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AND INDUSTRIAL WORLD

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Vol. 18.

TORONTO, APRIL 18, 1890.

No. 8.

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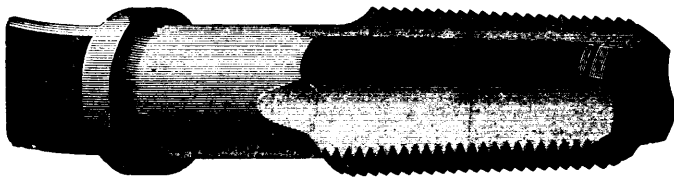
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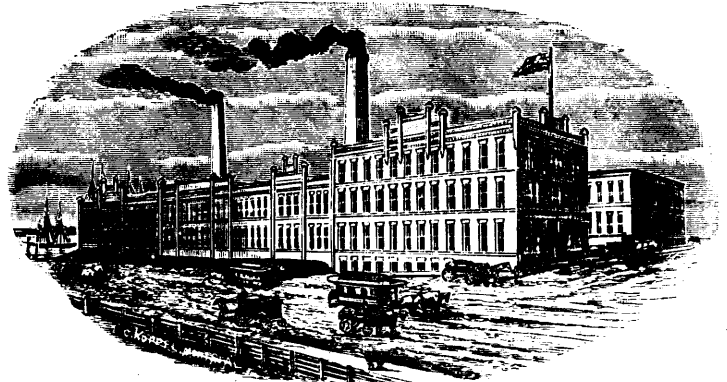
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MR. FREDERIC NICHOLLS is Secretary of
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CANADIAN MANUFACTURER,
63 Front Street West, Toronto.

FIFTEENTH ANNUAL MEETING

OF THE

Canadian Manufacturers' Association.

REPORT OF PROCEEDINGS.

THE fifteenth annual meeting of the Canadian Manufacturers' Association was held in Toronto, April 7th inst. President W. H. Storey in the chair.

The Minutes of the last regular annual meeting were read and approved.

PRESIDENT STOREY'S ADDRESS.

MR. SECRETARY AND GENTLEMEN :

I AM pleased to meet you on this the fifteenth anniversary of our organization. The presence of so many on this occasion is the best possible indication of your attachment to the principles which the Association is designed to promulgate, those principles which form the foundation of our national strength and progress.

I think I am justified in the statement that the hopes and expectations entertained by the few men who originated this organization in 1875 have been fully met.

This Association was organized in the interests of the people of Canada, and for the purpose of developing the resources of this country in particular, and arousing to new life its latent forces, hidden by the pall of discouragement thrown over them by a Free Trade Tariff, or tariff for revenue only. How far we have succeeded by our support of what is now known as the

"National Policy," let the tall chimneys everywhere, dotting the cities, towns and hamlets of this country attest; let the growth and prosperity of the last ten years also speak out, and, lastly, let the jury of the commonwealth, the people who have twice endorsed this policy bear testimony. It is everywhere evident that the vigorous young life of this country is becoming more aggressive and self-reliant. I would do injustice to the good sense of my American friends, many of whom are members of this Association and our brethren, to suppose they would feel offended at my remarking that the abrogation of the old Reciprocity Treaty by the United States was the birthday of Canadian self-reliance. I regard it a memorable event in our national history, the abrogation of that Treaty; and if the American people respected us then, they have not been slow in according us unstinted praise since, because of our pluck and enterprise, qualities which have always commanded their admiration and respect. There has been occasionally disturbing causes between us but they have arisen from business rivalry mainly and not from National antagonism. Let us hope that peace and goodwill may continue between ourselves and the American people, and in the spirit of the ancient Patriarch may John Bull say to brother Jonathan, "Let there be no strife I pray thee between thee and me, between my herdsmen and thy herdsmen for we be brethren."

I am pleased to anticipate through our secretary and treasurer a satisfactory report of our condition as an Association, and that they will have the pleasure of reporting not only an increase in membership, but a respectable balance to our credit. I am sure that with me you feel thankful in the possession of such efficient officers as our honorary secretary, Mr. Nicholls, and our treasurer, Mr. Booth. The evidences I have had of their attachment and fidelity to our interests have been such as to lead me to hope for their continuance. I believe I may confidently say that, with the exception of such industries as have been affected by the remarkably mild winter, trade has been fairly good, Canadian factories have been well employed, and business fairly remunerative. The present outlook though uninviting is not so gloomy as to lead to discouragement. While there has been a lessened demand for many lines of goods, it has arisen from a desire to husband resources, partly owing to the low prices prevailing for farm produce. This, however, is the usual form of industrial compensation, and can only apply to purchases in excess of real wants. I believe the general condition of the country, commercially, to be sound and healthy, and with the exercise of care in production, manufacturers may reasonably anticipate a good year.

It is quite true that the year 1888 brought an excess of failures, nevertheless, the total liabilities were less by \$2,095,000 than those of 1887. If we diagnose the pulse of the country through the medium of the returns of the Post Office Savings Bank and the Life Assurance Companies, which are always indicative of the thrift of the people, we find that the increase in deposits over 1887 were \$1,191,282, while the additional amount of life assurance effected (and at risk) in 1887 over 1886, those being the latest returns published, was over \$20,000,000. Of course the deposits in the Post Office Savings Banks do not by any means convey an accurate estimate of the people's savings, inasmuch as the Government permits only a certain amount to be deposited by each individual. Therefore

the further savings will be found on deposit in the various saving institutions of the country and investments in other directions. A most notable utterance was recently made by the President of the Canada Permanent Loan Company in this city, at its annual meeting. The President is reported to have said, "among our receipts the shareholders will, I am sure, be struck by the large amount received on account of mortgages. The payments made by our customers last year were most satisfactory, never better." I think, gentlemen, these evidences of general thrift are incontrovertible proofs that we are not only progressive but prosperous.

During the year 1888, according to the latest statistics, 88,766 emigrants settled in Canada. This shows a numerical gain of 4,240 over the previous year, and should be regarded as satisfactory when we consider that the Government discontinued the practice of granting assisted passages in April of that year. Of this number 40,937 settled in Manitoba and the North-West, and, no doubt, contributed largely to the settlement, there being 600,000 acres taken up during the year. At this rate it requires no mathematical calculation to convince us that this part of our country is rapidly filling up, and will continue to increase in a greater ratio year by year. I am aware a common argument with Commercial Unionists and the enemies of this country generally, is, that the country is not increasing in population as it should, that our people are discontented and continually going to the United States. This is the old dismal wail of the pessimist, and forcibly reminds us of

"Children crying in the night,
No language, but a cry."

I know this population question has been so much made us of to our disadvantage that I propose to state some facts by way of comparison. From 1798 to 1806 emigration to the United States at no time exceeded 10,000 a year; from 1817 to 1819 it did not exceed 20,000 a year, while it almost ceased between 1806 and 1817. By 1830 it had risen to 50,000 a year. Now let me give you the population of the United States at these various periods:

	Emigration.
In 1798 the population was 4,850,000.....	10,000
" 1806 " " " 6,209,000.....	10,000
" 1817 " " " 9,000,000.....	20,000
" 1819 " " " 9,300,000.....	20,000
Total immigration in four years.....	
	60,000

The average population of these four years is 7,339,750, and the average emigration 15,000. Now if you take our own country at 5,000,000 in 1888, with an increase the same year from emigration of 88,766, I think it effectually disposes of this population theory, and clearly exhibits the favor in which this country is regarded by the emigrants of Europe. Turning to the question of our people occasionally going to the States there is this to say, that while the social and business relation of the two countries conduces to an exchange of population, it is very much open to question whether we contribute more than we receive. One of the common failings of the day is the growing disinclination to wait for results. If this country has to become strong and vigorous it will only be by the same course of development which makes the child a man. In this gathering we are all workers. Most of us have risen from workingmen, and are workers yet. It is in the recollection of

most of us when labor of every description was rewarded with half the money paid for the same labor to-day; and this is not only applied to male, but female labor as well. Many of the daughters of this country served in households thirty or forty years ago for three to five dollars per month, and this at a time when the cost of fabrics and wearing apparel were twice the price of the present day. It was no unusual thing then to observe groups of men and women in country districts listening to the news of the day as dealt out to them through the medium of the old *British Colonist* or *Toronto Leader*, which came once a week, or twice at most; and any one fortunate enough to possess a copy of either of these papers was sure of the patronage of the community.

