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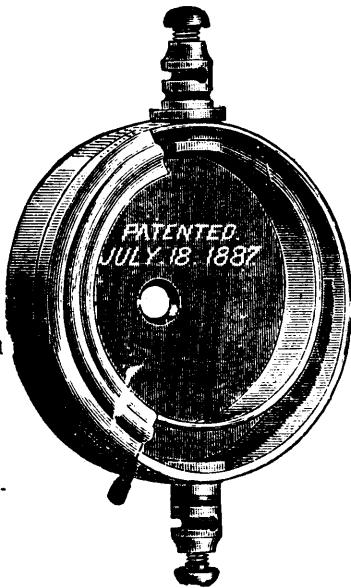
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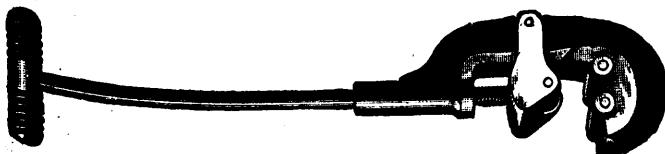


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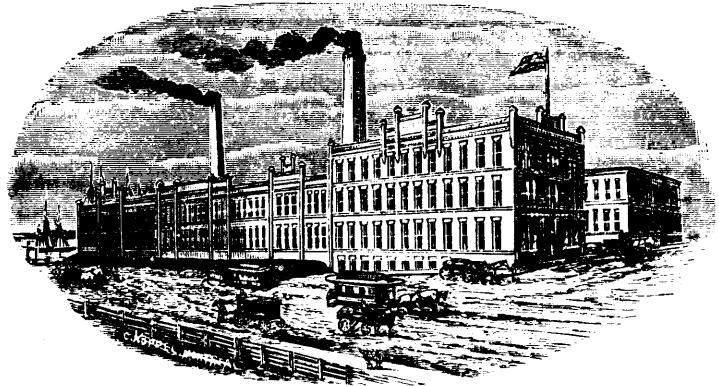
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PROSPERITY OF CANADA.

AN "Inquirer" asks the Toronto *Globe* to reconcile the statement made by the Governor-General at the opening of Parliament that Canada was in a state of continued "progress and prosperity" with that of Mr. Goldwin Smith, who, as president of the Combined Charities of Toronto, urged the appointment of an authorized labor bureau because of the increase of pauperism in this city. The *Globe* sets forth the fact that "the growth of population and wealth in Toronto is continually referred to as an evidence of the wisdom of the fiscal policy by which the country is now governed," and that "if that policy has failed here it has failed everywhere"—that "there is strong evidence that it has failed, not only in Toronto, but all over Ontario." That this so called "failure" affects the farmer most disastrously, Professor Dale, of the University of Toronto, is quoted as authority for the statement that "in one of the best townships of the West a farm of 173 acres, valued in 1883 at \$12,000, was sold recently for \$7,300; another of 143 acres, valued at \$11,000, was sold for \$8,000, and another of 100 acres, valued at \$6,000, was sold for \$4,000."

No sane man will dispute the fact of there being a large number of poor people in Toronto, a city of two hundred thousand inhabitants; or in Canada either; but that this poverty is the result of Canada's fiscal policy is a ridiculously silly argument. Poverty exists wherever human beings exist; and there is Divine authority for the statement that this condition shall always exist. It is a fact, however, that the greatest degrees of poverty and wretchedness are always to be found in Free Trade countries, the term being used in its broadest sense. As far as Toronto is concerned, being a large city, thousands of floating population are attracted to it, a large number coming here for the purpose of obtaining food and clothing and shelter during the winter season, without any

idea of even attempting to render any *quid pro quo* therefor. The *Globe* knows this to be a fact, and so does Mr. Goldwin Smith; and they also know that this condition is no more affected by our fiscal policy than it is by the man in the moon. It is true that Toronto possesses many important manufacturing industries, but the capital invested in them is a mere bagatelle compared with the capital invested in mercantile business; and it is also true that, while there may be, and is, considerable uneasiness in mercantile circles regarding finances, there are no despairing cries coming up from the manufacturers. Thousands of tramps from all over the country gravitate to Toronto to enjoy the hospitality of Mr. Goldwin Smith's "Combined Charities," and forthwith the *Globe* attributes it to "the fiscal policy by which the country is governed."

The *Globe* calls in Professor Dale to testify as to the depreciation of farm property under the N.P., and that gentleman shows that certain farms "in the West" are not worth as much now as they were a few years ago. Mr. Dale does not give the immediate cause of this depreciation, but the *Globe* of course attributes it to "the fiscal policy by which the country is governed." In the Jan. 17 issue of this journal we showed that a certain landed property in England for which £75,000 was offered and refused fifteen years ago, and which has since been enriched by improvements costing £20,000, after having been on the market for a considerable period had, under a forced sale by mortgages, been sold for £38,000. This was the Morton manor estate, lying within three miles of the city of Taunton in the west of England. Is this woful depreciation of English farming land to be attributed to "the fiscal policy by which that country is governed"? It is quite as fair thus to attribute it as it is for the *Globe* to charge the depreciation of Ontario farming land to a similar cause.

As we have stated, no one will deny the fact of the existence of thousands of destitute people in Toronto. The *Globe* attributes this to "Protection"; but we direct the attention of the *Globe* to the far greater and more widely-spread destitution in Free Trade Britain. According to Free Trade ethics and arguments Britain should be the most prosperous nation under the sun—a land flowing with milk and honey and fatness;—and there should be no sorrow or poverty there; but, as the *London Times*, suggestively expresses it, "there is a screw loose." That paper alluding to the destitution in that city says: "Take the case of the hundreds of thousands of poor work-women. Out of the trifling sum of 4s per week they have to provide food for their children. Were it not for charity and other means—best not too minutely described—deaths would be even more frequent than they are amongst these destitute people." It may be admitted that farming in Canada is not in as prosperous a condition as might be hoped for; but farming is less profitable in Free Trade England, where land is being thrown out of cultivation at the rate of 100,000 acres a year.

As long as our manufacturing industries are in active operation, just so long, and to the extent of the farm products required for the support of the operatives employed in these industries, will our farmers prosper, finding the home market the most remunerative. Those products which cannot be consumed at home must be thrown on some general market for sale, and that market is Britain; and the inability of our

farmers to realize higher prices for their products is due to the competition of other countries which produce similar articles, and the wonderful facilities of transportation now at the command of all the world to compete with all other nations in the English market in the sale of farm products. What the Canadian farmer wants, and what he must have if he hopes for greater prosperity, is a larger home consumption; and the only way he can hope to see this home market enlarged is by a large increase of consumers engaged in manufacturing pursuits. Under Free Trade in Canada there would be a suppression of manufacturing industries and a corresponding diminution of home consumers of farm products; and under such circumstances Canadian farmers would have to depend upon the English market for the sale of their products, where their competitors would be the grain growers of the United States, India, Russia, Bulgaria and other countries, the pressure to sell always exerting a downward pressure for prices.

BRITISH EXPORTS UNDER PROTECTION AND FREE TRADE.

At a recent Fair Trade meeting in England, in an argument showing that Protection does not restrict exports, the progress of exports under Protection in Germany was evidenced by the fact that during the period from 1875 to 1886

Exports of Silk increased.....	884 per cent.
“ Woolens	296 “
“ Cottons	302 “
“ Machinery	260 “
“ Paper	322 “
“ Spirits	258 “
“ Beer	466 “

In pig-iron there was a net import of 284,000 tons, which had been reversed to a net export of 858,000 tons; and in sugar there was a net import of 1,247 tons, which had been reversed to a net export of 565,103 tons.

The speaker, Mr. Pettifer, exhibited the following table showing the progress of the foreign commerce of the principal foreign countries as compared with that of the United Kingdom during the quinquennial years from 1872 to 1887; the explanation being given that 1872 was the first year for which German statistics were available, and 1887 the latest for which foreign returns were to be had:

TOTAL IMPORTS AND EXPORTS.

	IN MILLIONS.				INCREASE DECREASE
	1872	1877	1882	1887	
	£	£	£	£	£
Russia, Norway, Sweden and Denmark.....		151	189	168	17 Increase.
German Empire and Holland.....	480	536	631	638	158 “
France and Belgium.....	499	532	645	592	93 “
Italy, Spain and Portugal.....	153	144	180	186	33 “
United States of America.....	222	219	306	293	71 “
United Kingdom.....	669	646	719	643	26 Decrease.

Thus, from the first to the last years of this period the percentages of progress were as follows:—

German Empire and Holland.....	32.92 per cent. Increase.
United States of America.....	32 “ “
Italy, Spain and Portugal.....	21.60 “ “
France and Belgium.....	18.64 “ “
Russia, Norway, Sweden and Denmark.....	11.27 “ “
United Kingdom.....	3.88 “ Decrease.

Mr. Pettifer, speaking of the accumulation of wealth in different countries, quoted from Mulhall's "Progress of the World," as follows:—

United States.....	£165 millions per annum.
France	75 “ “
United Kingdom.....	65 “ “
Germany	40 “ “
Other Countries	145 “ “

In combatting the Free Trade argument that imports are paid for by exports; or that "goods are paid for by goods," the experience of the United Kingdom for the last twenty-five years was shown to be the other way, as follows:—The aggregate value of imports from 1864 to 1888, both years included, was £8,820,000,000; while the aggregate value of exports during the same period amounted to but £6,709,000,000, an excess of imports over exports of £2,111,000,000.

The explanation of this difference, says *Fair Trade*, lies in the assumption that the excess is paid for by British earnings, as carriers and as foreign investors. It says: "Free Traders ask then, 'Do Fair Traders object to the receipt of these other profits?' The answer is, 'Certainly not'; but they do object to receive them in the form of commodities which injure and displace our own producing powers. They would prefer such payments to be made in the form of raw materials for industry, which would promote labor, and as little as possible in competing products."

The present trade experience of Free Trade Britain with foreign countries during 1888 was as follows:—

	IN MILLIONS.		
	IMPORTS FROM	EXPORTS TO	EXCESS IMPORTS OVER EXPORTS (OF GOODS).
	£	£	£
With Russia.....	26.3	7.6	18,700,000
“ Sweden, Norway and Denmark.....	25.1	7.8	17,300,000
“ Germany and Holland.....	52.8	42.2	10,600,000
“ France and Belgium.....	54.4	37.0	17,400,000
“ United States of America.....	79.8	41.2	38,600,000
“ Rest of Foreign Countries.....	62.3	62.8
“ Northern Whale Fisheries.....	7.8
“ Total of Foreign Countries.....	300.7	206.4	94,300,000
“ British Possessions.....	86.9	91.4	4,500,000
Total with the World.....	387.6	297.8	89,800,000

One item of this statement shows that the British Possessions are customers for British goods to a greater extent than what Britain buys from them; and this is one of the arguments British Fair Trade advocates advance for the adoption of a policy that will divert the British external food custom from foreign countries to British Possessions.

AS TO PIG IRON.

THE Montreal *Herald* recently stated that it knew of a manufacturing establishment in Canada, that was forced to import Scotch and Swedish pig iron, of which to make "the higher grades of steel" because, under Protection, no works had been established in Canada for the manufacture of such high grade pig iron. When requested to give the name of the manufacturing establishment it alluded to, the *Herald* named the Nova Scotia Steel and Forge Company, of New Glasgow, N.S. This concern possess the only steel works in Canada;

and they are manufacturers of hammered and rolled steel, made by the Siemens-Martin, or open hearth process. The specialties included in their products embrace round shapes for shafting, spindles, etc., mild steel for rivets, bolts, thresher teeth, etc.; plow beams; plow mould boards; harrow discs; steel cut to pattern used in the manufacture of agricultural machinery; tyre bars; nail plate etc.; but none of the "higher grades of steel," such as is used in the manufacture of fine cutlery, surgical and mathematical instruments, watch springs, etc. Without doubt some of the specialties manufactured by this company are of "higher grades" than other specialties included in their products; but the *Herald* shows great ignorance of technical terms used in speaking of different qualities of steel; or, as is more likely to be the fact, it seeks to deceive its readers when it uses the term in connection with the question under consideration. Therefore while it may be true that the Nova Scotia Steel and Forge Company do actually use imported pig iron in the manufacture of some of their products, it is not because as high grade pig iron as the foreign cannot be made in Canada; but for other reasons.

The Londonderry Iron Company make a first-class quality of pig iron, and could, if they desired to do so, manufacture just the very description of iron required by the Nova Scotia Steel and Forge Company for any character of steel they produce; but they do not find it to their advantage to run their furnaces on hematite iron for steel making, but rather on foundry irons. If they choose to do this we cannot see why the *Herald* should object—certainly the Nova Scotia Company do not. But this fact shows the necessity for the establishment of other furnaces in Canada than those of the Londonderry Company. It is a fact that there are exhaustless beds of hematite ores in Canada; and it is also a fact that in such practice as prevails at the Londonderry furnaces, steel making iron can be obtained from them. Owing to the geographical position of the New Glasgow Steel Works it is found advantageous to import Scotch pig, where the entire carriage is by water, rather than use any other iron involving more expensive transportation. Without doubt, however, if there were blast furnaces established in Ontario for the reduction of the rich hematite ores of this province, the product of them would be utilized in the New Glasgow Steel Works; and it would also be most probable that steel works would spring into existence in their vicinity.

What the *Herald*, and what all loyal Canadians should wish for, is the early approach of the time when Canada will be able to manufacture all the pig iron required in all the industries of the country; but this can never be except under the benign influences of a protective tariff; and by this we mean protection that protects, not like that which now exists, but which should be at least fifty per cent. higher than it now is.

The present position in the United States, as regards the iron industries there, gives rise to two important considerations. The first is that notwithstanding the American duty of \$17 per ton on steel rails, the price of this article is practically the same in New York and London. If, according to the Free Trade doctrine, the duty enhances the cost of the article to the consumer to the exact amount of the duty; then steel rails should be \$17 per ton higher in New York than in London. The facts are otherwise. Again, what would be the present

condition of the United States, were that country at this time depending on foreign countries for its supply of iron? The production of pig iron in Great Britain last year amounted to about 8,300,000 tons, while the production in the United States amounted to 7,600,000 tons—a difference of only 700,000 tons. If the requirements of the United States were added to that of Great Britain it is plainly to be seen that, the latter country being unable to supply this American demand, there would have been a necessary stoppage of about half the iron using establishments in both countries, because of the failure of the supply to meet the demand; while at the same time the price of pig iron would have advanced so much that all classes of the community would have been seriously incumbered thereby. As it is, owing to a judicious system of protection in the United States, that country is now able to produce almost all the iron required, and the consumers of it there are able to obtain it at about as low a price as any other consumers in the world.

