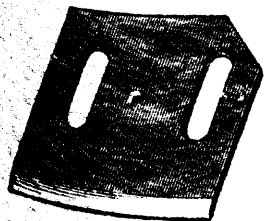
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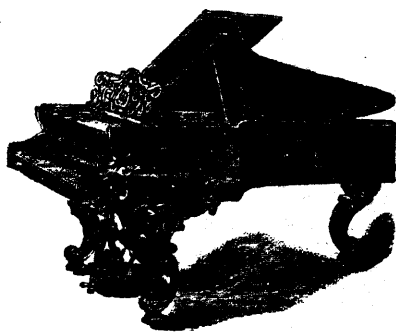
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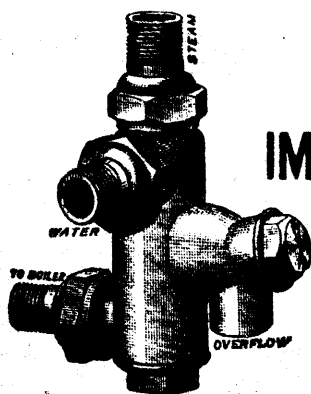
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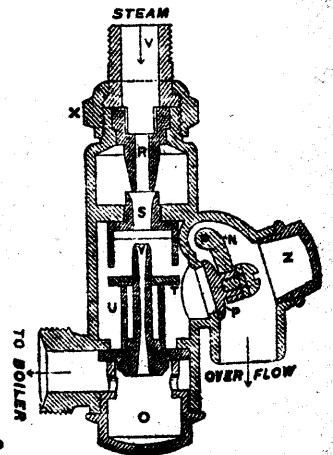
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