It is within the recollection of some in my hearing, when many of the early pioneers of this country traveled fifty miles to market and accepted fifty cents a bushel for their wheat, and took exchange in "store goods." These men endured hardships and toil not dreamed of by this generation; and yet the pessimistic grumbler will have the hardihood to tell us "the former days were better than these."

Let us contrast the condition of the sons and daughters of this country to-day with those of the days I have spoken of. Now every portion of the older Provinces is served by railways; every home where frugality and thrift abides is the home of comfort and plenty, while many are the abodes of luxury, elegance and culture. The post offices are now served by a daily mail, and it is no uncommon thing to see the farming community enjoying the morning paper a few hours in advance of the village or town beyond. It is a notable fact that we possess the best postal service on this continent, having one post-office for every 652 inhabitants, while the ratio in the United States last year was one for every 1,045. This furnishes a reason why we are charged three cents postage as against two in the United States. I think we have no reason to find fault with this branch of the public service under the advantages we enjoy.

Turning now to the question which immediately affects every industry in this country, the question of Protection, let us not overlook the fact that vigilance is necessary. The amount of Free Trade argument promulgated to convince the Canadian farmer that he is being ruined by Protection is indeed wide enough, but it lacks one essential to sustain it, *i.e.*, the evidence. Let me repeat the words recently uttered by a noted Free Trade journal and which related some facts—for Free Trade journals have occasionally by accident stated facts. It says: "The farmers know to their sorrow that their surplus grain, beef, pork and dairy products must be sold in foreign markets in competition with the cheap productions of every other country." Now this is the case; and why go to foreign countries, if not to reach the toiling and consuming millions where nations have built up large industries giving employment and population to the land? If such conditions are required to create a market for produce in Europe, on what hypothesis is the farmer asked to assist in destroying the industries of his own country, and prevent the development of his home market? Let us pursue this question to its legitimate conclusion and "speak the words of truth and soberness."

It is a well-known fact that the conditions of trade vary with the inexorable law of supply and demand. Should an

over-abundance of any particular class of farm products take place, the invariable result is a depreciated market for that particular class of produce, the effect of which is that the farmer adopts a different class of farming to lessen the production in one direction and meet the demand in another. As with the farmer, so with the manufacturer; he is subject to the changing conditions of trade, and must watch closely the course of his competitors to see that supply does not exceed demand. I cannot better illustrate this law of supply and demand than to suppose that twenty thousand men and women of this country were withdrawn from the pursuits of agriculture, and profitably employed in industrial occupations. We should at once be confronted with the fact that a home market had been created for every dollar of breadstuffs we produce. It is, therefore, sufficiently evident that the interests of the husbandman and the manufacturer are so interwoven that the success of one depends on the success of the other; and that a diversity of occupation and pursuits is essential to the successful development of this and every other country.

This can only be accomplished by duties on foreign imports sufficient to protect home production, and thus encourage and extend the home market. If our agricultural products cannot find a home market, it is sufficiently obvious that the cost of transit to a foreign market must be borne by the agriculturist. If protection to native industry is so essential in the interest of the farmer, it is equally so in the interests of the working men of this country. I have yet to learn that any deputation of workmen ever approached the government of this or any other country asking it to withdraw its protection to native industry. The common sense born of experience is a better tutor than any visionary theory propounded by Free Trade propagandists, and to the credit of the workmen of this country be it said, they have never proved recreant to their country's interest when this question was an issue, but have exhibited a knowledge of trade matters foreign to the mind of that class of Free Traders who theorize in city offices while they work out the practical problems of human existence. It is indeed a practical condition that confronts the working man, not a theory, and it concerns a question which primarily affects him; and any legislation having his consent must be in furtherance of protection to home manufacturers. To preach Free Trade to the workingman of this country is to insult his intelligence. When Free Trade countries pay the workingman as high wages as he obtains on this continent, with the same advantages and cost of living, then it will be time enough for Free Trade agitation, but not till then. A general revision of the Tariff made necessary by changed conditions of trade has at last taken place, and though not up to the expectations of some, perhaps, yet on the whole it may be regarded as satisfactory, and will no doubt give new zest to trade and revive many flagging industries. The Finance Minister, it is quite evident, has been actuated by a desire to guard every interest, and may fairly be congratulated on his success.

Permit me to say a few words on the question of combinations. I am convinced of the importance and utility of well directed industrial combinations in which are involved the material interests of employer and employee. The principle of mutual co-operation by all concerned is essential to the success of any

enterprise, more especially of an industrial character. Insignificant and unimportant indeed are the efforts put forth in business life where this great principle is disregarded; and while I think it fully within the privilege of every honest man to draw the line at a point where combinations operate against the public good, yet I am convinced of their value where such is found to be in the interest of the masses; and I hope the day is not far distant when the millions locked up in savings banks, to the credit of the frugal workmen and women of this country, will form no unimportant share of its active industrial capital; and when faith and works may be so manifested as to secured the co-relative condition of employer and employe in mutual combination. I am pleased to have it to say there is yearly becoming less fiction between capital and labor, as the claims of each are better understood.

In conclusion what as to our substantiality as a British dependency on this continent? Let no utterances to the contrary deceive us, or the labored attempts to create a sentiment in favor of political union, or absorption, with a foreign power. We are here, and have come to stay. Do not the enterprises we have inaugurated and carried out point to substantiality? Are not our public works, our warehouses, our industries and our institutions of learning evidences of our substantiality as a nation; and is not Canadian sentiment hourly becoming more strong, striking its roots into and clinging fast to the soil of its nativity? We are prosperous and happy, and what do we lack to make us respected by other nations? Have we not a history, and a flag on which is emblazoned the records of battles fought and victories won? Have not Canadians lived that were an honor to their country; and do not such yet live, and whose names will live when Canadian History is written? Have not men lived in this land who have died in defence of her liberties? And why have we erected monuments to their memory if not to record heroic deeds and noble acts? They tell us men live in this country whose life's service is bent on ignoble designs; and whose every act tends in the direction of base disloyalty to the state. It may be so, but no true Canadian envies the reputation of such a class. I do not know what the true estimate of good citizenship is if not loyalty to one's country. Surely the day has not arrived in our history when the exigencies of party are paramount, and when politicians regard our national honor and fealty to British connection as of secondary importance. But, Gentlemen, it is a pleasing reflection that those engaged in the ignoble task of crying down our common country are confined to a few who have utterly failed to enlist Canadian sympathy. When, in the record of political parties, has any statesman, worthy of the name, been associated with the egregious blunder of trying to wrest our allegiance from the British flag? There never has. There never will be. Let it boldly be proclaimed of us as an Association, that we do not join fealty to any party that does not carry the flag of our country, and keep step to its music.

SECRETARY NICHOLLS' REPORT.

Secretary Nicholls in his report referred to matters of interest occurring during the past year. His report was adopted.

TREASURER BOOTH'S REPORT.

The treasurer, Mr. George Booth, presented and read his annual report, which showed the Association to be in a good financial condition. On motion the report was adopted.

ELECTION OF OFFICERS.

The following officers of the Association were unanimously elected to serve for the ensuing year :

- President—Bennett Rosamond, Almonte.
- First Vice-President—W. K. McNaught, Toronto.
- Second Vice President—Adam Warnock, Galt.
- Treasurer—Geo. Booth, Toronto.
- Secretary—Frederic Nicholls, Toronto.

EXECUTIVE COMMITTEE.

Chairman—R. W. ELLIOT, Toronto.

Edward Gurney,.....Toronto.	S. Greening.....Hamilton.
Joseph Simpson.....“	C. A. Birge.....“
William Christie.....“	A. E. Carpenter.....“
P. W. Ellis.....“	W. H. Storey.....Acton.
John F. Ellis.....“	William Bell.....Guelph
John Taylor.....“	J. B. Armstrong.....“
Herman Heintzman.....“	Charles Raymond.....“
J. J. Cassidey.....“	C. Shurly.....“
Samuel May.....“	Thomas Cowan.....“
F. Crompton.....“	Isaac Waterman.....London.
H. B. Warren.....“	M. B. Perrine.....Doon.
R. T. Watson.....“	John Cowan.....Oshawa.
Robert Crean.....“	John Bertram.....Dundas.
Emil C. Boeckh.....“	T. D. Craig, M.P.P. Port Hope.
Daniel Lamb.....“	Wm. Chaplin...St Catharines.
P. Freysing.....“	J. R. Barber.....Georgetown.
Carl Zeidler.....“	W. H. Law.....Peterboro.
H. E. Clarke, M.P.P.....“	James Hendrey.....“
John Fensom.....“	Geo. Pattinson.....Preston.
Thomas McDonald.....“	J. E. McGarvin.....Berlin.
H. N. Baird.....“	Robert Mitchell.....Montreal
F. J. Phillips.....“	Geo. W. Sadler.....“
C. E. Pease.....“	A. W. Morris.....“
C. D. Massey.....“	Louis Cote..St. Hyacinthe, Que.
James Watson.....Hamilton	

REPRESENTATIVES TO TORONTO INDUSTRIAL EXHIBITION ASSOCIATION.