BRITISH FREE TRADE TAXATION.

MR H. F. HIBBERT, who is mayor of the important manufacturing town of Chorley, near Manchester, England, and the leader of the Fair Trade Party in the Manchester Chamber of Commerce, in a letter to the *CANADIAN MANUFACTURER*, speaking of the methods by which taxes are raised in Britain, states that the entire revenue of the kingdom is derived from the Customs—the articles liable to duty being tea, coffee, cocoa, wines and spirits, tobacco and snuff, dried fruits, and a few other articles, none of which are produced or manufactured in that country; from the Excise—the duties of which are laid on spirits, malt, beer, licenses on dogs, carriages, armorial bearings, guns, men-servants, auctioneers and vendors of tobacco, wine and spirits; from the Railway Passengers Duty; from the Stamp Duty (for legal documents); from Land, Property and Income Tax; from Post office and Telegraph profits, and a few minor receipts of no special importance. In 1889, the revenue from these sources aggregated £89,802,254, which, in the population of 37,440,000 of that country, means a taxation of £2, 7s. 11d. per capita—a tax that affords protection to no trade or industry. On the other hand, Canada, with a population of 5,140,000, has a revenue of £7,663,874, which amounts, per capita, to only £1, 9s. 9d., nearly all of which is a protection to Canadian industries, and without which these industries would not have been born and could not live. A result of this terrible taxation in Britain is the emigration thence of the bone and sinew of the land at a greater rate, save from Ireland, than from any other country in Europe.

It may interest readers of this journal to know the amount of revenue collected in the United Kingdom during the fiscal year ending March 31, 1889. The amounts collected were as follows:

CUSTOMS.			
Tea	£ 4,629,901	Tobacco and Snuff.....	£8,857,781
Coffee	184,292	Dried Fruit.....	579,429
Spirits.....	4,296,634	Other Imports.....	179,800
Wine.....	1,210,537	Miscellaneous.....	31,817
Total.....		£19,971,191	

EXCISE.	
Spirits.....	£12,879,153
Beer.....	8,770,295
Licenses.....	3,505,625
Total.....	£25,474,403
STAMPS.	
Deeds, etc.....	£ 3,153,084
Probate.....	2,821,039
Legacies, etc.....	3,736,847
Life Insurances.....	45,228
Total.....	£12,240,954

The item "Probate" is exclusive of £1,410,520 which was credited to "Local Taxation Account."

These are interesting figures for Canadian tax-payers to study. The policy of Protection is to admit, free of duty, such articles of prime necessity as cannot, or probably will never be produced in the country, the exception being against articles of luxury that only the rich can afford to use. But, in Free Trade Britain, out of the nearly one hundred million dollars collected from Customs duties, over seventy-one millions are collected from duties on tea, coffee, tobacco and dried fruit—articles that the poor man must have; while the fancy wines that only the nobility, aristocrats and nabobs can drink, paid a duty of only six millions. In Britain, every man who buys a railroad ticket pays an excise tax to the Government; and over sixty millions of dollars was paid in Stamp duties, which means that every paper having any commercial value whatever was heavily taxed. These things are not so in Canada, nor can they ever be as long as our National Policy prevails. The average per capita tax in England for supporting the much vaunted Free Trade policy amounts to \$11.65, while the per capita tax in Canada, under Protection, amounts to only \$7.24.

THE IRON ORE SUPPLY.

The largest quantity of iron ore imported into the United States from any one country in 1889 was 225,525 tons, from the island of Cuba, the next largest quantity being from Spain; Canada furnishing 26,030 tons, of which 15,996 tons went from British Columbia. The importations from Spain fell off from 522,719 tons in 1887 to 190,460 tons in 1889; while those from Cuba increased from 28,209 tons in 1885 to 225,525, as above stated. In 1887 England supplied 72,546 tons, but in 1889 the quantity was reduced to 29,216 tons; while from the French Possessions in Africa the quantity decreased from 215,760 tons in 1887 to 78,137 tons in 1889. Last year Germany sent no iron ore to the United States, and several other countries that in past years shipped ore to that country have ceased entirely to do so, among these being Belgium, Scotland, Ireland, British Possessions in Africa, the Azores, Madeira and Cape Verde Islands, Russia, Turkey in Africa, United States of Colombia and Venezuela. In England, Belgium, Germany and France—countries of Europe that are celebrated for their productions of iron and steel—the native resources are insufficient to supply their demands for iron ore, and these are also large importers of the article. In 1877 the importation of iron into British ports amounted to about 1,150 tons, while in 1888 it was 3,500,000 tons, and in 1889 4,500,000 tons; while the home production averages from 14,000,000 to 15,000,000 tons a year. While the consumption of iron ore in the United States is increasing with wonderful rapidity, the production increases even more rap-

idly; and the time is not very far distant when that country will be virtually independent of the rest of the world for its supplies of iron ore. The consumption of iron ore in the United States was 11,300,000 tons in 1886; 12,500,000 tons in 1887; 12,650,000 tons in 1888, and about 15,000,000 in 1889. Included in this was 1,039,433 tons of imported foreign ore in 1886; 1,194,301 tons in 1887; 587,470 tons in 1888, and probably even less than the last named quantity in 1889. Hon. George H. Ely, of Cleveland Ohio, President of the Western Iron Ore Association, recently stated before the House Committee on Ways and Means, that the production of iron ore from the Gogebic district in Michigan had increased from 1,000 tons in 1884 to 1,800,000 tons during the first ten months of 1889; of the Minnesota district, from 62,000 tons to 800,000 tons during the same period; and that while in 1886 the total production of all American mines was 10,000,000 tons, the estimated production for 1889 was between 14,000,000 and 15,000,000 tons; "and," said the gentleman, "the duty of seventy-five cents a ton on iron ore has promoted the iron and steel interests of the United States in a remarkable degree."

On the other hand, according to the *Colliery Guardian*, the production of British ores, suitable for being treated by the basic process, is diminishing, the annual requirements of foreign ores suitable for the manufacture of Bessemer pig averaging about 4,000,000 tons. Discussing the sources of British and other European supply, the *Guardian* says:

In 1888, Italy sent 57,000 tons of ore; in 1880, it sent 176,000 tons, the highest figure ever reached. Great Britain provides itself with ore almost exclusively from Spain, from the celebrated district of Bilbao. Out of the 3,500,000 tons of ore imported in 1888, 3,200,000 tons were from this district. England draws also from Algeria a little more than 100,000 tons, from Greece 75,000 tons, and from Sweden 60,000 tons. England is not the only country obliged to import large quantities of ore. It follows from statistics that France imported in 1888 about 1,300,000 tons, of which more than 800,000 tons were from Germany and nearly 400,000 from Spain. Scarcely one third of this, however, represents ore for Bessemer pig, while in France the production of steel by the basic process has very largely developed. Germany, for the same reason, has also diminished its importation of special iron ores. It provides for its wants principally in Luxembourg, where ores abound suitable for the basic process, at the remarkably low price of 2.50 francs per ton at the pit's mouth. The importation for 1887 amounted to more than 1,000,000 tons. Belgium imported the same year 1,500,000 tons, for the most part from Luxembourg. For the provision of future wants, the attention of England is directed to the metalliferous ores of the south of Spain and the north of Sweden.

It is evident that the iron and steel making countries of Europe are finding more or less difficulty in obtaining their supplies of suitable ore; and Canada need be in no great hurry to go into the exporting of the immense quantities of such ores as are embedded here. The capacity of the United States for the consumption of iron is greater than that of any other country on earth, and the production of iron there advances so rapidly that in a few years it will also be the greatest iron-producing country; and, under similar and sufficient economic conditions, Canada would largely partake of that situation, the natural advantages of raw materials being already present.

RUINED BY FREE TRADE.

It is no unusual thing now-a-days to hear Englishmen complaining of the loss of trade to Great Britain through the operations of Free Trade there and of Protection in other countries. These discontents have frequently been voiced in these pages; and the discontented ones are creating quite a strong party there, which demands that some tariff protection shall be afforded their depreciating industries. *The Textile Mercury*, a trade paper published at Manchester, the centre of the British textile industry, has a special commissioner who is investigating the cause of the depression in certain lines of manufactures, and, in a recent issue the silk industry of Spitalfields is discussed.

Speaking of the silk weavers, we are told that, as a rule, they are infinitely superior to the average Londoner in that rank of life, and that employers are only too glad to advance them money when work is slack rather than allow them to drift away. The old system was for a cottage weaver to have two looms, one for his wife and one for himself. As the family increased the children were put to work. At six to nine years of age, they would be taught to quill silk; at ten to thirteen to pick silk, and at fourteen they were put to the loom to weave on plain silks. Soon after the introduction of Jacquard's invention, weavers were paid as much as 12s. a day for the best kind of work. In 1835, however, the average earnings were about 25s. a week on plain velvets; on rich plain silk 16s. to 20s., and on commoner work 12s. to 14s. Quite recently men have, with the assistance of their family, taken as much as £3 a week for a few weeks in the year, but this has only happened in cases where special work was urgently required. The average weekly earnings of the weavers of one of the leading firms in Spitalfields to-day is from 25s. to 35s. out of which there are some expenses to be paid. The operatives who earn such wages are, it must be remembered, very fast and superior workmen.

The extent of the decline, which has taken place in what was once the staple industry of Spitalfields, may be gauged from the following facts, the accuracy of which, says the *Mercury*, is vouched for by the highest living authorities. In 1825 there were 24,000 hand-loom looms in that place; in 1884 there were only about 1,200, and in 1889 the number was reduced to only 800. Further statistics show that in 1825 there were 60,000 operatives employed in this industry; in 1884 there were but 4,000, and in 1889 the number was reduced to 1,700. The dyers employed in this industry in the years named numbered in 1825, 3,000, in 1884, 120, and in 1889 but 90. There are now only about 60 power looms in Spitalfields. In 1831 the population of the district in which the Spitalfields weavers resided was not less than 100,000, of whom one half were directly and the other half indirectly dependent upon the silk industry.

Discussing the cause of this remarkable decline, our Manchester contemporary says "The abolition of the 15 per cent. duty by which our silk manufacturers were favored up to 1860, has resulted in the direct ruin of many Spitalfields firms. Roubaix, Lyons, Creffield and Milan all compete keenly with those still remaining in the trade." Another attributable cause is the competition of power-loom manufacturers else

where; and the decline in wages of the hand-loom weavers has forced them to seek other employment. The only new blood infused into the industry is where weavers bring up their children to the trade. We are told that a very deterrent influence has been exercised by the want of skill in some Spitalfields manufacturers themselves, who are unfitted to cope with the competition of rivals elsewhere.

We commend a careful study of these facts regarding a most important British industry to Canadian Free Traders. The ruin that Free Trade has effected in this industry in Britain would be effected in Canada in similar industries under the same influence.

EDITORIAL NOTES.

DEPOLARIZED Canadians are at a discount in Canada.

HON. FRANCIS WAYLAND GLENN, late of Oshawa, Ont., is a depolarized Canadian.

WHAT is the difference between the now famous Mr. McGinty and "Eli" of the St. Louis *Farm Machinery*? Answer: Mr. McGinty goes to the bottom of the sea and "Eli" stays on top.

OUR Galt, Ont., contemporaries the *Reformer* and the *Reporter* work themselves into a state of mind over the silly twaddle of a vicious ignoramus, that vents its spleen about a lot of imaginary "terrorism" in that town. Our contemporaries are lending themselves to do just what the blather-skite desires them to do—notice it. The best way to avoid contamination with the stench of the pole-cat is—to let it severely alone.

THE Marquette (Mich.) *Mining Journal* tells of a company, of Canadians who, have purchased a great quantity of standing timber along the Sturgeon River and Otter Creek in that State, and are now engaged in cutting and squaring it, and hauling it on sleighs to a shipping point on the Sturgeon. It is claimed to be the best timber in the upper peninsular. It is to be shipped by water to Quebec and there re-shipped to Liverpool. Operations on a much larger scale will be commenced there next summer.

THE *Mail*, speaking of the efforts being made in the United States to have the duty on lumber increased, says:—"The Republican party in Congress is not disposed to make any change in the lumber duty, or in the duties on fish, coal, iron ore, or anything else. It seems to be felt that the protective policy must stand or fall as a whole; that to open a gap here and a gap there might involve the entire fabric in ruin." Pray then, tell us why Canada should cry for "Reciprocity" when there is no probability of any such "gap" being opened as above indicated?

A PRESS despatch from Lisbon, Portugal, states that it is rumored there that the United States Congress will be asked to subsidise a line of steamers to that country; and that if this were done it would ruin Portuguese agriculture, which has already been half destroyed by American wheat. Portugal is

not celebrated for her manufacturing industries, and her agricultural industries are not sufficiently diversified. In fact she carries too many eggs in one basket. Naturally one of the richest countries in Europe, owing to her want of diversified industries, Portugal is in a forlorn condition.

A COKE manufacturing concern at Connelville, Penn., near Pittsburg, have just contracted with a firm of Belgian iron-makers to deliver thirty thousand tons of coke in Belgium within six months, beginning July 1st next. The reason why this contract was entered into is said to be owing to the disturbances in the coke producing centers of Belgium and England. In the former country, they have had the effect of advancing the price of coke, and if the European labor market keep up the price of coke, to the figure at which it is now held, a margin can be made by importing it from the United States.

THAT portion of the State of Michigan known as the "Upper Peninsula," contains a little over 10,500,000 acres of land, the assessed valuation of which for taxing purposes in 1889 was \$89,300,000. In this section are fourteen counties, in which are 32,640 voters. The State and county taxes imposed in these counties last year aggregated \$1,879,000, the average tax to each voter being \$57.54. The soil, climate and indigenous and other industries of this portion of Michigan are almost identical with those of contiguous Canadian territory, and yet Ontarians do not have to bear such a burden of taxation as their Michigan neighbors.

THE Executive Committee of the Farmers' Association of South Carolina, a political organization which has developed great strength within the past two years, has issued an address to the democracy of that State, charging the Democratic party, now governing the State, with gross mismanagement, extravagance and inefficiency, and declaring that the State never has had a Republican form of government, but has been dominated and ruled by an "aristocratic oligarchy." This is strong language for white men to use regarding the "White Man's Party," as the Southern Democrats call themselves; but it is just what the Republicans have always alleged against them.

ANENT the little difficulty between Britain and Portugal, a press dispatch from Lisbon, the capital of the latter country, speaking of the movement there to boycott everything English, and that a result of the situation would be the development of Portugal's internal resources, says that a great trouble experienced is the absence of technical skill among the people. Portugal is a country of vast natural resources, but under the Free Trade system, that has so long prevailed there, it has been nothing more than a hewer of wood and a drawer of water for Great Britain and British capitalists. Had Portugal possessed a protective system she would now be entertaining a feeling of independence and self-sustentation that would be exceedingly comforting to her people at this trying time.

A BILL has been introduced into the American House of Representatives, providing subsidies to American vessels engaged in foreign trade. It provides that there shall be paid to any vessel, sail or steam, constructed and wholly owned in the United States and registered pursuant to the laws thereof

and engaged in the foreign trade plying between the ports of the United States and foreign ports or other foreign ports, the sum of thirty cents per gross ton for each 1,000 miles sailed, and pro rata for any distance traveled less than 1,000 miles. Mr. Ambrose, now of New York, vice president of the American shipping league, spoke of the marked extent to which American shipping has declined, and said the shipping league had concluded that the only means of resuscitating the American merchant marine was the payment of a bounty.

A LONDON telegram states that the firm of Armstrongs, gun makers, intend to establish immense shipyards in the United States, and bid, through Americans interested in the enterprise, for the construction of the ironclad vessels which it is proposed to build for the United States navy. The claim is made for the Armstrongs that they can profitably compete with the American ship builders on their own ground, and easily command the American influence necessary to secure contracts. If this is a fact it is another victory for Protection. It is the policy of the United States to encourage manufacturing enterprises, come the promoters of and investors in them from where they may. If the Armstrongs establish shipyards in the United States it means the employment of thousands of American workmen and the consumption of unmeasured quantities of American products.

IN his "complete evidence" before the Yankee Senate Committee on Trade Relations with Canada, as published by his request in the *American Economist*, the Honorable Francis Wayland Glenn, late manager of the unsuccessfully managed Joseph Hall Machine Works, at Oshawa, Ont., speaking of the annexation sentiment in Canada, says: "It is a common remark in the smoking-rooms, reading-rooms, and corridors of the Capitol at Ottawa, among the members of Parliament that we shall have no radical change of affairs until Sir John Macdonald passes away, and then the deluge." From a safe vantage ground in the United States this depolarized Canadian can slander his native country and use treasonable language with impunity; but when the Canadian Parliament, in session in the Capitol at Ottawa, by a unanimous vote, give the lie to this slander, the vapors of this man are assessed at its true value.

IT is very evident that our antipodean neighbor, New South Wales, is not only in earnest in maintaining its recently established policy of tariff Protection, but it also intends to derive some of the benefits that ought to accrue from such policy. The Minister for Railways has issued a notice that the Government is prepared to receive proposals for the establishment in that colony of locomotive works, capable of turning out locomotive engines equal to those of English make. There are 431 locomotives required for additions and renewals to the present Government railway rolling stock, and the Government are prepared to place an order for 100 engines to be supplied within three years, provided the price does not materially exceed that of similar engines built by first-class manufacturers in England. It is considered that a capital of about £150,000 would be required to establish the business; and there seems to be no doubt that English capitalists will invest their money in the enterprise.

A CORRESPONDENT of a London, Eng., journal, speaking of a recent visit paid to Midhurst, the former home of Mr. Richard Cobden, the father of British Free Trade, says; "I never saw land more desolated, for there were not even care-takers in the farm houses. Everything is laid down to grass, which often means a rich crop of dock and thistles; and the only human beings who occasionally visit the land are butchers, to whom it is let for grazing at a nominal rent." Midhurst is in the western part of Sussex, in the south of England, probably the most delightful portion of the country; and, being within but a few miles of London, if agricultural pursuits should be profitable in any part of the kingdom it should be profitable there. But here we see in what was the very home of Mr. Cobden, only desolation, waste and ruin. Was this what Mr. Cobden desired for his old home, his friends and his neighbors? We imagine that none of his old Sussex neighbors hold his memory in very high esteem.

THE *Australasian Ironmonger* states that a cablegram to the Australian papers announces that an "important iron and steel manufacturing company in the north of England has expressed its willingness to immediately establish works in Australia if the Government will guarantee to impose certain customs duties on the imported articles for a term of years." It also states that the proprietors of the Woonoona Colliery, near Bulli, Australia, were in correspondence with Messrs. Siemens Brothers and other firms of iron manufacturers in England with regard to the establishment of iron works in their district; and that if the ores should prove to be as good as is stated, that abundance of English capital will be available to develop the country. These Australasian colonies are determined to develop their resources, and they understand that the only way to do this is under a judicious system of tariff Protection. It also appears that British manufacturers and capitalists are willing to establish works there provided they are similarly protected. The Australasians understand that without Protection they can never hope for industrial independence, and that is what they are determined to have.

MR. FRANCIS WAYLAND GLENN, at one time an honored Canadian, but now a professional advocate of the annexation of Canada to the United States, his residence being in Brooklyn, N. Y., has sent a complete copy of his evidence before the Senatorial Committee on trade relations with Canada, to the *American Economist*, in which it is published in full. In a note to the *Economist* Mr. Glenn gives the assurance that the paper "is just as it is filed with the Committee"; and he expresses the desire that it may be published complete, as he feels confident that it vindicates his assertion that "Canada has been Americanized and is nearly ready to fall into our hands." Of course, our valued contemporary, the *Economist*, is at liberty to advocate Canadian annexation or any other fad, but in publishing the "evidence" of Mr. Glenn it appears to us that it is wasting several pages of valuable space. But last week the Dominion Parliament by a unanimous vote vindicated that all loyal Canadians assert at all times that "Canada has not been, nor can she be Americanized," and the unanimous voice of Canada's representatives in Parliament assembled is, we take it, more potent and reliable than that of a depolarized Canadian, who, having made an utter

failure of himself at home, seeks a notoriety abroad by endeavoring to betray and denationalize his native land.

THE following articles of American manufacture are sold in Canada more largely than like articles of English manufacture; Brass goods, copper goods, cordage, gingham, bottles, flasks, india-rubber goods, printing-ink, ingrain carpets, wood manufactures, twines, tin ware, ship rigging, wall-paper, writing-paper, envelopes, blank-books, straw-board paper, boots and shoes, leather and skins, sole leather, leather goods, patent leather, figured oil-cloths, grain-drills, harrows, harvesters, hoes, forks, mowing-machines, scythes, spades, shovels, builders' and cabinet makers' hardware, house-furnishing hardware, nails, firearms, sewing-machines, screws, stoves, axes, jewelry (sterling and plated), silver-ware, lamps, locomotives, hatchets, hammers, saws, mechanics' tools, organs, pianos, "notions," plain house furniture, especially hotel furniture.—*American Economist*.

Precisely so. Protection does it. All of the above mentioned lines of goods are manufactured in Britain, where Free Trade prevails. The United States tariff imposes a much higher duty upon them than the Canadian tariff, and still our Yankee friends can undersell their British competitors in our market. What the Yankee tariff has done and is doing for American manufacturers, our Canadian N.P. will do for our manufacturers, if we only keep the duty high enough. If British manufacturers desire to sell goods in the Canadian market, they must sell as cheaply as their American competitors. There is no discrimination whatever in the duty.

THE *Bulletin* of the American Iron and Steel Association, has issued a supplement on the pig iron trade of the United States during the last two years. The total production of pig iron in 1889 was 7,604,525 gross tons, against 6,489,738 in 1888, an increase of 1,114,787 gross tons, or over seventeen per cent. Reducing gross to net tons, the production in 1889 was 8,517,068 net tons, against 7,268,507 in 1888. "When it is remembered," says the *Bulletin*, "that our production in 1888 was the largest in our history down to that time, the magnitude of our production in 1889 will be more fully comprehended. The enormous production of 1889 was better distributed throughout the year than the public has been erroneously led to believe. Much has recently been written about the possibility of overtaking Great Britain in 1890 in the production of pig iron. The following comparative figures will throw some light on this subject:

Years.	Net tons.	
	Great Britain.	United States.
1882	8,586,680	4,623,323
1883	8,529,300	4,595,510
1884	7,811,727	4,907,868
1885	7,415,469	4,044,526
1886	7,009,754	5,683,329
1887	7,559,518	6,417,148
1888	7,998,969	6,480,738
1889 (estimated)	8,300,000 (known)	7,604,525

"We do not think that we will pass Great Britain in 1890 if trade competitions in both countries should continue as they now are. But in 1889 we exceeded her production in 1887."

SENATOR HOAR asks Congress to retaliate on Canada for the imposition of an export duty on saw logs. He proposes to add to the import duties on lumber an amount equal to the Canadian export duty. This would be retaliation in kind, if not the most direct possible. If isolated acts of legislation are to take place, instead of the two countries being dealt with at once, the passage of a measure of this kind is probable

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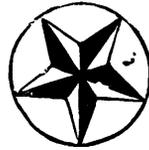
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enough. Looking at the export duty as it stands, and regardless of possible retaliation, it is well to ask once more whether it be worth maintaining. If it be true that Canada imports more logs than she exports, as has been stated, it is plain that the policy of imposing export duties on this traffic is unwise and injurious. There is always the danger of retaliation in such cases, and an export duty on American logs would injure Canadians more than our duty injures Americans, because we are the largest buyers. Our lumbermen are not all agreed as to what would be best for their own interests, and it is plain that the interest of some may be in one direction, and of others in another.—*Monetary Times.*

When the *Monetary Times* essays to discuss an important question it should certainly learn beforehand something of the matter it proposes to discuss. It is very evident that in this instance it did not possess that knowledge; and this want of knowledge makes it exceedingly ridiculous. Senator Hoar never asked Congress to retaliate on Canada by imposing an export duty on American logs. One probable reason why he never made such a request was because it is not in the power of the American Congress to lay any export duty whatever. Canada stands in no danger of any such retaliation. Senator Hoar, however, did ask that in addition to any import duty that might be levied, retaliatory duty might also be levied on logs coming from any country that levied an export duty on the same, as Canada now does.

On every dollar's worth of plate glass that was imported into the United States last year a tax of a dollar and forty-four cents was levied. The value of the glass imported was \$481,792, and the duties amounted to \$693,780. On some kinds of common window glass, too, a duty of 115 per cent. is levied. Nevertheless, the home manufacturers are not satisfied with the enormous profits they are thus enabled to make, but are now combining to raise prices. If some one were to make them a present of the earth they would probably set to work at once to secure a few of the neighboring planets as well.—*Toronto Mail.*

The *Mail* has heretofore alluded to the claim set up for Free Trade by an American manufacturer of glass lamp chimneys, the allusion being to Mr. George A. Macbeth, of Pittsburgh, Pa. Mr. Macbeth claims to be the largest manufacturer of lamp chimneys in the world; and on December 31st last, he went before the House Committee on Ways and Means, at Washington, to state his reason for wanting Free Trade. In answer to questions Mr. Macbeth stated that workmen in his Pittsburgh factory earned \$4.50 a day, while workmen in German factories, doing the same class of work, earned but \$8 a week, and in England \$12 a week. He stated that he had contemplated removing his works to Germany "because materials are cheaper there," but he made the reluctant confession that were he to move to Germany, he would pay his labor the wages current there. He stated that he sold his lamp chimneys at thirty cents a dozen in Pittsburgh; that if he had free materials the price of chimneys would be reduced to only twenty-seven cents, and that the consumer of chimneys would not be advantaged by the removal of the duty. Seventeen years ago, when Mr. Macbeth began manufacturing them, he sold them at fifty-four cents a dozen, but now, under Protection, he can sell them at thirty cents.

At the yearly meeting of the New York State Bar Association, at Albany, a few days ago, Col. Robert G. Ingersoll

delivered the annual address to a large gathering of distinguished lawyers. Premising that members of the faculty should, above all things, be foremost in legislative and judicial reform, and reminding his audience that the three worst pests of a community are a priest without charity, a doctor without science, and a lawyer without a sense of justice, Mr. Ingersoll proceeded to show that the treatment of criminals which prevails at the present day, is unsuccessful, uncharitable and unfair. After giving some startling statistics regarding the increase of crime in the United States, and the general failure to effect reforms in criminals, the distinguished speaker said:

"Why should the State take without compensation the labor of these men; and why should they, after having been imprisoned for years, be turned out without the means of support? Would it not be far better, and more economical to pay these men for their labor—to lay aside their earnings from day to day, from month to month, and from year to year—to put this money at interest, so that when the convict is released after five years of imprisonment he will have several hundred dollars of his own—not merely money enough to pay his way back to the place from which he was sent, but enough to make it possible for him to commence business on his own account, enough to keep the wolf of crime from the door of his heart? Suppose the convict comes out with \$500. This would be to most of that class a fortune. It would form a breastwork, a fortress, behind which the man could fight temptation. This would give him food and raiment, enable him to go to some other State or country where he could redeem himself. If this were done thousands of convicts would feel under immense obligation to the Government. They would think of the penitentiary as the place in which they were saved, in which they were redeemed, and they would feel that the verdict of guilty rescued them from the abyss of crime."

The *Empire* injures the cause of Protection by some of its remarks made in favor of Protection. For instance, it recently spoke of "unprotective taxes on raw materials," meaning the duties on certain materials that enter into consumption in the manufacture of more refined or costly products; and, although requested to explain what it means by "raw materials," it is unable to do so. And again, in discussing the fact that the Grits are endeavoring to persuade the farmers that an injustice is being done them by the tax on raw sugar, speaks of "the inferiority of the imported beet-root sugar." If the *Empire* desires to convey the impression that any sort of sugar can be refined as well in Canada as anywhere else, we agree with it; but the impression it makes is that beet sugar is inferior to such cane sugar as is refined in Canada, when the fact is, a very large part of the sugar consumed in Canada, found its origin in the beet fields of Germany. The *Empire* should be aware of the fact that Canada is quite as well adapted to the cultivation of the sugar beet as Germany or California, and the cultivation of it here is one of the possibilities by which Canadian farmers will greatly benefit themselves. The financial success attending this industry in Canada cannot be realized, however, except under a protective policy of the Dominion Government. Under superior agricultural conditions, what has been and is being accomplished in Germany, may, and should be accomplished in Canada; and we commend the study of the beet sugar industry in Germany to Canadian farmers, manufacturers and the *Empire*. There are now over 400 sugar factories in that country, the number increasing constantly, and in 1887 the quantity of beets manufactured

into sugar there was over 8,300,000 tons, producing nearly a million tons of sugar. Such has been the phenomenal growth of the industry there that, whereas only as recently as 1882 the imports of sugar into Germany were 5,733 tons, in 1887 the exports were 661,128 tons. The cultivation of the sugar beet and its manufacture into sugar is a large and growing industry in the United States, particularly in California, and if the *Empire* will only refrain from injuring it, it will assuredly soon assume large proportions in Canada.