- R. W. Elliot.
- George Booth.
- W. K. McNaught.
- Samuel May.
- Frederic Nicholls.

RESOLUTIONS.

A number of resolutions bearing upon the general business interests of the Association were passed and ordered placed upon the Minutes, included in which were the following :

THE NATIONAL POLICY.

Moved by Thomas Cowan, seconded by Joseph Simpson,

That at this annual meeting of the Canadian Manufacturers' Association we desire to express our confidence in the fiscal policy of the Dominion Government and in their adherence to the principles involved in the National Policy—a policy adopted and sustained by the people of Canada, and one which, by giving a home market to Canadian manufacturers, and a larger field for their products, has enabled them to devote their energies to special lines of products, with the result of a reduction in price to consumers of every article of Canadian manufacture. It has also been a policy which has given increased employment to both labor and capital; and it has certainly provided a home market for the products of the field, the garden and the dairy, not otherwise obtainable.

INCREASE OF MEMBERSHIP FEES.

The following resolution was also passed :

That on and after October 15, 1890, the admission fee to membership in this Association shall be \$25, and the annual dues \$10.

VOTES OF THANKS.

A vote of thanks to the retiring President, Mr. W. H. Storey, for the faithful manner in which he discharged the duties of his office for the past two years, was passed unanimously.

A vote of thanks was tendered Mr. Frederic Nicholls for the able services he has rendered to the Association ever since his connection with it.

A resolution was unanimously passed thanking the Treasurer, Mr. George Booth, for the interest he has always shown in attending to the financial affairs of the Association; and the Secretary was instructed to have prepared an illuminated address to be presented to Mr. Booth, expressing the appreciation of the Association for the services rendered by him.

A resolution was unanimously passed thanking Mr. J. J. Cassidey, editor of the CANADIAN MANUFACTURER, for the able and acceptable manner in which the interests of Canadian manufacturers are looked after by that journal, and especially for his advocacy of the National Policy and the cause of Tariff Protection.

CANADIAN IRON SHIPBUILDING.

WITH the exception of Lake Michigan, which lies wholly within the United States, Canada has as full and free access to all the other lakes and large bodies of fresh water of the North American Continent as has the country to the south of us. We have heretofore shown the extent and value of the inland marine of the United States, and the wonderful increase of it of late years; and while it is not to be expected that Canada should possess as much tonnage on these waters as the United States, there is no good reason why it should not be in proportion to the population and the demands of Canadian inland commerce. But unfortunately it is not; and while this condition is to be deplored, Canada has to thank herself for the situation.

It is true that under the British North America Act Canada cannot exclude British shipping from participating in her inland and coastwise trade; but it is also true that but comparatively few British built ships are employed in that trade. The business exists, however, and enough of it to give remunerative employment to a great many more ships than what are now seen in it; and it is evident that British ship-owners either do not appreciate the value of the trade, that they have never had the importance of it properly presented to them, or they would certainly have long ago occupied the field more thoroughly than what they have done.

Shall Canada be minus this trade merely because Britain does not send ships to carry it on? It is a fact that the classes of ships usually built in Britain are none of them adapted to our lake navigation. Swarms of British built "tramps" are to be found all over the world engaging in its carrying trade, to the great disgust and demoralization of the business of "regular" lines, but the lake trade of Canada goes dwarfed and undeveloped. "The gods help those who help themselves." Why is it that Canada does not help herself? Why is it that while the lake trade of the United States

has developed to wonderful proportions, that of Canada remains small and insignificant? There can be but the one answer: that the policy of the United States is to encourage and build up her inland commercial marine, while the Canadian policy is one of discouragement and repression. No foreign ship can carry either freight or passengers between domestic ports in the United States, and American ships do the business. British ships are allowed to do this trade between Canadian ports, but they do not do it, and the Canadian trade is in a condition of collapse. The American papers are full of accounts of the new ships being built in American lake ports, some of them as fine specimens of marine architecture as ever floated; but when it has been decided to build a ship in a Canadian lake port, the event is heralded with the blare of trumpets because of its rare occurrence. And, alas, when the building of any ships is decided upon, it can only be consummated by and through some special favor of the Dominion Government which enables the timorous projectors to import from foreign countries such articles of iron or steel which are of a class or kind not manufactured in Canada necessary in the construction of such ships.

This is no encouragement to Canadian shipbuilding; and the offering of such so-called favors is a delusion. The ship building industry does not consist merely in assembling plates and angles and bars, already fashioned and shaped to templates, and riveting them together, and in locating and securing machinery, steering gear, hoisting apparatus, etc., as seems to be the prevailing idea in some directions. Does any one suppose that the immense American tonnage that now navigates the Great Lakes would be in existence to-day if American shipbuilders were forced to send abroad to obtain the different parts of their ships already shaped and fashioned to order, because such could not be had in their own country? The initial point of their industry is in their iron mines; and by progressive stages it advances to the furnace, the melting pot and the converter, the rolling mill and the machine shop, to the stocks upon which the ship is built. The industry in the United States possesses these progressive integers; but how is it in Canada? In the United States the Government stands forth boldly and avowedly in favor of a system that makes the existence of these integers to their shipbuilding industry possible. The mining of iron ore is protected. The blast furnace is protected. The steel works are protected. The rolling mill is protected. The machine shop is protected. The ship-yard is protected. The ægis of Protection covers them all. Protection is not offered in a timorous and half-hearted manner, but cordially, cheerfully and willingly; and any man who wants to invest his capital in that or any other mechanical industry in that country is beforehand assured of a protection that protects. There are growlers and objectors there just as there are growlers and objectors to our Canadian National Policy; but the growling don't hurt, and the objections are overruled.

We want that hearty support to Protection in Canada, and unless we get it—unless the policy of the Canadian Government includes protection to all the different integers involved, there can never be a successful shipbuilding industry in Canada.

Is Canada's National Policy to be shaped in this direction?

CANADIAN IRON MINING.

In our issue of March 7th we made reference to an article in the *Toronto Globe* in which this statement was made: "Each million tons (of iron ore) exported (to the United States) would represent the employment of about 4,500 able-bodied miners in Ontario at high wages." We inferred the meaning of the *Globe* to be that these 4,500 miners would be employed one year in the production of each million tons of iron ore exported from Canada to the United States. The *Globe's* article from which we made the above quotation was discussing a letter from Mr. T. D. Ledyard, published by it at that time; and the reference was to an iron mine in Canada in which Mr. Ledyard was financially interested. The suggestion was made that if there was Unrestricted Reciprocity between Canada and the United States, this Canadian iron mine of Mr. Ledyard's could or would export at least 2,000,000 tons of ore annually to the United States, and that this business, giving employment to twice 4,500 miners, "would give subsistence to 63,000 people, besides the 9,000 men engaged in mining;" and that "the removal of the United States duty would hugely increase our exports of iron ore." The *Globe* in the same article also said: "If it be said that the ores for (some visionary) Toronto blast furnaces cannot be mined so cheaply now as they could be if the United States duty on our iron ore were abolished, we cheerfully admit it." We had previously shown that Mr. Ledyard, speaking of the richness of his Canadian ores, and the cheapness of mining them, had said that they could be mined at a profit to the mine owners at a cost of one dollar per ton; and we had estimated this "profit to the mine owners" at twenty-five cents per ton, leaving but seventy-five cents per ton to the miner for mining. According to the *Globe* 4,500 men would be required to mine a million tons; and this means that one man might mine one thousand tons in four and a half years, and for which he would receive from Mr. Ledyard the munificent remuneration of \$750, which would be about \$167 a year, or fifty cents a day. These figures were based upon what Mr. Ledyard and the *Globe* had themselves stated.

We had also shown that Mr. Ledyard had stated that these Canadian ores of his were equal in value to any produced in the Lake Superior region, and that they could be laid down in Cleveland, Ohio, duty paid, at \$3.90 per ton; and we had also shown that such ores in that city were worth \$7 per ton.

In a more recent issue of this journal—that of March 21st—in discussing this subject we disclosed the fact that the "high wages" that the *Globe* said Canadian miners would be paid for working in Mr. Ledyard's mine if the American duty were removed, would be even lower than what we had previously estimated it. We showed that, according to Hon. George H. Ely, President of the Western Iron Ore Association, the average daily wages paid to miners in Lake Superior mines during the past eight years was \$2.10 per day; that the average total cost per ton of ore mined in that time was \$2.32, and that the labor cost per ton was \$1.60, the explanation being made that the difference between the "labor cost" and the "total cost" per ton was the expense for tools, explosives, timber, etc., the figures not including cost of general administration of the business, but only the cost of production at the

mines; the mining operations being carried on all the year round. Our argument was that while Mr. Ledyard could, by the payment of wretchedly small wages, mine his ores at a cost of one dollar per ton, this sum including a "profit to the mine owners;" the owners of the Lake Superior mines paid their miners an average of \$1.60 per ton net, at which price the miners could and did earn an average of \$2.10 per day, the year round.

According to the *Globe*, Canadian miners are now receiving higher wages than they could possibly hope to receive under Reciprocity, but how much the reduction would be that paper does not say; and we call the attention of Canadian miners to the fact that even now, without Reciprocity, Mr. Ledyard declares that he can mine his ores at a cost of a dollar a ton, including a profit to the mine owners, while the best the *Globe* can promise them is that under Reciprocity they could not obtain as much.

Mr. Ledyard's is not the only company owning iron mines in a country foreign to the United States that wants the American duty removed for the sake of enjoying free access to that market. The Pennsylvania Steel Company, who have recently erected extensive furnaces on tidewater near Baltimore, have valuable iron mines in the Island of Cuba; and they, like Mr. Ledyard, say that they can mine their ores and put them on shipboard there at a cost of one dollar a ton. If there was no duty they could lay their ores down at their furnaces at a cost of a dollar a ton, plus the freight, just as Mr. Ledyard says that he could lay his Canadian ores down at American consuming points at a dollar a ton, plus the freight, under Reciprocity. Mr. Ely is also authority for the statement that the average cost of explosives, tools, timber, etc., required in his mining operations during the past eight years was seventy-two cents a ton. Our argument was and is that the wages of Canadian miners should be measured by the compensation paid to American miners rather than by that paid for slave labor in the Island of Cuba. According to the Pennsylvania Steel Company, their Cuban ores can be delivered f.o.b. ship at one dollar a ton; and according to Mr. Ledyard, his Canadian ores can now be delivered f.o.b. cars at one dollar a ton, although the *Globe* promises that under Reciprocity the cost would be less. No one doubts that the most systematic economy prevails in the working of the Lake Superior mines; and that it would be impossible for Mr. Ledyard to operate his Canadian mines at less cost for explosives, tools, timber, etc. This cost Mr. Ely places at seventy-two cents a ton. It would certainly cost Mr. Ledyard quite as much, and it probably costs the Pennsylvania Steel Company quite as much in their Cuba mines. Both Mr. Ledyard and the Pennsylvania Steel Company declare their ability to deliver their ores f.o.b. at one dollar a ton, and this at "a profit to the mine owners." The difference then between the one dollar a ton cost delivered and the seventy-two cents a ton cost of explosives, tools, timber, etc.—say twenty-eight cents—would be the measure of wages paid the miners for doing the work, and out of this ridiculously small pittance Mr. Ledyard says there would be "a profit to the mine owners." This "profit" could scarcely be estimated at less than three cents a ton, leaving but twenty-five cents a ton net for the miner.

Perhaps twenty-five cents a ton may be the usual compen-

sation paid for slave labor in Cuban iron mines. Perhaps it is convict labor; and that the negro convicts there are farmed out after the Georgia style, where accused negroes are supposed to be guilty of some offence until they can prove their innocence; and where all the contractor can get for his convict slaves is clear money. Does Mr. Ledyard propose to dig out the ore from his Canadian mines in a similar manner? It could not be done in any other way for the money. Free Americans, as we have shown, receive \$1.60 a ton for mining ore, and Canadian miners should not be expected to work for less.

Meantime we suggest that Canadian miners are not to be gulled by the invitation to compete with negro slave labor by mining Mr. Ledyard's ores at twenty five cents a ton.

DUTY vs. BONUS.

RECENTLY in discussing the wonderful increase in the manufacture of pig iron in the United States since the duty on iron ore was raised from twenty per cent. ad valorem to seventy-five cents per ton, we enquired, "Why should not Canada, under similar influences, become equally independent?" We ventured the assertion that Canada has within herself all the requisites for the manufacture of iron, and that what we need is blast furnaces and iron and steel works—"enough of them right now to produce at least 300,000 tons a year." In answer to this the *American Economist* says:

What Canada needs is not blast furnaces and iron and steel works, but common sense on the part of her Legislators, a greater knowledge of markets, and less regard for maxims.

The *Economist's* argument is that Canada might have these works and then not be able to furnish herself with the iron and steel she requires. The United States had blast furnaces and rolling mills in 1846, but on the withdrawal of Protection the fires went out in them, and were not again kindled until the renewal of Protection. The United States has had protective duties on pig iron, as high as \$9 a ton, and that country is now entirely independent of the world in that respect. Canada, however, has only recently attained a duty as high as \$4 a ton; and her supply of iron is merely being transferred from British to American hands. The indictment is a true bill. Owing to some unaccountable theory, or because of timorousness in this direction, the Dominion Government have never shown any vigorous desire to have the iron industry in its different branches established in Canada. Owing to some peculiarly favorable local circumstances, and with the aid of a bonus upon the output, the Londonderry Iron Company have been able to operate their furnaces on a limited scale: but besides this the \$4 duty on pig iron has been and is a tariff for revenue only, and not for Protection.

The pig iron industry in Canada is in very similar condition to the tin-plate industry in the United States. The duties upon these yield large revenues to the respective countries, but thus far they have not served to induce the extensive manufacture of the articles. Under a duty of \$4 a ton, the successful manufacture of pig iron in Canada seems to be an impossibility; while if that duty was considerably increased, making it at least equal to that of the United States, no doubt Canada would soon be in a condition to manufacture all the

iron she needs Under a duty of one cent a pound the manufacture of tin plates in the United States has never been possible. That duty has converted millions of dollars into the treasury every year—a duty for revenue only—while never a pound of tin plate is being made in the United States. It is claimed, however, that if a duty of two-and-one-fifth cents a pound be imposed on tin plate the industry would immediately spring into existence, giving remunerative employment to thousands of people in America instead of in England and Wales.

The last resolution offered by Minister of Finance Foster in his budget declares that it is expedient to provide a bounty of \$2 a ton to be paid on all pig iron manufactured in Canada. It is to be regretted that Mr. Foster did not take a more comprehensive view of the situation, and instead of offering a bonus of \$2 a ton on all iron made in Canada, have increased the present duty of \$4 a ton to \$6 or \$7 on all importations of the article. If this were done the benefit would be quite as great to existing furnaces, and without doubt would induce the erection and operation of many others in Canada.

It is not yet too late to raise the duty on pig iron—will Mr. Foster do it? The nation that manufactures pig iron for itself prospers.

CANADIAN PORTLAND CEMENT.

In a recent issue of this journal mention was made of an important discovery of an immense deposit of carbonate of lime and cement clay underlying it, at Shallow Lake near Owen Sound, Ont. These are the materials essential in the manufacture of Portland, or Roman cement; and mention was made of the fact that at only one other known place in the world are these ingredients of cement found in such close proximity. It was also stated that no genuine Portland cement was manufactured in America for the reason that, before the discovery of the Shallow Lake deposit, no carbonate of lime had heretofore been found on this continent pure enough to make a superior grade of Portland cement.

The Philadelphia *Manufacturer* republished what we said about this Canadian deposit, and in a more recent issue of that journal a communication was published from a gentleman interested in a cement works in Pennsylvania, in which he stated that our item was full of mistatements. Our information concerning this Shallow Lake deposit of carbonate of lime and cement clay was obtained from Mr. R. J. Doyle, of Owen Sound, Ont., and to him we submitted the letter of the Pennsylvania cement manufacturer published in the Philadelphia *Manufacturer*; and Mr. Doyle has written us a communication on the subject, which will be found in another page. He evidently knows whereof he speaks, and we commend his letter to our Pennsylvania friends.