SPECIAL ADVERTISEMENTS.

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

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

SIXTY HORSE-POWER BOILER FOR SALE.—Size, 60 x 144 inches, containing 76 3-inch tubes. Fitted with a No 2 Curtis return trap, valves, condenser and steam gauge, water gauge and cocks, cast iron soot door, cast iron independent front, grates and bearers complete; all in perfect condition. Apply to SAMUEL MAY & Co., 111 Adelaide St. West, Toronto.

THE B. Greening Wire Company, Hamilton, Ont., inform us that their new trade catalogues are going through the press, and that they will soon be ready for distribution. The first to be sent out will be those relating to Metallic Lathing, Wire Cloth and Perforated Metals, Wire Rope, Flower Stands and Floral Designs, and Wire Fencing and Bank and Office Railing.

MR. JAMES LESLIE, Montreal, manufacturer of cotton and woolen mill supplies, etc., has sent us a handsomely ornamented office hanger, in which is represented a marine scene showing a sailor and two women anxiously peering through a spy-glass over the wide water towards an incoming fleet of vessels. The text printed on the card informs us that Mr. Leslie manufactures and deals in all kinds of machine card clothing, loom reeds, wire heddles, frames, English oak-tanned leather belting, lace leather, loom strapping, etc.

Our Little Ones, published by the Russel Publishing Company, Boston, Mass., is one of the most delightful magazines for young people that visit our table. We know that *Our Little Ones* is just too nice for anything because one of our little ones says so, and that *ipsi dixit* counts every time. The February number contains thirteen illustrated articles, each one of which when read will be declared just a little better than any of the other dozen; but just how this can be must be explained by the delighted children who read them.

VICK'S Floral Guide for 1890, the pioneer seed catalogue of America, contains complete list of vegetables, flowers, bulbs, potatoes and small fruits, with descriptions and prices. Same shape and style as proved so satisfactory last year. Many new and elegant illustrations handsome colored plate 8x10½ inches, and frontispiece. Special cash prizes, \$1,000; see *Floral Guide*. Every person who owns a foot of land or cultivates a plant should have a copy. Mailed on receipt of 10 cents, which amount may be deducted from first order. Abridged catalogue free. James Vick, Seedsman, Rochester, N.Y.

MESSRS. MUNDERLOH & Co., Montreal, inform us that the Hansa Steamship Company, of which they are general agents for Canada, have made arrangements to offer a better and more frequent service between Montreal and Hamburg and Antwerp, by the addition of three large new steel steamers, which are being built with all

modern improvements, and which will be ready for service early in the coming spring. These steamers, of which there are eight, will sail regularly every ten days during the season, without calling at English or Continental ports. The first steamer of this line is expected to sail from Montreal about April 20th.

MESSRS. ROBIN & SADLER, manufacturers of leather belting, etc., at Montreal and Toronto, are sending out to their friends a very beautiful embossed hanging card for office use. It is of very thick heavy bevel-edged card board, the ground of which is of dark color upon which is shown a side of leather, the portion of the hide from which the firm's standard belting is cut being indicated by appropriate lines. The back of the card contains a price-list of single and double belting, round belts, solid and raw hide twisted, and of cut lacing strings, the discounts from which will be given on application. The card also contains other information useful to the trade.

THE Halifax Herald is publishing a series of articles on Canada's iron industry. At the Londonderry mines \$6,000,000 have been expended under the National Policy in wages and for raw materials. The outlook for the future is extremely hopeful. The company have orders for one year ahead, have increased their capacity for manufacturing merchant iron and steel and gas and water pipe, are arranging to blow in the second furnace, which has not been in operation for seven years, and have made contracts for two years' supply of coal with the Acadia Company. The works are now managed by R. G. Leckie, formerly manager of the Springhill mines, and 600 men are now employed.

We have direct information, that the Senate bill increasing the duty on tinned plate is sure of passage by Congress. This bill provides that the duty on tinned plate shall be ½ cent more than that on black plate, which now ranges from 1.1 to 1.5 cents, according to thickness. The new duty would, therefore, be equivalent to from \$1.85 to \$2.15 per hundred weight. Once protected, the building up of a tinned-plate industry in this country will be a matter of only a short time. To produce sufficient plate for home consumption, will require the employment, directly, of at least 150,000, and, indirectly, of 300,000 men. Last year we paid Great Britain \$23,000,000 for tinned plate.—*Iron Trade Review*.

THE Dominion Illustrated of Feb. 1st contains a fine portrait of Hon. J. J. C. Abbott, Q.C., Government leader in the Dominion Senate, portraits of the late Hon. F. X. A. Trudel, Senator; the late Hon. C. S. Rodier, Senator; Mr. Grant Powell, ex-Under-Secretary of State; W. Ogilvie, Esq., D.L.S., several views of scenery on the Yukon river, illustrating Mr. Ogilvie's exploration there, and a view of the Thirteenth Battalion ball, recently held in Hamilton. The descriptive and literary matter is fully up to the high standard achieved by this excellent Canadian journal. The *Dominion Illustrated* is published by the Dominion Illustrated Publishing Company 73 St. James Street, Montreal, Mr. G. E. Desbarats, managing director. Subscription, \$4 a year.

THE Fires Improvement Company, Toronto, of which Mr. John Livingstone is manager, have sent us a pamphlet having reference to the method of the company in economy and saving in fuel and the abatement of the smoke nuisance. By the process referred to all the carbon and hydrocarbon in the fuel is consumed in the furnace by the act of union with oxygen; and as that act of union does not extend to the smokestack, the constituents that enter into union do not pass to the smokestack, the heat of union will not pass through that channel as a loss to the consumer, nor will there be either smoke, soot, grit or sparks to escape as waste products. The attention of manufacturers and users of large quantities of fuel is requested, and correspondence with Mr. Livingstone invited.

THE Victoria, B.C., Colonist, speaking of the proposed sugar refinery in that city, a bonus for the erection of which has recently been voted to the Mount Royal Milling Company, says:—The company are incorporated under the laws of Quebec and have a capital of \$300,000. Mr. Reford is one of Montreal's well-known millionaire wholesalers and shipowners. Mr. Ross is backed by a London, Eng., firm worth millions. The erection of a sugar refinery would cost over \$250,000, the machinery alone costing in Germany \$100,000. It is absurd to state that the men who would expend so great a sum in an enterprise are doing so for the purpose of securing one seventh of the amount in the shape of a city bonus. It is understood that R. P. Rithet will be interested with Hall, Ross & Co. in this enterprise.

MR. HENRY PORTER, Montreal, has sent us a beautiful chromo-lithographic office calendar for 1890, the central figure of which represents a beautiful maiden, just in the bloom of blushing womanhood, offering cherries to the beholder, and surrounded by quantities of the luscious fruit. "Cherry Ripe" is indeed a pretty picture; but it is utilized to call attention to the fact that Mr. Porter is a manufacturer of oak-tanned leather belting for electric

and all other purposes, and of sinew lace leather and Sonora lace leather, to which brands especial attention is directed, for, according to Mr. Porter, "they surpass anything ever offered in Canada for strength and durability." They are prepared by processes never before used in Canada; are free from anything that will attract moisture; are very soft, and will not harden in use.

Santa Claus, that bright little gem of juvenile literature, makes its weekly visits to our table with unfailing regularity. Of course, this delightful visitor is carefully pocketed and taken to the home fireside, for there are always bright eyes that await its coming, and look brighter when it comes; but the editor knows that if he don't have his chance at it before it leaves his table, he will not be likely to see it again, certainly not until the next number comes; and he finds it more than pleasant in reading in it the stories of adventure there related, to forget the present cares of life, and to go back in memory to the days when he, too, participated in such adventures. Therefore, the editor takes solid pleasure in reading all that *Santa Claus* has to say—quite as much so as the young folks at home. \$2 a year. Sample copies free. The Santa Claus Co., 1,113 Market Street, Philadelphia.

THE total output of iron ore from the mines of the United Kingdom in 1888, was 14,590,713 tons, valued at £3,501,317, an increase of 150,000 tons on the figures for 1887 as regards quantity, and an increase in value of £266,000. Twenty years ago the total production of the iron mines of Great Britain was a little over 10,000,000 tons annually, but ten years ago the output exceeded 18,000,000. In 1880 the maximum seems to have been reached, the annual output steadily declining until 1887, when the Government returns placed the total at 13,098,041 tons. As already noted, a revival in iron mining occurred last year, and the returns for 1889 will show a still further expansion of the industry, but the figures will still be far behind those for 1880. The output of iron-stone from mines, working under the Coal Mines Regulation Act, was last year 8,635,032 tons; from pits regulated by the Metalliferous Mines Acts, 2,937,253 tons; and from open workings, 3,018,428 tons.

Outing, for February, is a very good number, and is filled with articles of sterling value. Among the more important ones we notice "Fishing for Tarpon," by O. A. Mygatt, richly illustrated; "The Setter," a most valuable paper by Edwin H. Morris, illustrated with portraits of fine dogs; "Wintering in California," by C. H. Shinn, which pleasantly describes California and its advantages as a winter health resort and a place for sportsmen. This article is fully illustrated. Other articles are "Brant Shooting on the Atlantic Coast," by Alexander Hunter; "The New York Cyclists Meet," "The College Football Championship," "Fencing for Women," "Tobogganing," and "Russian Field Sports." The serial, "Flycatcher," by Capt. Hawley Smart, is continued, and increases in interest. "Longing" and "My Gift" are poems of much merit. The Editor's Open Window is usually replete with interesting comments on topics of the day. Altogether the February *Outing* is a number well worth a careful perusal.

THE *Electrical World* is a weekly electrical journal, published at 167 Times Building, New York city. Recently it published an illustrated article, "A New Year's Call at the *Electrical World* Office," in which a full description was given of the various departments of that establishment. The article attracted the attention of one of the leading New York dailies, who sent a reporter to see the offices, regarding which it said: "Probably there is not another so thoroughly equipped house for a scientific newspaper in the world." The novelty of the article in question, illustrating as it does some of the thousand uses to which electricity is now being put, created great interest in it and a demand for it; and the publishers have, therefore, had it reprinted separately, and are offering to send it to those who may be pleased to ask for it. The *Electrical World*, as its name indicates, is a live journal in which the reader is kept supplied with all the current and technical news regarding this most wonderful and subtle agent which is being brought into hitherto unheard of uses.

THERE are comparatively few persons on this side of the Atlantic who are aware of the extent of the efforts of the Fair Trade League to have Britain return to a system of tariff protection which will save the agricultural and mechanical classes in that country from the distress that now environs them. The League numbers among its members some of the best thinkers and most practical business men of the country, and meetings are being held all over the kingdom, impressing the voters with the importance of the subject. It also maintains a most excellent exponent of its political opinions—*Fair Trade*—which always abounds with the best of protection arguments, giving the views of the leading men of the country on the subject. *Fair Trade* is in Britain what the CANADIAN MANUFACTURER is in Canada, and what the *American Economist*,

The Bulletin and other journals are in the United States—an advocate of Protection. It is published weekly, at 185 Fleet Street, London, E.C., the subscription price being only 6s. 6d. a year, including postage. It should have a large Canadian circulation.

THE D. Lothrop Company, Boston, Mass., publishers of *Wide Awake*, \$2.40 a year; *Babylond*, 50 cents a year; *The Pansy*, \$1 a year, and *Our Little Men and Women*, \$1 a year, are offering special rates and inducements to those who will obtain new subscribers; and the terms will be sent to any address on application. Among the large number of premiums offered is an electric motor, which is, no doubt, the most scientific premium offered by this company. The electric plant consists of a Gem motor and a Nowotny battery. It requires no outside force to operate, as the battery generates sufficient electricity to run the motor at a high rate of speed. There is no danger in handling either the motor or battery, and it is impossible to cause an explosion, as there is no element to explode. The cost of operating is almost nothing, and the material for making the battery fluid can be had at any drug store. To any intelligent boy or girl the possession of this apparatus would be invaluable in developing ideas regarding the application of electricity to practical, every-day uses. All of these Lothrop magazines are of the very highest order, and contain the very highest class of literary productions, from the most eminent authors of the day.

THE importance of the coal raising industry in Cape Breton is shown in special correspondence of the Halifax *Herald* from Sydney. The writer states that, at the present time, there are nine coal mines in operation in Cape Breton, and two more are opening. In connection with these, directly and indirectly, there is an army of from 4,000 to 5,000 persons employed, and a gross population of about 18,000 has settled in and about the various mining localities. About 2,550 vessels, with an aggregate tonnage of 450,000 tons, handle our coal shipment this year, with an employment of 24,000 hands. The quantity of coal mined in Cape Breton during the year just closed was 745,000 tons, as compared with 240,000 in 1879. North Sydney and Sydney shipped 460,000 in 1889 (as compared with 140,000 tons in 1879), handled by 2,550 vessels, which were manned by 24,000 seamen. The Cape Breton coal trade has been marked by a steady increase since 1879. Comparing the yearly coal exports since 1878, the result of the present tariff is, in the estimation of the correspondent, "most satisfactory." In 1879, the coal shipments from all the Cape Breton mines, only aggregated 243,200 tons; in 1884, 588,156 tons, and in 1889 they increased to 749,357 tons.