Our Pennsylvania critic contends that "carbonate of lime of the purest character is found all over the United States; and the question of the successful manufacture of Portland cement there depends in no way upon the absolute purity of this element, but mainly upon labor-saving devices and proper methods of economical manufacture." Mr. Doyle suggests that carbonate of lime may be found in many places there, but that it is not found in the conditions prevailing at Shallow Lake, Canada, and at Boulogne, France, and a very few other

places in Europe. The American deposits, while probably equally pure, are of limited extent, and of a formation requiring the use of explosives in mining and of expensive machinery in reducing to a consistency necessary for mixing with other ingredients in the process of manufacture; and Mr. Doyle quotes the statement of Gen. Gilmore, of the United States army, that "the necessity of reducing the carbonate to a state of paste before calcination takes place, practically excludes the more compact varieties of limestone" from use as an ingredient of Portland cement. The prevalence of carbonate of lime throughout the United States is admitted, but that which is found there, because of its being in the form of rock, is, according to Gen. Gilmore, excluded from use for the practical manufacture of Portland cement.

According to Mr. Doyle, the deposits of Shallow Lake, like those of the best in Europe, do not require the use of tar or crude oil in mixing and preparing for calcination. If we are correctly informed, however, the process of manufacturing the cement produced by the Pennsylvania concern alluded to is a patented one, and consists in crushing and grinding the rock carbonate and mixing with tar or crude petroleum, forming this mixture into balls to be calcinated in kilns. Cement manufactured in this way may be superior to common water lime, but it is doubted if it equals such Portland cement as is manufactured at Boulogne.

If carbonate of lime of the purest character is found all over the United States, and the successful manufacture of Portland cement depends in no way upon the absolute purity of this element, but mainly upon labor saving devices and proper methods of economical manufacture; the question arises why, with a protective duty of 20 per cent. levied by the American Government, the manufacture of high grade Portland cement there is not in a more flourishing condition than what it is? In 1883 the importation of cement into the United States was 472,864 barrels, while five years later—in 1888—the importation amounted to 2,016,990 barrels—four times as much. It may be that American cement is used in the construction of some sewers in Philadelphia, and, perhaps, in some buildings, but the large and rapid increase in the importation of foreign cement is a contradiction of the statement that the Pennsylvania-made article is "of a quality equal, if not superior, to any foreign Portland cement," and that "with the duty maintained at the rate of 20 per cent., and packages restored to duty," the United States could "make all its own Portland cement."

INFORMATION CHEERFULLY GIVEN.

WHETHER the existing fiscal system of Canada is in a "bad way," as the *Globe* suggests, when a removal of the American tariff would cause Canadian miners to compete with negro slave labor at twenty-five cents a day, is open for discussion. We have shown at various times that iron ore is mined in the island of Cuba and delivered f. o. b. ship at one dollar a ton; and we have also shown that the cost of explosives, tools, timber, etc., necessary in mining cost seventy-two cents a ton. The owners of mines usually exact a liberal royalty on each ton of ore raised, this royalty ranging from twenty five to fifty cents a ton. For the purposes of our argument we put thi

royalty at the nominal figure of three cents a ton: and then it is demonstrated that the labor cost of these Cuban iron ores is only twenty-five cents a ton. We tabulate the cost per ton as follows:—

Explosives, tools, timber etc.,	72 cents.
Royalty,	3 "
Labor,	25 "
Total	\$1.00

This is exceedingly small remuneration for human labor; and we submit that such labour cannot be had of free persons in any civilized country in the world. Such labor can only be had at that price from those who are not free. It must be rendered either by human beings held in bondage by "Divine right" as insisted upon by the recent Mr. Jefferson Davis of the recent Southern Confederacy; and such as is now observed in the Island of Cuba; or it must be rendered by convicts who have forfeited their right to freedom by having committed crime for which their slavery is punishment. We are not advised as to the status of the slaves employed in these Cuban iron mines: whether they be born slaves of the "Divine right" order, or convicts suffering punishment for their crimes. It is certain they are not free men or they would not work digging out iron ore at twenty-five cents a ton. They could not work for that remuneration and support themselves and their families.

Yet this is just about the status that Mr. T. D. Ledyard wants to have prevail among free Canadian miners to be employed in his Canadian iron mines. We say so because Mr. Ledyard says that the ores from his mines can be delivered f.o. b. cars at mines for one dollar a ton, including "a profit to the mine owners"; and this twenty five cents a ton pay for mining iron ore is what the *Toronto Globe* denominates "high wages to able-bodied miners."

Mr. Ledyard and the *Globe* do not seem to appreciate the free advertising we are giving their fad; for although the facts and figures we have published are authentic and reliable, they claim that we misrepresent them. It will be noticed, however, that while neither of the defendants deny our facts, they do not attempt to refute our conclusions drawn from them, contenting themselves with calling us bad names and making wry faces.

They dodge the question. They seem to imagine that enquiries as to "where negro slave labor is to be found in the United States; or where mining labor can be had in that country for fifty cents a day" will blind the eyes of Canadian miners to the fact that they hope, under Reciprocity, to raise the ores from Mr. Ledyard's Canadian mines for even less than what it now costs him. We never said that negro slave labor could be found in the United States; nor that mining labor could be had in that country for fifty cents a day. Our objection to the fad is that, according to Mr. Ledyard's statements, and in connection with other statements, the conclusion is irresistible that he wants Reciprocity by which he hopes to be able to sell in Cleveland, Ohio, at seven dollars a ton, the ores from his Canadian mine that will cost him only one dollar a ton f.o. b. cars, and out of which dollar he will pay seventy-two cents a ton for explosives, tools, etc., and a royalty that we have estimated at only three cents a ton, leaving only twenty-five cents a ton for the miner. This pay the *Globe* says would be "high

wages"; and that patriotic journal promises that under Reciprocity, by which Mr. Ledyard would save the American duty, the pay of the miners would be less than it now is.

It is a strange phase of the situation that if, as Mr. Ledyard reiterates, the ores from his Peterborough mine can be placed f.o. b. cars at the rate of 400 tons a day at a cost not exceeding one dollar a ton he does not embrace the shining hours and send off to Cleveland, Ohio, at least 400 tons a day for which he can get seven dollars a ton. He tells us that he can lay these ores down there, duty paid, at \$3.90 a ton; and it is a thing that no fellow can find out why Mr. Ledyard does not go in for getting this \$3.10 a ton profit—say \$1,240 a day—instead of whining for a political impossibility in the shape of Reciprocity. Can't Mr. Ledyard be content with making \$3.10 a ton clear profit on every ton of ore he can raise from his mine while the miners who do the work can earn not exceeding fifty cents a day—probably less? Or is he such a self-denying patriot that he would rather remain a poor man than see Canada go without Reciprocity?

This question of Reciprocity may well be left for decision to the intelligent working men of Canada, who know well where their true interests lie. We are convinced, however, that Mr. Ledyard's fad, involving competition with cheap slave labor, will not be popular with them.

A SONG OF THE SHIRT.

PERHAPS all the working girls in Toronto factories would be just dying for Free Trade if they had time to read the arguments of the anti-tariff papers and orators who tell them that if the tariff were removed they could buy their silks, laces and dress goods much cheaper than at present prices, the difference being measured by the amount of duty levied. Perhaps this might be the fact, or would be if these girls possessed wealth and did not have to work for their living; but they should bear in mind that in some of the trades in which they are employed—say shirtmaking—the shirts that they make are protected by a specific duty of one dollar a dozen, and thirty per cent. ad valorem, which being interpreted means that shirts that cost one dollar each in England would, if brought into Canada, have to pay eight and a third cents specific and thirty cents ad valorem, a total of thirty-eight and a third cents as duties to the Dominion Government. If the shirts are more expensive the duty would be higher; but it will be borne in mind that the masses of the people in Canada who wear shirts are satisfied to buy those made in Canada of cotton goods manufactured in Canada, and upon which the sewing and finishing is done by Canadian girls in Canadian factories: and it will also be borne in mind that if the more expensive shirts are imported from England into Canada, they are worn by the more wealthy classes who can afford to pay the duty on them. The girls will also remember that although there may be heavy duties levied upon silks, laces and dress goods, such articles are generally worn by the wealthy people, and the common people of Canada are perfectly contented to wear just such dress goods as are made in Canada, well knowing that they are good, substantial, honest home-made goods upon which no duties whatever have been paid.

Think of it, Canadian girls who work for your living; and think of it, ye, Canadian men, who love these girls, whether it be as sweethearts, sisters or daughters; that without the protection interposed by our National Policy these Canadian shirtmaking girls would have to compete with European labor that would force the price of shirtmaking here so low that they could not possibly subsist on it. It is well known that the wages paid to all the laboring classes in England are extremely low, so low, in fact, that the most widespread destitution and distress prevails: and this condition recently induced the British Parliament to appoint a committee to investigate the matter. In its investigations some startling discoveries were made, some of which showed that the women and girls employed in shirtmaking were reduced to circumstances illustrated by a statement made in the *St. James' Gazette*, one of the most reliable papers in England. This statement was to the effect that two or three years ago the price given for making men's shirts by machine was 1s. 6d. per dozen, which is now reduced to one shilling—less than twenty-five cents in Canadian money. A woman driven by necessity, undertook to make shirts at 8d. a dozen, about sixteen cents—and out of this she had to pay 1½d.—three cents, for sewing cotton, and to pay rent for the sewing machine also, which reduced the pay to scarcely ½d. a shirt.

Think of this—women in England making shirts for one cent each! And this is no uncommon occurrence there—in fact that was and is a fair average price that such labor is paid for such work. Who wants Canadian girls to toil their lives away making shirts at a cent a piece? Are there any men in Canada who desire it? Mournfully we answer, yes. Who are they? They are those who want Canada to have Free Trade with all the world; who want the privilege of buying what they want in the cheapest markets, no matter where these markets are, who are employed in producing the goods, and regardless of the wages earned. The anti-tariff papers ridicule Protection, claiming that it enhances the cost of everything that pays duty; but, pray, what luxurious living can that poor English woman indulge in, in Free Trade England, when she is forced to make shirts at a cent a piece?

EDITORIAL NOTES.

THE nation that manufactures pig iron for itself prospers.

IN Canada, home production, prosperity and protection are synonymous terms.

THE nation that builds its own ships, of materials manufactured in its own industrial establishments, prospers.

We are in receipt of a letter from a correspondent at Vancouver, B.C., who informs us that in our recent article relating to the "First Uses of Electricity in Canada," in which it was stated that the *Toronto Globe* was the first newspaper in Canada to use electric motors for driving printing presses, we were in error. He says that the *Vancouver News Advertiser* printing presses have been driven by electric motors for the past two years, the current being furnished by the Vancouver Electric Railway and Light Company. Like the *Globe*, of this city, the *News Advertiser* is building new and commo-

dious quarters, the intention being to have all the presses in the establishment driven by electric motors. These motors are now being constructed in England, and will be installed in the new building as soon as it is in readiness to receive them. If our correspondent will again read our article he will observe that we stated that the *Globe* was the first to use electricity for this purpose in Ontario—we did not say in Canada.

THIS is a sickly season for lugubrious pessimists in Canada. Canada is on the boom. Those who don't love Canada can emigrate. The glorious brightness of the sunshine of Protection irradiates Canada, and her future looks as bright and hopeful as her recent past has been under our glorious National Policy.—CANADIAN MANUFACTURER.

ARE the Ontario Asylums for the Insane all so overcrowded that the electrified idiot who penned the above is allowed to go at large?—*Montreal Herald*.

Perhaps our Montreal contemporary may think itself exceedingly smart, but its smartness verges closely upon stupid vulgarity. If standing up for Canada and proclaiming her excellence indicates electrified idiocy, the CANADIAN MANUFACTURER enjoys the company of a large and honorable army of com-patriots. The stupid vulgarity that actuated the *Herald's* smartness, if dissected into pieces the size of a shingle, would be sufficient to protect all Montreal from the inclemency of the weather.

RECIPROCITY, in agricultural produce alone, between Canada and the United States, long since ceased to be possible. With regard to such produce both countries are moving on the same line of restriction and looking to mutual exclusion, as far as possible, without a direct act of prohibition. No doubt they possess the power to do one another great injury by pursuing this policy. Something will be gained if the dream of a return to Reciprocity, on the old basis, be finally abandoned as delusive. The ground having thus been cleared for future action, a different policy will stand some chance of being considered on its merits. At the present moment, it is only too clear both countries are moving in a direction opposed to their own interest.—*Monetary Times*.

The people and Government of Canada, and the people and Government of the United States may not be awake to the fact, but it is a fact nevertheless that the separate and general affairs of the two countries could be better and more satisfactorily managed from the office of the *Monetary Times* than by the existing expensive methods. At least it is only too clear that that is the honest belief of our contemporary.

A STEAMER arrived at New Orleans last week from Hamburg, Germany, loaded with elaborate machinery for the new beet sugar factory at Grand Island, Neb. She also brought over fifty tons of beet seeds. Several tons of these seeds go to the Agricultural Department at Washington. That Department has had applications for seed from over 2,000 farmers throughout the United States, and further applications are constantly coming in. The plant at Grand Island, Neb., when completed will cost over \$500,000, and will have a daily capacity to work upwards of 400 tons of beets. It is larger than the average European plant. The opinion is expressed that the wheat and corn farmers of the West have a sure and profitable future before them in the cultivation of beets, which is a great source of profit of the European agriculturists to-day. It is certain that the farmers of the United States are awake to the necessity of diversifying their crops, and

they comprehend the fact that they have the soil and climate adapted to the production of a crop from which most gratifying returns may be expected. The per capita consumption of sugar in the United States is greater than in any other country—in fact the large consumption of sugar may be taken as an indication of the thrift of a people. The possibilities of growing the sugar beet is as great in Canada as in the United States, and probably greater than in France and Germany, where the industry flourishes so extensively; but it is to be regretted that so little interest is taken in the matter. With proper encouragement Canada should not only produce all the sugar she requires, but should be an exporter of it also.

SPEAKING of the magnitude of the Lake commerce of the United States, the *Cleveland Marine Review* says:

Sixty-two new steamships and eleven sail vessels represent the new fleet in the register for 1889. These have an estimated valuation of \$6,650,000, and aggregate 70,000 tons.

Our contemporary, speaking of the rapid growth of the shipbuilding industry on the lakes, gives figures regarding the work done in the shipyards there during the last few winters by which it is shown that the lake fleet of American vessels has more than doubled itself within that time. It says:

The following table shows the number of boats building under contract in December of each of the past four winters. Unfortunately, their carrying capacity in gross tons is represented instead of registered tonnage, and a few boats were contracted for and built each year after the ship-yards were full in December. The total valuation from the figures at hand, \$27,389,000, is sufficient to show that more tonnage has been turned out of the ship-yards since the summer of 1886 than was then afloat. The record is as follows:

Winter of	Number of boats.	Capacity gross tons.	Valuation.
1886-87.....	31	65,750	\$4,074,000
1887-88.....	60	108,525	8,325,000
1888-89.....	59	100,905	7,124,000
1889-90.....	56	124,750	7,866,000
Totals.....	206	399,975	\$27,389,000

From present indications, the ship builders will find cause for repeating the work of past seasons during the coming fall and winter.

WE have received from Mr. T. D. Ledyard, of Toronto, a letter enclosing a communication which he recently sent to the *Toronto Globe*, in answer to the *CANADIAN MANUFACTURER*, regarding the wages of Canadian iron miners. In commenting upon this communication, Mr. Ledyard says that it will "serve as an answer to the assertion of the *Engineering and Mining Journal* in stating that the wages of iron miners in Canada were higher than those of American miners, when, as a matter of fact, they are much less." We fail, however, to see that Mr. Ledyard makes his point in the communication in question. While it is doubtless true that mining has been done in Canada at the low cost of \$1 per ton, even Mr. Ledyard will have to admit that, with the conditions of Lake Superior mines paralleled in Canada, the above rate could not be maintained a single day. It is very easy to figure low costs when a mine is first opened up; the real business of mining commences, however, after the operations have been carried to an extent that calls for expensive plants of air compressors, pumping machinery, hoisting appliances, etc., and where the work is mainly far underground. We cannot believe that Mr. Ledyard is not informed as to these points of difference, yet we do not recall a single instance, in any of his newspaper letters, where he has

taken up and candidly considered this essential feature of the case. If the argument for Reciprocity rests upon no stronger argumentative foundation than this, it does not appear to be worthy of serious consideration.—*Cleveland Iron Trade Review*.