THE New York *Fireside Companion*, the great, popular family newspaper. By subscription, \$3 per annum; two copies for \$5. The *Fireside Companion* maintains its high position as the best paper of its class in the United States. It contains the best stories by American authors, adapted to the taste of the public for pure, interesting and exciting fiction. Its detective stories are world-famed. Old Sleuth, the Detective, writes exclusively for the New York *Fireside Companion*. Among its popular contributors are: Mrs. E. Burke Collins, Mrs. Alex. McVeigh Miller, Mrs. Lucy Randall Comfort, Mrs. Mary Kyle Dallas, Miss Laura Jean Libbey, Mrs. Mary E. Bryan, Mrs. Kate M. Cleary, Mrs. Elizabeth Stiles, Mrs. Charlotte M. Stanley, Mrs. K. F. Hill, Walter F. Jackson, Old Sleuth, the Detective, Kate A. Jordan, Barrett Browning. Every number contains a discourse by the Rev. T. DeWitt Talmage, fresh and charming sketches, humorous articles and paragraphs, poetry and answers to correspondents. Terms:—The New York *Fireside Companion* will be sent for one year on receipt of \$3; two copies for \$5. Getters up of clubs can afterwards add single copies at \$2.50 each. Will be responsible for remittances sent in registered letters or post-office money orders. Postage free. Specimen copies sent free. Address George Munro, Munro's Publishing House, 17 to 27 Vandewater Street, N. Y. P. O. Box 3751.

Good Housekeeping, published by Messrs. C. W. Bryan & Co., Springfield, Mass., is one of those unpretentious journals, which is intrinsically worth scores of volumes of such frothy literature as now deluge the country. It is specially intended to benefit and enlighten the "home folks" regarding housekeeping affairs; and every one who lives in a home, or who desires to do so, and to see the economies of that home brought to its highest attainable perfection, cannot but be benefited by reading it. The lessons taught in it are clothed in most pleasant language; and the writers are included in the list of the best known authors in the country. We are informed that *Good Housekeeping* for February 15th will be largely taken up with papers on household heating, lighting and cooking, under the title of "House Heating and Home Lighting." These have been prepared by people of experience in the department of which each one writes, with a view to serving the interests

of health, economy, convenience and neatness in the daily doings of the home. The papers on Heating will treat (1) of Fire and its Domestic Uses; (2) Stoves and Fuel; (3) Stoves and Hot Air Furnaces; (4) Steam and Hot Water. Those on Lighting, (1) of The Oil We Burn; (2) The Care of Lamps; (3) "Perfumed Light." Those on Cooking, (1) of Gas for Cooking Purposes, and (2) The Kerosene Oil Stove. These papers cannot fail to be valuable to all housekeepers, and of incalculable service, not only to those who rule in the kitchen department, but to those who carry the pocket-books, from which are drawn the wherewithal to meet the demands of that terrible item prominent in all departments of household life—"current expenses."

It is only fifteen years ago since the first cotton mill was established in Canada. Since then the industry has made rapid progress, and now there are twenty-four mills in the Dominion, containing 600,000 spindles. In 1869, 1,245,208 pounds of cotton were imported for home consumption, and in 1888, 23,727,525 pounds. These figures indicate the rapid growth of the industry. As a result of this development the number of operatives employed in 1885 showed an increase of eighty per cent. over those of 1880. It is estimated that the people of Canada each require about forty yards of cotton cloth annually. The quantity imported is about 42,000,000 yards, so that assuming the first statement to be approximately correct, the Canadian factories must supply 158,000,000 yards to meet the wants of the inhabitants of the Dominion. The following is a list of the cotton mills of Canada, with the number of their spindles and looms:—

	Mills	Looms	Spindles
New Brunswick.....	5	2,161	89,000
Nova Scotia.....	3	768	35,500
Ontario.....	10	3,465	159,900
Quebec.....	7	4,888	235,300
Total.....	25	11,282	519,700

It is estimated that the full capacity of these mills is about 138,000,000 square yards per annum, and that the actual production varies from 100,000,000 yards to 120,000,000 yards. A recent remarkable feature in the Canadian manufacturing industry is the exportation of grey cottons to China, the amount shipped for the year ending January 1, 1889, being 2,009,974 pounds, or about 6,533,000 yards. The shipments in 1887, which was the first year of the exportation of Canadian cotton piece goods to China, amounted to 1,742,205 pounds.

THE most important discovery in Canada, during the last few years, is undoubtedly the immense deposit of carbonate of lime, and cement clay immediately underlying it, in the County of Grey. This carbonate of lime is purer than the European chalk. The clay is much the same as the celebrated Medway clay, and contains 62 per cent. of soluble silica. At only one other place in the world, so far as is known, viz: at Boulogne, are the two main ingredients used in the manufacture of Portland cement, found in so close proximity. In England, the carbonate of lime is obtained from the chalk cliffs, and the clay from the Medway and other rivers; and the cost of removing these ingredients, and depositing them at the factories is an important feature in the manufacture. In Germany the raw material costs \$1.75 per ton at the factories, on an average. At this Canadian mine, or deposit, the crude material can be placed at the factory door at a cost of twenty-five cents per ton, on an average. This deposit of material is in a soft cheesy state, and can readily be removed by the spade and shovel. Portland cement has been made from it superior in quality to any ever produced in England, and is only surpassed by four manufactures in the world. Canada imports about 100,000 barrels annually; the United States procures from Europe over 1,000,000 barrels each year, or about \$2,000,000 worth. Not a barrel of Portland cement of commerce has, so far, been made in America, though the lower grade of cement or water lime is manufactured. The reason is obvious—no carbonate of lime has heretofore been found on this continent pure enough to make the superior grade of Portland cement. Considering the many advantages for manufacturing from this Canadian mine, which has been thoroughly tested by competent engineers, both in Canada and Europe, we believe from investigations made that a cement superior to any imported can be produced as cheaply as the European manufacturers can place the raw material on the ground. This deposit is well situated, being only two miles from the Grand Trunk Railway, and only nine miles from Owen Sound, on the Georgian Bay.

Manufacturing.

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

MR. MOSES PARKER'S iron foundry, in Montreal, was gutted by fire January 25th—loss, about \$30,000.

A FINE flow of natural gas has been struck in the well being bored at Amherstburgh, Ont., at a depth of 987 feet.

MR. JOSEPH WILLIAMS' roller flour mill at Glen William, Ont., was destroyed by fire, January 18th—loss, about \$8,000.

THE lithographing establishment of Messrs. George Bishop & Co., Montreal, was damaged by fire January 25th—loss, about \$20,000.

THE dry dock at Esquimalt, B.C., will be lengthened 150 feet, which will enable it to accommodate the largest Imperial war-ship afloat.

MR. DUNCAN WALKER'S flour mill at Payne's Mills, near St. Thomas, Ont., was destroyed by fire January 27th—loss, about \$10,000.

THE Casselman Lumber Company, recently organized at Casselman, Ont., with a capital stock of \$250,000, have elected Mr. J. D. Hargraves, manager.

FIRE in the excelsior and flax mill of the Grand River Manufacturing Company, at Elora, Ont., January 16th, did damage to the extent of about \$500.

MESSRS. E. P. BAIRD & Co., Montreal, manufacturers of advertising composite and self-winding clocks, are opening a branch factory at Plattsburgh, N.Y.

THE Polson Iron Works Company, Toronto, have been commissioned by Senator Sanford, of Hamilton, Ont., to build for him a fine steel steam pleasure yacht.

MESSRS. REED BROS., London, Ont., have bought out the works of the St. Thomas Featherbone Company, at St. Thomas, Ont., and will soon remove the same to London.

THE Yarmouth Woolen Mills Company, Yarmouth, N.S., have recently received orders for their goods from Britain, one of them being from a leading cloth house in Edinburgh, Scotland.

MESSRS. JAMES BROS., Trenton, Ont., will locate their furniture factory in Norwood, if that corporation gives them a bonus of \$7,000, free site, and exemption from taxation for ten years.

MESSRS. BUTTERFIELD & Co., Rock Island, Que., manufacturers of blacksmiths' and machinists' tools, screw plates, etc., will build a new and commodious machine shop to accommodate their increasing business.

THE Rock Asphaltum Company of Canada has been organized at Montreal, with a capital stock of \$25,000, for the purpose of importing crude, rock asphaltum, and manufacturing it for the paving of streets, etc.

THE City of Victoria, B.C., has voted to give bonuses to four industrial establishments proposed to be started there—a rice mill, a flour mill, a paper mill, and a sugar refinery—the aggregate amount being \$60,000.

MESSRS. HALL, ROSS & Co., Victoria, B.C., have purchased the rice mill occupied and operated by them, and adjoining land. They will enlarge their mill building, and introduce flour machinery, and erect an iron-clad warehouse, 90 x 50 feet.

MESSRS. KERR BROS., Walkerville, Ont., a few days ago, successfully cast, in one piece, the bed-plate for a triple expansion engine, being built by them for a steamer for the North-West Transportation Company. Its weight is over ten tons.

THE Acadia Pottery Company, whose headquarters will be at St. John, N.B., are applying for incorporation, with a capital stock of \$8,000. They propose manufacturing earthenware, crockery, stoneware, terra cotta ware, drain tiles, sewer pipes and bricks.

THE workshops of the Canadian Pacific Railway, Montreal, have just turned out seven new and very powerful locomotives for their service between Montreal and Vancouver, and orders have just been given for the construction of seventeen more of a similar character.

The Irish Hosiery Manufacturing Company, Belfast, Ireland, have introduced a new industry, and are making arrangements to distribute 500 small circular knitting machines to girls resident in that neighborhood. They have also established finishing departments for the goods so produced.

WORKMEN are busy putting the Turnbull, Forbes & Co. factory, on North Water Street, in readiness for the new machinery to be placed in it, as also the present machinery therein, which is to be retained. It is intended to have the factory in running order at the earliest possible time in the spring.—*Galt Reporter*.

At the annual meeting of the Brantford, Ont., Board of Trade, held last week, the president, Mr. J. K. Osborne, in his report, stated that there are now twenty-four factories, of different kinds, in operation there, giving employment to 2,250 hands, and the total value of goods shipped from these factories, last year, was \$100,000.

MESSRS. D. T. MORRIS AND R. P. FIELD, of Bowmanville, Ont., having obtained certain concessions and privileges in the city of Brantford, Ont., will establish a piano and organ factory at the latter place. Work has already been commenced in connection with the enterprise, which, when in operation, will give employment to a minimum of twenty-five hands.

MESSRS. MIDDLETON & MEREDITH, Montreal, request us to announce that they are agents for the following:—Berlin Aniline Company, Berlin, Germany, pure aniline dyes; Stamford Manufacturing Company, New York, dyewoods and dyewood extracts; James Musprat & Sons, Liverpool, soda, ash, bleaching powders, etc.; also specialties for cotton, woolen and leather colors.

THE Gutta Percha and Rubber Manufacturing Company, of Toronto, request us to announce, that their Montreal office is at 91 Temple Building, in St. James Street. This Company whose large factory is in this city, are manufacturers of "Red Stripe" belting, packing and hose; carriage cloth, rubber clothing, "Maltese Cross" carbolized, and "Baker Fabric" fire hose, etc.

MR. GEORGE M. VANVALKENBURG has been drilling for natural gas at Forest, Ont., and, a few days ago, at a depth of about one hundred feet, he struck a remarkably fine flow—in fact a "gusher." Messrs. Hamilton and Prout, at the same place, have also struck gas in an old well, from which they are now obtaining sufficient fuel to make steam for driving the electric light machinery of the town.

WORK in connection with the McLaren Ross lumber mills at New Westminster, B.C., is progressing. The iron work of the burner is complete, and reaches a height of 145 feet above the ground. It is claimed to be the largest burner of the kind in the world. For a distance of seventy feet inside the burner will be bricked, and work on this will commence as soon as the weather is favorable. Two of the engines have been set up, and four of the boilers are in place.

THE latest use that British Columbia spruce has been put to, is organ building. A no less celebrated maker than Bell, of Guelph, has discovered this lumber is just the thing for certain uses in the construction of the instrument. A trial order of 25,000 feet of dressed spruce was recently ordered by the firm from this city, and so great was the satisfaction it gave, that Messrs. Bell & Co. have written, stating that they will continue to use it regularly.—*Victoria, B.C., Colonist*.

THE Government reduction works at Cariboo, B.C., were destroyed by fire February 4th. Loss, \$25,000. The works were established in the Centre Cariboo mining district by the local Government last summer, for the purpose of testing British Columbia ores. They were completed in November, and the operations were very successful. Their destruction by fire is a severe blow to the mining prospects, which were looking very bright, owing to the interest taken in their development by English capitalists. It is thought the Government will rebuild at once.

MESSRS. GANONG BROTHERS, manufacturing confectioners, of St. Stephen, N.B., in rebuilding their manufactory in 1889, extended it about seventy-five feet, giving additional floor surface of about 5,000 square feet, or in all about 36,000 square feet of floor surface, in addition to paper and wooden box factory erected separate from the main building. They have also added new and improved machinery, which, with additional floor space and better arrangement, gives them about double the capacity they had before the fire in November, 1888.—*Halifax, N.S., Critic*.

ALL the new plant for the street-car line has already been ordered, and some of it is now on the way. The electric plant will arrive shortly, when the putting up of the wires will be proceeded with at once. The company will put four cars on each line—one running to the east by Power Street and Westminster Avenue, the other by Hastings and Granville Streets. The power-house will be located

on Barnard Street, near False Creek, and the car-house on Front Street, in Mount Pleasant. The company expect to have the lines in full working order within three months.—*Vancouver, B.C., World*.

MESSRS. MIDDLETON & MEREDITH, of Montreal, are direct importers of aniline dyes and chemicals, and also represent in Canada The Stamford Manufacturing Company of New York, whose dyewoods and extracts are so favorably known in this market, and who, for many years, have exported their celebrated "Sanford" brand extracts of logwood, fustic, quercitrine, etc., to Great Britain. They are also Canadian agents for the Berlin Aniline Co., and keep a full line of their colors in stock, among which are the Benzidene group of substantive dyes, such as benzoazurine, benzopurpurine and chrysamine, all of which are guaranteed pure.

New buildings for the Intercolonial Railway are being erected at Moncton. The engine-house, nearly finished, has room for twenty-eight locomotives. The walls are built of stone faced with brick, and the roof is supported by three rows of iron pillars connected at the top with trusses made of old rails. The turn table is made by the Dominion Bridge Company. The contractors for the buildings are Messrs. Rhodes & Curry, of Amherst, who have also the contract for the new erecting shop, now nearly completed, which is 110 x 210 feet, and built of brick. The contract price for the two buildings is \$76,000—*Hants, N.S., Journal*.

WORK in connection with the McLaren Ross lumber mills is progressing very rapidly. The iron work of the burner is complete, and now reaches a height of 145 feet above the ground. It is the largest burner of the kind in the world. For a distance of seventy feet inside the burner will be bricked, and work on this will be commenced as soon as the weather is favorable. Two of the engines have been set up, and four of the boilers are in place. More machinery is expected daily. Since the commencement of this gigantic work, in which a very large number of men have been employed, not a single accident has occurred.—*Columbian*.

WORK on the St. Clair River tunnel at Sarnia, is making steady and satisfactory progress, at an average at each end of about six feet per day. At the Sarnia end, five hundred and fifty "rings" or sections of the iron lining are now in place, and as the sections are eighteen inches each, a short calculation will show the length of completed tunnel over eight hundred feet from the portal. Last week a bed of sand was struck, which it took two days to pass through, when clay was struck again, which still continues. Large boulders are now quite frequently met with, and one huge rock encountered last week was so large that it was with a good deal of difficulty that it was passed out through the opening in the shield for removal.

THE development of the iron deposits in Pictou county, N.S., promises to be an immense industry. There are two companies about commencing work. One is American, and the other provincial with British capital. The American company has surveyed a road from their works to New Glasgow, some 18½ miles. They claim forty square miles of iron and coal property. It is their intention to erect blast furnaces only, the ore being converted by this process into pig-iron. The works in connection with the blast furnaces will cost about £40,000. Should a subsidy be granted, the company say they will extend the line to the sea coast. It is the intention of the local company to erect blasting and smelting works. The steel works at New Glasgow will take a great part of the output of the latter. It is believed that the part of the country in which these mines are located, will become a second Pittsburgh.—*Iron Trade Review*.

THE B. Greening Wire Company, Hamilton, Ont., have acquired the right to manufacture in Canada, the Brown patent steel wire chain, and they will be prepared to place it on the market in a few days, in eight sizes, in standard lengths of 100, 500, and 1,000 feet; and, a little later, full lines of halter chains, cow ties, hitching chains, trace chains, steel trap chains, tail-board chains, well-chains, etc. The Company claim that this is the strongest chain that has yet been put on the market. A test of one made of No. 8 wire broke at 1,950 pounds, breaking at the end of the link, while the same size of welded link broke at 490 pounds. Out of a dozen tests, the "Brown" chain varied but ten pounds in its breaking, while the welded chain varied from 280 up to 490 pounds. The Company will shortly issue a pamphlet to the trade, containing all information regarding weights, strength, prices, etc. Samples furnished on application.

THE BANK OF COMMERCE last month moved into what is generally conceded to be the best bank building in the Dominion of Canada. Of course, in an institution handling such a large amount of money, it was of the highest importance to have vaults and safes which

would be absolutely burglar proof in every particular. In open competition the contract was awarded to Messrs. J. & J. Taylor, the celebrated safe makers of this city, and it is almost needless to say, that they have done their work in a thoroughly first-class manner. The vaults of the Commerce are said to be the largest, strongest, and most expensive ever built in Canada, and reflect no small credit on the Messrs. Taylor. Of the hundreds of prominent business men who have inspected these marvels of the safe-makers' art, not a single one has gone away without expressing the pride that they felt in knowing that in this class of work we had, right here in Toronto, a factory which could lead the world.—*The Trader*.

THE ship railway destined to convey ships across the Chignecto isthmus, a narrow neck of land joining the provinces of Nova Scotia and New Brunswick, a distance of seventeen miles is now nearing completion. The steel track is the heaviest made, and weighs 110 pounds to the yard. The tracks, upon which the cradle containing the vessel under transfer is placed, are double. The locomotives, two of which are used in drawing the vessels across the isthmus, are built on the same principle as the ordinary engines, but with much greater weight and power. The vessels to be transported are hoisted by hydraulic power to the basin of the track. The road-bed is in good condition. A ship taken from the Bay of Fundy is placed in the Gulf of the St. Lawrence in two and one-half hours, though a speed of ten miles an hour is obtainable. During the coming year the Chignecto marine transport railway should be in active operation, saving each trip made, a distance of 500 miles.

A STATEMENT contained in a report of the Crown Lands Department of the Province of Quebec, shows the value of the mineral produce of that province for the season of 1889, to be \$2,266,660. Mines of various kinds furnished employment to 2,064 people, without counting those engaged in building or cutting wood in the accessory workings, and those employed in the different matters connected with mining industries. If it be added, that the more important of these industries are yet only in their infancy, and that others such as those connected with iron, the employment of natural gas in the St. Lawrence Valley, that of petroleum in Gaspe, etc., are, so to speak, not yet in existence, there will remain, no doubt, that the Province of Quebec has much to look forward to in the development of mineral resources. The most valuable mineral output of the year was that of copper, which amounted in value to \$720,000. The phosphate produced \$460,950; asbestos, \$352,260; building stone, \$200,000; bricks, \$200,000; slate, \$90,000, and pig iron manufactured from bog ore, \$120,000.

THE Polson Iron Works Company, Toronto, shipped, a few days ago, to Owen Sound, the last of four large boilers constructed by them for the ferry steamer they are now building at their ship-yard there, for the Canadian Pacific Railway Company. These boilers are claimed to be the largest ever made in Canada, and also the largest ever carried by rail on this continent. They are of the cylindrical return multitubular type, and are 13 feet 3 inches in diameter, and 14 feet long, weighing 37 tons each. The shell plates are 11-16 of an inch in thickness, and were specially rolled in Scotland. The tubes are of German manufacture, and are 4 inches in diameter, 11 feet long, and 148 in number. There are in each boiler three of Fox's corrugated furnaces, 42 inches in diameter and 10 feet 11 inches long. The Government test showed an allowance of 94 pounds working pressure. The riveting of these boilers was done by a Tweddell hydraulic riveter, with a gap of 8 feet 4 inches, lately erected in the Company's shops here. The boilers, when completed, were lifted bodily on to the cars by a large overhead traveling crane, which has a lifting capacity of fifty tons. The successful completion of this large contract speaks well for the manufacturing abilities of this Company.

MESSRS. McARTHUR, CORNELLE & CO., Montreal, importers and dealers in aniline and other dyestuffs, extracts, chemicals, etc., and sole agents for the St. Denis Dyestuff and Chemical Company, formerly Messrs. A. Porier & Dalsace, of Paris, introduce, under the name of "fast malta blue," a new product of the St. Denis Co., in three brands, M. M B, and M BB, for dyeing and printing cotton, by the aid of tannin and tartar emetic. The colors thus obtained are very fast to light and soap. For dyeing, the cotton is mordanted, as usual, with 2 to 5 per cent. tannin, and 10 to 20 per cent. sumac extract according to the depth of shade and degree of fastness required, at 75° C, and lodged in the bath until cold; then it is well wrung, and for fifteen minutes treated with 1 to 3 per cent. of tartar emetic, at the same temperature, washed, entered a cold bath containing 1½ per cent. dyestuff for a good medium shade, and the temperature raised to 75° C, while diligently working until the bath is completely exhausted. For printing, the manufacturers give the following directions—Prepare the cloth with Turkey-red oil, as usual, and print a color, consisting of 1

gallon thickening; ½ gallon acetic acid, 78° Be; 1½ lbs. tannin (or equivalent in sumac); 1 quart glycerine; ½ pint oil; ¾ lb. tartaric acid, dissolved in ¾ pint water, and ¼ lb. dyestuff. After printing, steam and pass through tartar emetic. The three samples shown in Messrs. McArthur, Cornelle & Co.'s monthly sample sheet, are done with the three brands of Fast Malta Blue, after this recipe. Another recipe for printing, given by Dr. C. Boetsch, is as follows: Mordant with 50 grms. Turkey-red oil, per lit. water. Prepare a color as follows:—I. Dissolve 30 grms. "fast malta blue" in 250 grms. acetic acid, 7° Be. II. Rub together, into a paste, 100 grms. tartaric acid; 100 grms. glycerine; 1½ kilgrms. (powdered); 60 grms. oil and 900 grms. water; boil until perfectly dissolved; stir until lukewarm, when, mix the two solutions, add the solution of 150 grms. tannin in 100 lit. water; print, steam, fix in bath containing 5 grms. tartar emetic per 1 lit. water; wash and dry.

THE Kemp Manufacturing Company, proprietors of the Dominion Tin and Stamping Works, Toronto, have sent us their 1890 illustrated catalogue, having reference to the specialties manufactured by them. The book illustrates the goods shown in the Company's 1889 catalogue, with many new lines since added. The book is divided into conveniently arranged sections, each section being descriptive of a particular line of goods. The section devoted to Stamped Ware, illustrates dish-pans, kneading-pans, sauce-pans, milk-pans, pudding-pans, preserving-kettles, wash-bowls, strainers, jelly and pudding moulds, rice boilers, tea kettles, dippers, ladles, cake and pie tins, pot and other covers, etc. Tinnery's Trimmings include about every thing embraced in the manufacture of tin ware—tea kettles, coffee pots, chamber pails, kettle ears, rivets, tinned and black, handles, wire, gutter spikes and hooks, tinnery's tools, etc. Japanned Ware includes toilet sets in great variety and ornamentation; plunge, sponge, hip and infant baths; cuspadores, canisters, water-coolers, cake closets, bread-boxes, dry measures in nests, match safes, tea-trays, etc. The section devoted to Tin Toys embraces miniature representations of a thousand useful articles. Pieced Tin Ware illustrates tea-kettles, sets of stove furniture, steamers, pails, kettles, cake and pie tins, cookers, oil cans, funnels, dippers, dripping pans, etc. Heavy Polished Ware section includes polished tea and coffee-pots, and biggins in great variety; sets of stove furniture, imperial liquid measures, etc. Embossed Ware section relates to round and oval trays, crumb trays, scrapers and brushes, cuspadores, dressing cases, coal hods, umbrella stands, bread and cake-boxes, etc. Galvanized Iron Ware includes buckets, chamber-pails, wash-bowls, refrigerator pans, sap-buckets, coal-hods, etc. The section appropriated to Japanned coal hods, stove-shovels and stove-boards, are descriptive of the different varieties of goods embraced in those lines. Wire Goods makes reference to strainers, sponge-baskets, hat racks, dish-covers, vegetable-boilers, broilers, fly-traps egg-whips and beaters, sieves, pot cleaners, tea and coffee-balls, pie-crumpers, rat-traps, cinder-sieves, skewers, etc. Spoons tells all about—spoons; and Copper-Ware relates to wash-boilers, tea kettles, preserving-kettles, sauce-pans cups, etc. Other sections relate to machine-oilers, Ontario stove-pipe and elbows, stove-pipe hole, thimbles and lanterns. House-furnishing Goods illustrates every imaginable article not previously described, but necessary in all well-regulated households. A section is devoted to oil stoves in great variety; the descriptive character of the catalogue closing with illustrations of a fine line of Granite, or Agate Ware. No prices are quoted in the catalogue, except such as are uniform and familiar to the trade; but the Company send out a separate price list, which is revised from time to time, as occasion may require.



SEALED TENDERS marked "For Mounted Police Clothing Supplies," and addressed to the Honorable the Minister of Railways and Canals, will be received up to noon on Wednesday, February 26, 1890.

Printed forms of tender containing full information as to the articles and quantities required, may be had on application to the undersigned.

No tender will be received unless made on such printed forms. Patterns of articles may be seen at the office of the undersigned.

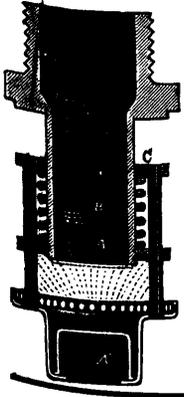
Each tender must be accompanied by an accepted Canadian bank cheque for an amount equal to ten per cent. of the total value of the articles tendered for, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to supply the articles contracted for. If the tender be not accepted the cheque will be returned.

No payment will be made to newspapers inserting this advertisement without authority having been first obtained.

FRED. WHITE,
Comptroller, N. W. M. Police.

OTTAWA, January 24, 1890.