We request the attention of Canadian workmen, particularly those who may think of engaging in iron mining, to the above. Mr. Ledyard desires to make the impression upon the minds of American users of iron ore that if Reciprocity prevailed between Canada and the United States, so that he could send the ores from his Peterboro' mine into the United States free of duty, he could sell them to American furnaces at very much lower prices than he can now do. He boasts to the *Iron Trade Review* that, as a matter of fact, the wages of Canadian iron miners are now much less than the wages of American miners, and that under Reciprocity they would be still further lowered. The *Toronto Globe* agrees with Mr. Ledyard in this; and the exceedingly small pay they promise Canadian miners is what they call "good wages." Mr. Ledyard's racket won't work.

SPECIAL ADVERTISEMENTS.

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

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

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

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.

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

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

CANADIAN PORTLAND CEMENT.

To The Editor of the CANADIAN MANUFACTURER.

SIR;—I recently observed a communication in your journal regarding Portland cement made from the deposits of Shallow Lake, Grey County, Ontario.

I have also observed a communication in the Philadelphia *Manufacturer*, signed by Mr. Robert W. Leslie, questioning the accuracy of the article in your paper. I may say that no man who understands the nature and manufacture of the genuine article will deny that the Portland cements made in England, France and Germany are manufactured from carbonate of lime, (chalk) and clay, largely composed of soluble silica. It is well known that our American friends are a very ingenious people, and that they have been for many years trying to manufacture Portland cement from rock; and credit is due the company located at Egypt, Pennsylvania, for producing a very fair article of native cement—superior, I believe, to the ordinary water lime of commerce, by their system which, I believe, is patented, and which I understand consists in first crushing and grinding the rock to a powder, then mixing with a certain kind of clay, adding crude petroleum or tar to enable the material to be worked into balls, when it is burnt and ground. Any person familiar with the manufacture of cement must come to the conclusion that this is a tedious and costly process, and, at best, but an imitation and substitute of Portland cement, just as oleomargarine is an imitation and substitute for butter, or shoddy for good cloth. So is the imitation a good substitute in many cases for the genuine Portland cement.

At Shallow Lake we have the native, true raw materials in practically unlimited quantities; and it has been demonstrated by actual borings that there is sufficient material there to produce fifteen million barrels of cement, or a supply for the whole continent of America for at least fifteen or twenty years. Cement has been manufactured from this material that bore a tensile strain of 672 lbs. to the square inch. This is over double the strength of any Portland cement imported into Canada or the United States; grades higher than that of any English manufacturer, and, with some four or five exceptions, higher than that of any Portland cement manufactured anywhere in the world.

The deposit at Shallow Lake contains all the necessary components including iron, magnesia and alkali entering into the composition of true Portland cement, and no tar or crude oil is required in the manufacture of the genuine article; and at Shallow Lake there is no costly stone breaking and grinding machinery required.

It is asserted by Mr. Leslie that carbonate of lime of a pure character abounds in the United States. No doubt but what it does, but in rock form and in small deposits such as would not warrant the erection of expensive works for manufacturing. I desire to see the industry established in both Canada and the United States; and when both countries manufacture their own Portland cement some millions of dollars will be kept on this continent now going elsewhere for the article. One thing is certain, we have right here a practically inexhaustible quantity of suitable material which is situated more favorably than any other known deposit in the world, except that at Boulogne, France, for the manufacture of true Portland cement.

When Mr. Leslie produces by his process cement standing a strain of double that of the Portland cement of commerce it will be quite time enough to call in question your statement; and when he can point out a deposit in the United States of carbonate of lime with cement clay immediately underlying, sufficient in quantity to manufacture fifteen million barrels, and that containing all the necessary constituents for the very highest brands of Portland Cement, I think he will consider the product from it better than that from crushed rock mixed with tar or crude petroleum.

General Gilmore of the United States Army, a high and undisputed authority, in his able work on "Limes, Hydraulic cements and Mortars," states that the true Portland cement of England and France is made with chalk and clay, and that in its manufacture chalk (carbonate of lime) is generally depended upon to furnish the calcareous ingredient. The necessity of reducing the carbonate to a state of paste, and of incorporating it with the clay before any calcination takes place, practically excludes the more compact varieties of limestone. Reed, in his work on Portland cement, on page 3, treating of raw materials for English manufactures says, "The chalk used for the manufacture of Portland cement on the banks of the Medway and Thames is obtained from the upper deposits containing nodules of flint, and is generally described as white chalk. That used by manufacturers on the banks of the Medway is obtained from a formation containing quantities of silicious matter usually called grey chalk. The manufacture of Portland cement from rock, tar and crude petroleum is not known or practised in Europe."

Ours is an age of science, and we trust that the modern Egyptians will demonstrate their cement to be equal to that of the Ancient Egyptians.

R. J. DOYLE.

OWEN SOUND, ONT., April 3, 1890.

THE April 12th number of *Santa Claus* began the second half-yearly volume of that most excellent juvenile publication. It is specially intended for young folks, and, unlike the jolly old fellow who only gets around to see his friends at Christmas time each year, this namesake of his puts in a welcome appearance once a week regularly, and the cost of it is only \$2 a year. Published by the Santa Claus Company, 1113 Market Street, Philadelphia.

A BEAUTIFUL cover accompanies the Easter number of the *New York Ledger*, which gives the paper an air of reasonable and agreeable novelty. The design is chaste and appropriate, and the execution in color is refreshingly soft and harmonious. Such work is a popular educator in artistic feeling and recommends the paper to all people of taste. In this number of the *Ledger*, we notice the commencement of a new story by the popular author of "Jan Vedder's Wife," Mrs. Amelia E. Barr, entitled "The Household of McNeil." Mrs. Barr seems to command the best literary mediums—the *Ledger* and *Century* in the United States, and *Good Words* in England.

MESSRS. F. G. STRICKLAND & Co., manufacturers agents, New Westminster, B.C., have sent us a Souvenir which includes a bird's-eye view of that city of miraculous growth and unbounded enterprise and energy, surrounded with views of many of the principal places of business and the private residences of the business men there. There is also a railroad map of the Dominion of Canada showing the Canadian Pacific Railway and connections; and the position of New Westminster, and the facilities for reaching that city by rail and water from all points. The printed matter has reference to the Royal City of the Pacific Coast and the surrounding country, and is exceedingly interesting reading. This Souvenir was issued as a supplement to the *Vancouver World*.

THE issue of the *Dominion Illustrated* of April 12th contains some illustrations that all Canadians should prize. "Our Pet and Her Pets," the opening full-page engraving is a really charming picture, the chief figure being the grandchild of a Canadian poet. The "Walker of the Snow," by Mr. Blair Bruce, is made more telling by Mr. Shanly's spirited poem. "Moving Day" is reasonable and interesting to all. Views of the Chaudière Falls, of the Cascade in the Selkirks and the Big Pic Bridge (north of Lake Superior) will gratify all lovers of their country. A portrait of Mr. Miall, Deputy Minister of Inland Revenue, and a fine view of the Western Departmental Buildings, Ottawa, complete a really good number. Address: *The Dominion Illustrated*, 73 St. James Street, Montreal.

THE sixteenth volume of *Outing* opens with the April number. The fancy turns to thoughts of hearty outdoor pastimes with the Spring days of April. *Outing* has, therefore, been most carefully compiled with a view to catering to these reviving tastes. In many breezy clever articles *Outing* tells just where the pleasantest fields for outdoor enjoyment may be found. Certain yet unfrequented nooks, plentifully supplied with game, are revealed to the hunter and angler. The sailor and his interests are not neglected, while for ladies a new and favorite pastime is discussed by one of their number well versed in its history and practice. Professor Sumichrast, whose name is well known to *Outing* readers, writes ably of the English yachts in 1889. The admirable illustrations, contributed by Fred S. Cozzens, are full of that vivid action and life so noticeable in all his work. New York, 239 Fifth Ave. \$3.00 a year, 25 cents a copy.

THE Ontario Canoe Company, Peterboro, Ont., have sent us their new illustrated catalogue having reference to the canoes, etc., manufactured by them. Their canoes are built in all sizes and styles, and of every useful variety of materials; and the well-known character of the company and of the canoes built by them, is a good and sufficient guarantee of their superior excellence. The Ontario Canoe Company are probably the most extensive builders of this class of pleasure boats in Canada—we might with propriety have included the United States. They are seen at all watering places—in Canada and Northern and Northwestern States in the summer, and in the everglades and lagoons of Florida and Louisiana in the winter months. At this season in this climate with all who can get away for a summer holiday, the canoe question is an important one: and those who contemplate purchasing, should communicate with the company here alluded to.