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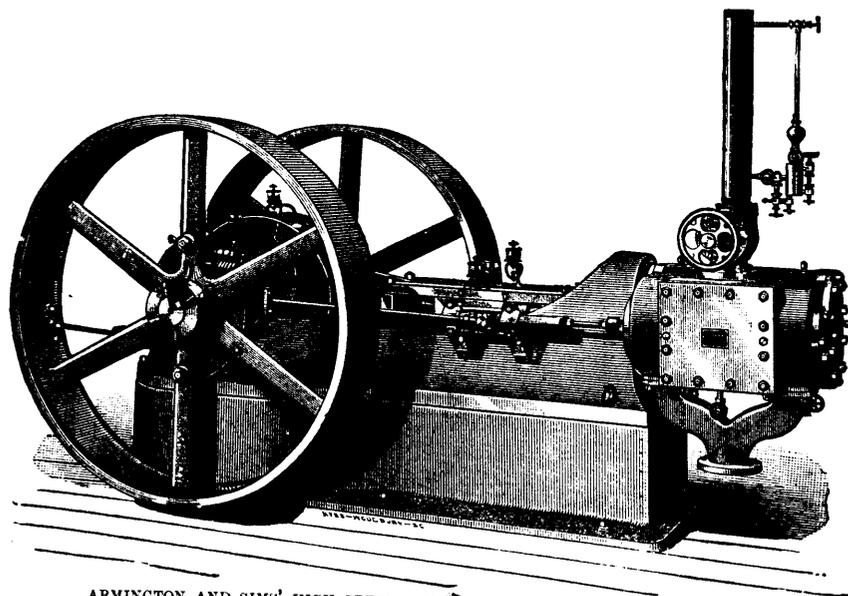
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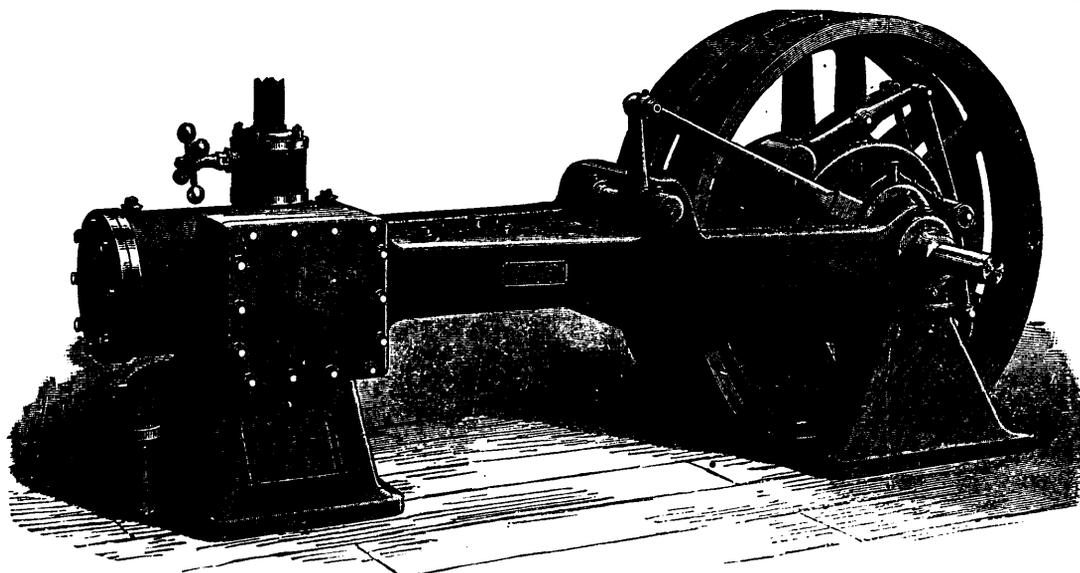
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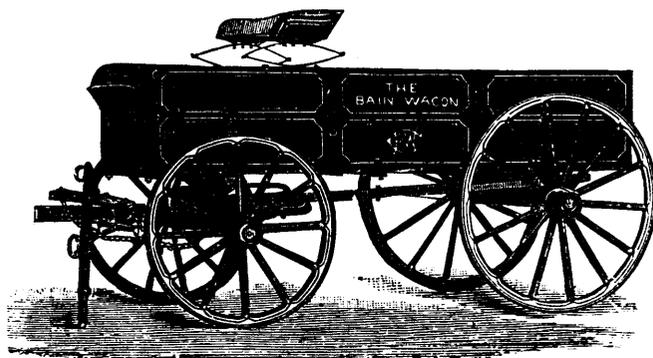
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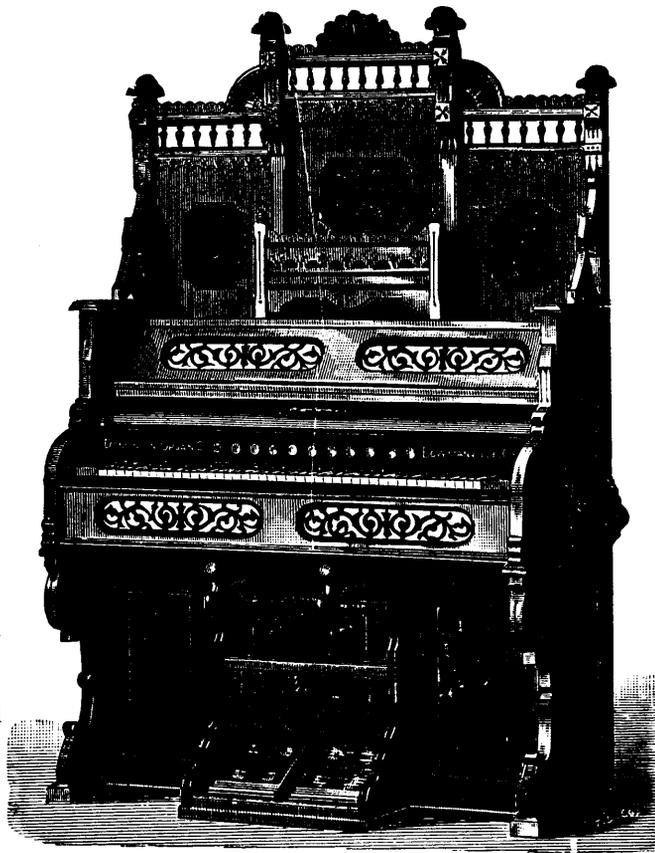
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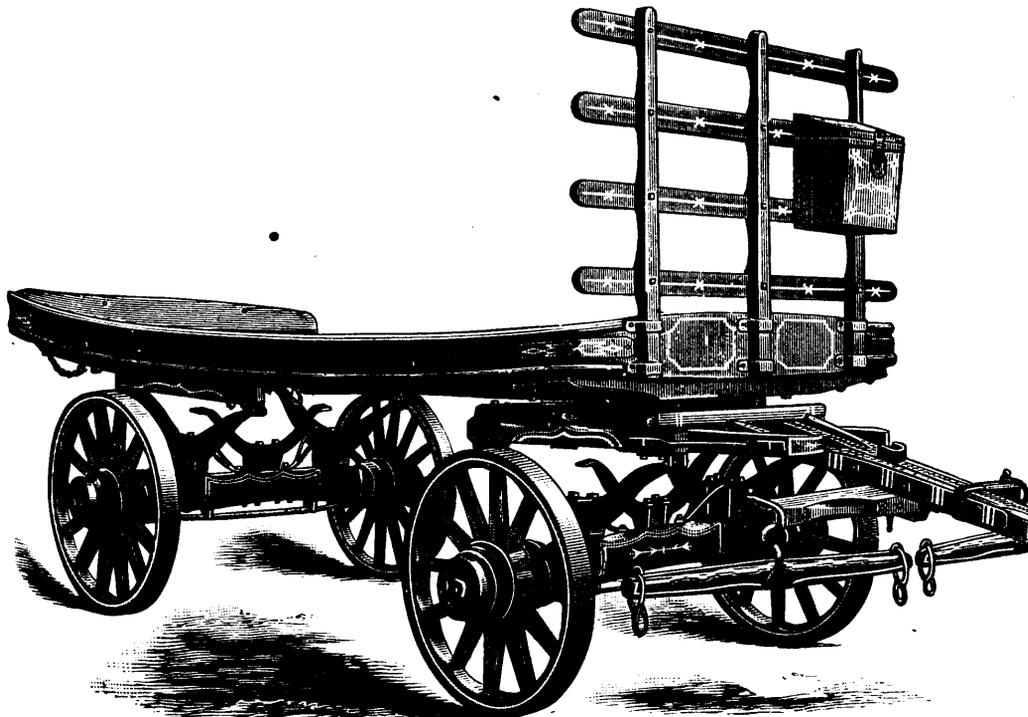
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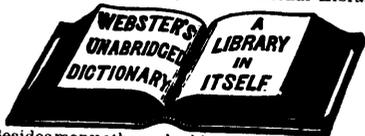
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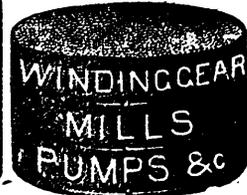
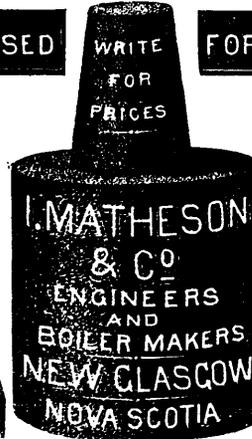
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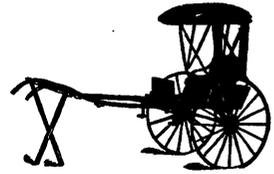
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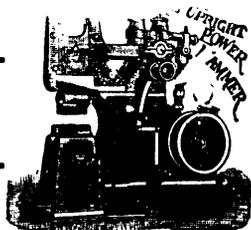
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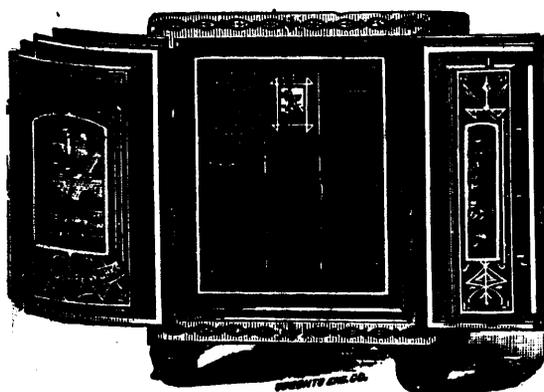


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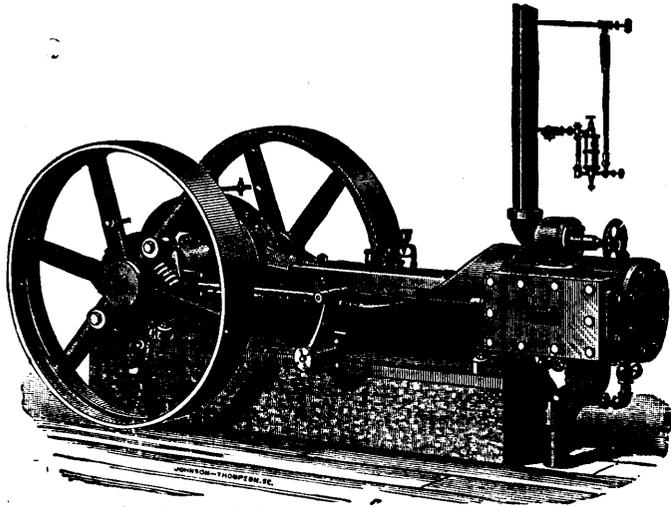
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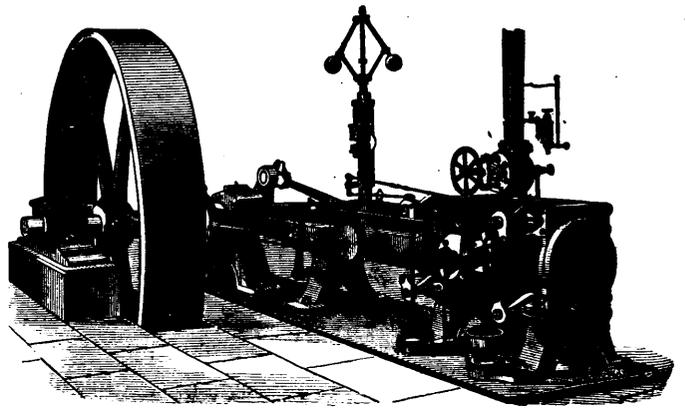
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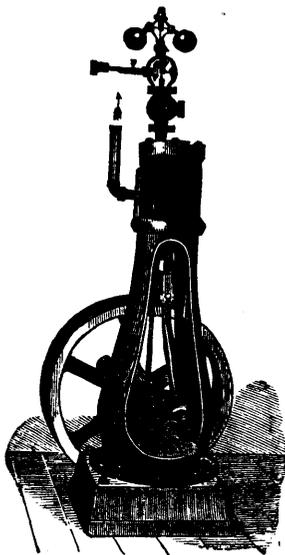
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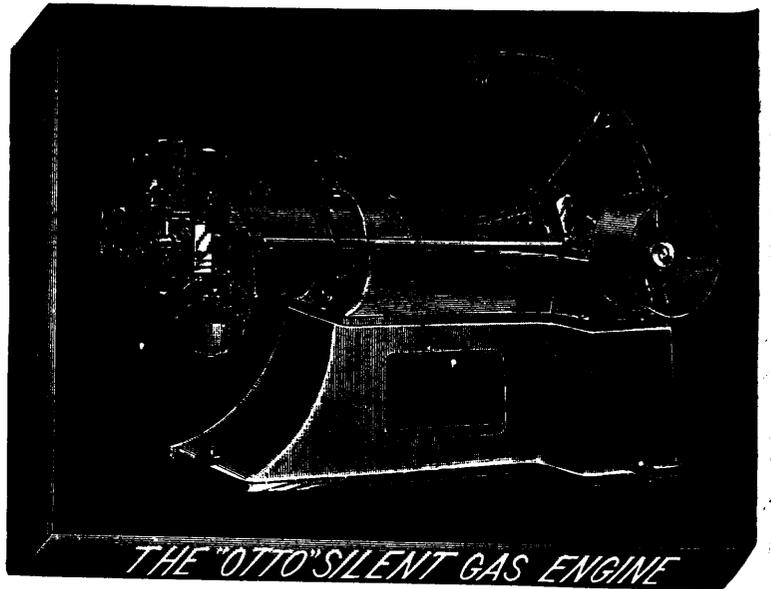
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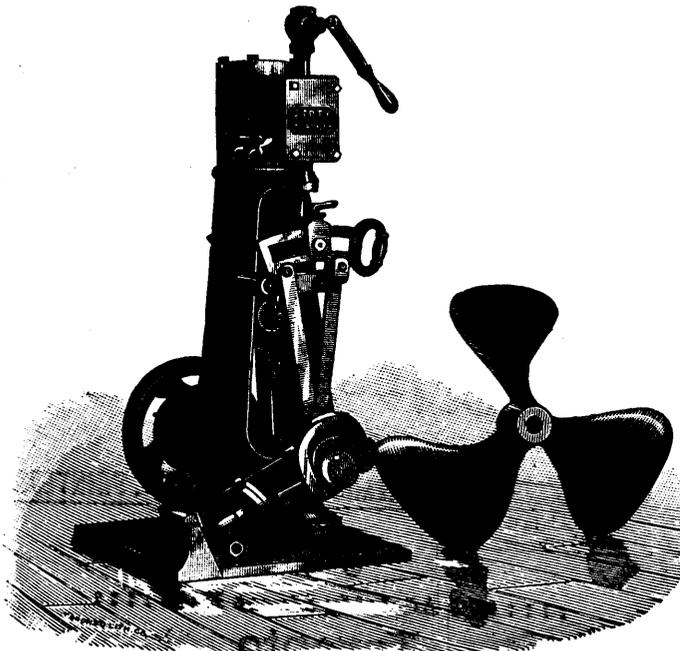
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TRANSMISSION OF POWER

Translated from "The Ingenieur-Conseil," of July 15, 1889.

Transmission by belts is a relic of routine which should be rooted out, as has been already done with the ancient gear-wheel transmission. I venture to predict that by the time another exposition is opened belts will have entirely given way to ropes. I make this prophecy with all the more boldness since belts have not the theoretical superiority over ropes which gearing had over belts. It can already be said that in theory and in practice belts are inferior to ropes, since they can only be made to adhere by a tension of both parts—that is, the part which does no work must have at least half the tension of the part which bears the working strain. Without this tension the belt would slip on the pulleys. No change of material or of make-up can correct this essential fault—the necessity of stretching to accomplish adherence.

With ropes, however, the adherence of the rope to the pulley is effected by the pressure against the sides of the wedge-shaped groove, and the useful tension, that of the working part of the rope, is sufficient to produce this pressure. The lower part of the rope has no need of tension. Thus, in theory, the rope is better than the belt, and in practice no drawback arises to offset this advantage. On the contrary, rope cannot slip—like belts—from pulleys. The breaking of a rope occasions no stoppage, no accident. The rope falls harmless to the ground and can be replaced after working hours. It even announces when it intends to break by visibly unwinding.

For thirty years we have sustained the rope idea, and made the foregoing argument prevail. We understand the opposition of the routinists at the present time. Very few makers knew how to turn out good grooved pulleys, or could supply good ropes. This was a serious difficulty. The slightest inequality in the diameter of ropes, or in size of grooves, or even in the compressibility of the ropes causes them to bury themselves in grooves more or less so sensibly altering the circumferences run over by the different ropes on a single pulley, and consequently gave rise to considerable resistance; certain ropes acting as brakes towards the others, instead of assisting them.

At the Exposition transmission by ropes is practiced by three Belgian firms, two Swiss firms and two French, all other employ belts.

Why? We cannot explain, but when the next Exposition opens, we will see if they continue to inflict upon their patrons a mode of transmission which, whatever be the ingenuity of the makers of belts, leather, cotton or steel will always cost more, absorb more power and cause more stoppages than transmission by ropes. Until that time the Belgian firms have found themselves in excellent company among the constructors of machinery who have adopted this method of transmitting power.—*From the Ingenieur-Conseil of July 15.*

The above extract is confirmatory of what has been advocated by THE DODGE WOOD SPLIT PULLEY CO. from the commencement, *i.e.*, that power transmission by ropes is far superior to belts for general purposes and applicable for distances and in places where neither belts or gearing can be used at all.

The French writer intimates clearly that for thirty years he has recognized this superiority of ropes and yet the people have refused to be convinced. This argues a fault in the system which he advocates, and that fault is not far to seek. The system which he advocates is known as the "English" system. It consists of a multiplicity of separate ropes, and the "fault" resides in the impossibility of attaining an equal tension of the several ropes. That this lack of uniform tension is the condition of every "English" rope transmission is evident to the eye. No two ropes of the system hang with the same slack, and it needs no argument to show that for that reason no two are doing the same duty. The rope having the strongest tension is, therefore, overloaded and will be first to give out; and it is small consolation that its giving out does not stop the works, since the fact that a part of the system is doing no work shows that the whole thing is an overload and that a much smaller outfit would do the work with equal satisfaction if properly constructed.

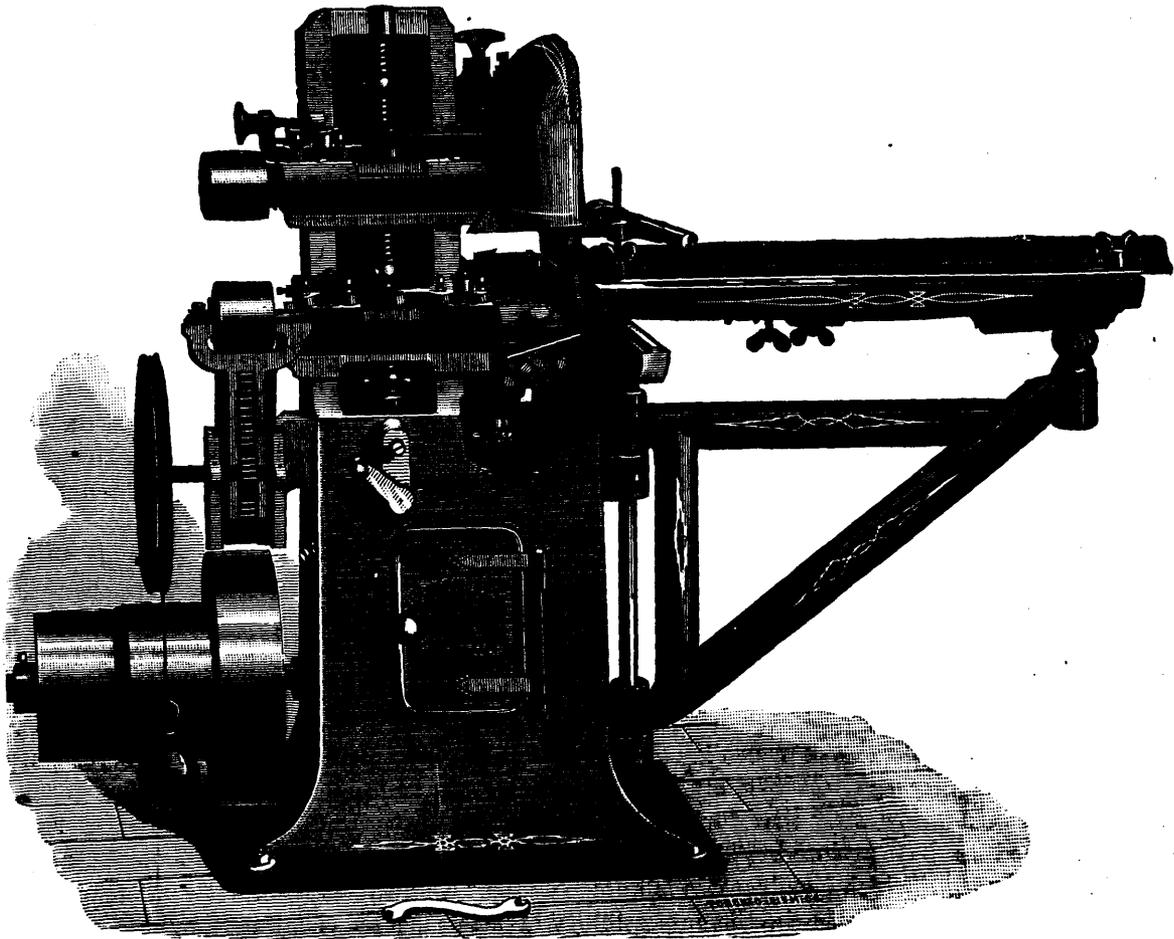
That is precisely what has been accomplished by the American System, as brought forward and perfected by the Dodge Manufacturing Company, wherein a single endless rope, having any required number of passes, and under uniform tension throughout, transmits power uniformly, each strand doing its full share of the whole duty.

While thirty years have so far failed so show the practical advantages of the English multiple system, that in the year 1889 only seven users of it appear in the great Exposition at Paris, and American engineers have almost to a man, repudiated it, the American single rope system has in three years attained a popularity almost unprecedented, and bids fair, in the near future to supplant belts for all purposes except the smallest.

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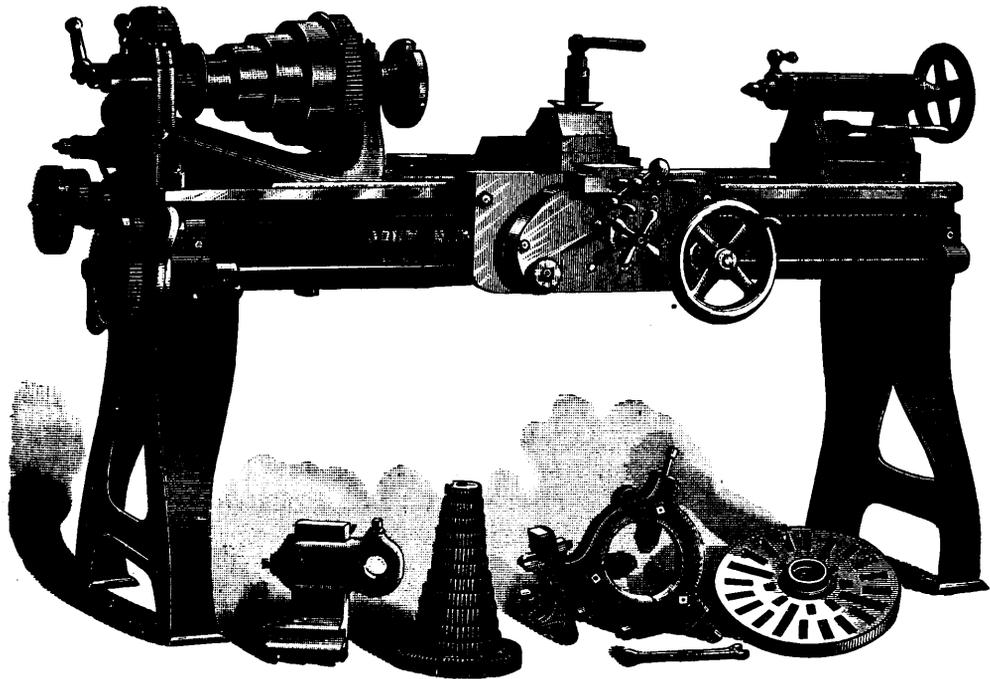
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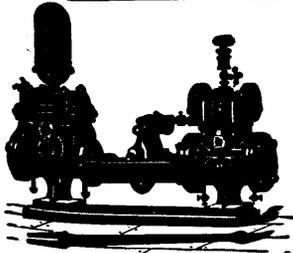
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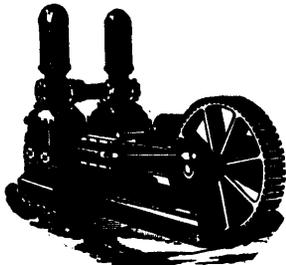
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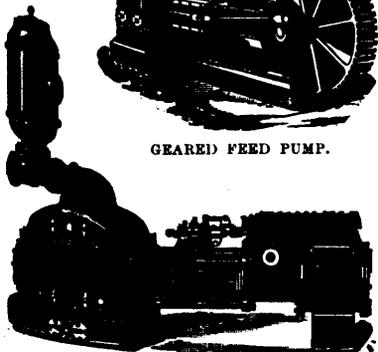
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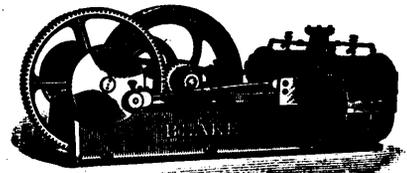
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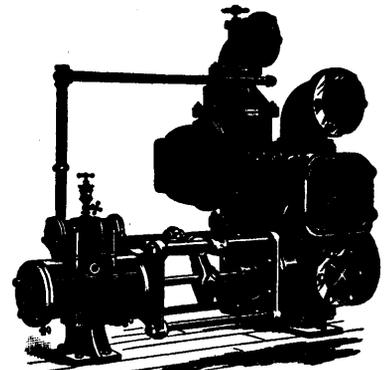
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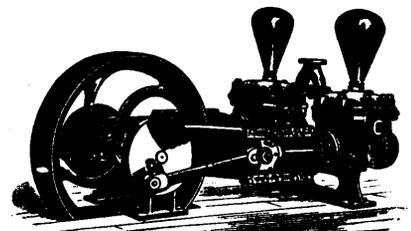
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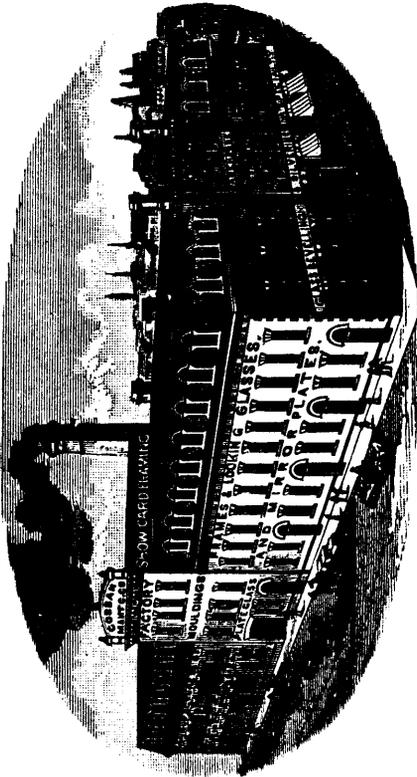
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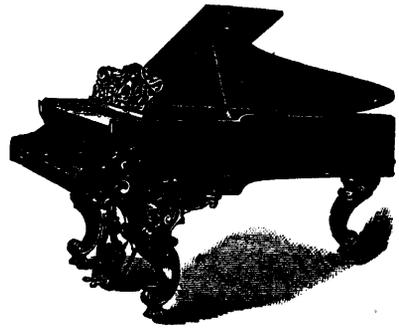


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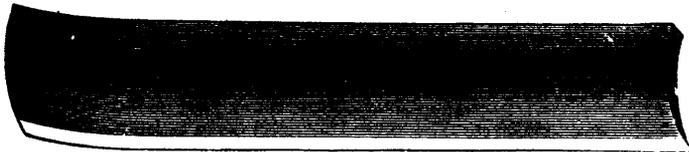
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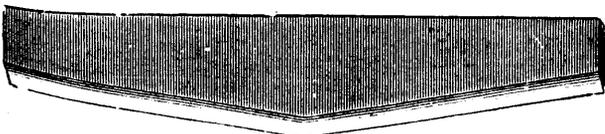
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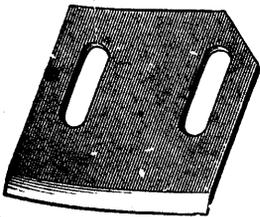
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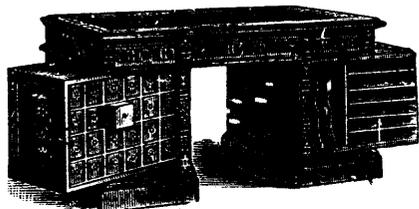
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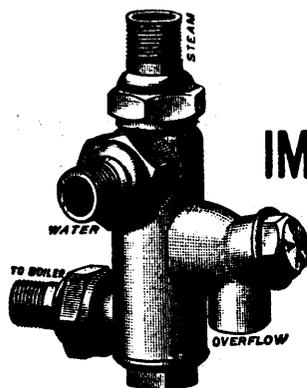
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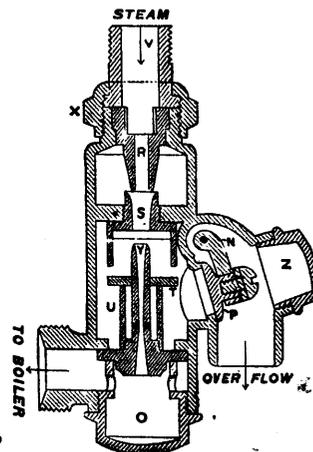
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