THE excellence and beauty of *The Illustrated American*, and the variety and interest of its contents, place this paper at the head of the list of weekly illustrated publications. What will attract most attention in the current number are the three engravings depicting memorable incidents in the remarkable career of Prince Bismarck—his meeting of Napoleon III. immediately after Sedan; his escorting of that ill-fated monarch in his carriage over the corpse-strewn battle-field to King William I. (as he was then), a prisoner of war; and his attitude as he dictated the terms of peace to President Thiers and Jules Favre after the siege of Paris. The frontispiece is a fine executed portrait of the ex-Chancellor. The article entitled "Is the German Emperor in Earnest?" deals with a novel aspect of the present situation in the Empire, and is very suggestive in its way. A handsome coloured supplement is presented with the number, and is itself worth the cost of the periodical. "*The Illustrated American*" ought to find its way into every refined household.

Good Housekeeping for April 12th, is especially an Easter number, opening with an appropriate poem by Lucy Wade Herrick, entitled "Day-break," while three or four other pieces of verse of high merit appear in the number. There is less than usual pertaining to the table and kitchen, but there are three excellent papers regarding children's teeth, the family remedy case and the sick-room. There is an interesting sketch of "Sorosia," the model woman's club, and many valuable papers relating to the different interests of the household; while nothing will attract more general attention than Helen Campbell's department, which treats of "Woman's Work and Wages." *Good Housekeeping* goes to all sections of the country, into all lands, to the ends of the earth, so to speak, and has made sure and steady increase in substantial returns for its efforts "In the Interests of the Higher Life of the Household," and in the receipt of a wealth of commendation from its readers and the Press of the day, of untold encouraging moment and value. Published by Clark W. Bryan & Co., Springfield, Mass.

THE last volume issued of *Alden's Manifold Cyclopedia* is fully up to the high standard of the preceding volumes, and readers will be pleased to learn of the rapid progress the work is now making; strong financial allies have recently been secured in the publishing department, two large printing offices are now at work upon it, and the publication is to be hastened to completion with all the speed that abundant resource and energy can give it. People have wondered how a work of such superior merit and magnitude, and so handsomely and thoroughly well got up—a rival of the Britannica, Johnson, Appleton and the rest—could be published at all, at prices so remarkably low, and searches after knowledge, as well as the publishers, are to be congratulated upon the new promise of success. A 40-volume Cyclopedia, including an Unabridged Dictionary of language, large type, several thousand illustrations—all for \$30.00, and even that in such easy instalments as one pleases to ask, almost, is a great thing for the public! Specimen pages sent free to any applicant, by the publisher, John B. Alden, New York, Chicago and Atlanta.

THE Humbolt Publishing Company, 28 Lafayette Place, New York City, publishers of the Humbolt Library, have sent us the following:—"Modern Science and Modern Thought," in two volumes, by S. Laing, with a supplemental chapter on Gladstone's "Dawn of Creation," and "Proem on Genesis," and on Drummond's "Natural Law in the Spiritual World." "The Electric Light and the Storing of Electric Energy," illustrated by Gerald Molloy, D.D., D.Sc. "The Modern Theory of Heat, and the Sun as a Storehouse of Energy," illustrated by Gerald Molloy, D.D., D.Sc., as a Storehouse of Energy," by John Stuart Mill. "Upon the origin of Alpine and Italian Lakes, and upon Glacial Erosion," by Sir A. C. Ramsay, F.R.S. etc., Sir John Bell, M.R.I.A., F.L.S. etc., Sir Roderick I. Murchison, F.R.S., D.C.L., etc., Prof. B. Studer, of Berne, Prof. A. Favre, of Geneva, Edward Whymper, Prof. J. W. Spencer, Ph.D., F.C.S. With an introduction and "Notes upon the American Lakes," by J. W. Spencer, in two parts. These books, like all the other publications of the Humbolt Publishing Company, are the best and deepest thinkers of the age. They are written in a style that makes the perusal of them a pleasure: and the subjects of which they treat cannot but be of intense interest to all intelligent readers.

A COMPANY of Cincinnati capitalists are engaged in mining and shipping sulphate of barium (baryta) from mines near Port Arthur, Ont., to the United States. This article is largely used in the adulteration of white lead and as an adulterant for confectionery. Ten thousand tons are already mined and will be shipped on the opening of navigation. From 5,000 to 10,000 tons will be exported this season.

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. D. MILLER'S shingle mill at Washago, Ont., was destroyed by fire, March 25th; loss, about \$12,000.

MR. J. W. STANLEY'S carriage factory, at Ottawa, was destroyed by fire March 29th; loss, about \$4,500.

MR. JOHN WEILER, furniture manufacturer, Victoria, B.C., will enlarge and improve his factory \$10,000 worth.

MESSRS. C. R. CASEY & SON'S tannery at Amherst, N.S., was destroyed by fire March 20th; loss about \$12,000.

MESSRS. S. H. WARREN & CO., organ builders, Toronto, will build a \$2,400 organ for Chalmers' church, at Guelph, Ont.

THE furniture factory of Messrs. Fowler & Co., Brockville, Ont., was destroyed by fire, March 25th; loss, about \$4,000.

THE iron foundry of Messrs. Snow & Blackwood, at Mount Forest, Ont., was destroyed by fire April 8th; loss, about \$2,500.

MR. J. A. CHRISTIE, who operates a saw mill at Brandon, Man., will add planing machines with capacity to dress 90,000 feet a day.

THE lumber mills of Messrs. Menchie & Sons, at Milltown, near St. Stephen, N.B., were destroyed by fire March 16th, loss about \$7,000.

THE carpet mills of Messrs. J. & A. Armstrong & Co., Guelph, Ont., was scorched by fire on March 28th to the extent of about \$3,000.

THREE drying kilns of the Rathbun Company, at Deseronto, Ont., with their contents, were destroyed by fire, March 25th; loss, about \$12,000.

MR. HENRY PARKMAN, Windsor, N.S., manufacturer of carriages, sleighs, etc., is building a new factory 55x30 feet, three stories high.

THE St. Thomas Car Wheel Company, St. Thomas, Ont., has been incorporated with \$250,000 capital stock for manufacturing car wheels, etc.

THE Kingston Foundry and Machine Company, Kingston, Ont., has been incorporated with \$60,000 capital stock for the purpose indicated by the name.

MR. W. H. SUTHERLAND'S woolen mills at Napier, Ont., and contents, were destroyed by fire, April 9th; loss about \$15,000. Mr. Sutherland will rebuild at once.

THE Extrolite Explosive Manufacturing Company is being incorporated at Montreal with \$60,000 capital stock to buy and sell patents and formula for making explosives.

MR. C. M. TALCOTT, of Hartford, Conn., was in Hamilton, Ont., a few days ago with a view to establishing works there for the manufacture of horse nails on the Capewell machine.

THE Concord Buggy Company has been incorporated at Ormstown, Que., with \$10,000 capital stock, and will manufacture buggies and other wheel vehicles and cutters and sleighs.

THE Light, Heat and Power Corporation of Canada is seeking incorporation at Gananoque, Ont., with a capital stock of \$500,000, for the manufacture of oil gas by a patented process.

THE Amherst Boot & Shoe Manufacturing Company, Amherst, N.S. employ over 200 hands. They have recently erected a large warehouse three stories high for the purposes of their business.

MR. JAMES R. AYER, tanner, Sackville, N.B., gives employment to about 100 hands, mostly men, in the manufacture of oil-tanned larakins and moccasins, raw hide lace leather, harness leather, etc.

THE Forbes Manufacturing Company has been organized at Halifax, N.S., to manufacture a new and improved ice skate invented by Mr. John Forbes, the inventor of the celebrated "Acme" skate.

MR. LEWIS HOHN has been voted a bonus of \$5,000 by the town of New Hamburg, Ont., to enable him to establish a furniture factory there, in which he will guarantee the employment of thirty hands.

THE contract for the construction and erection of the stand pipe at the high level pumping station of the Toronto city waterworks has been awarded to the Canadian Bridge Company, of Montreal, at \$3,140.

THE Canadian Interior Conduit Company is being organized in Toronto with a capital stock of \$150,000 for the manufacture of conduits and tubes of compressed fibre or pulp for containing electric and other wires.

MR. WM. HOLMES, Amherst, N.S., manufacturer of carriages, etc., has recently enlarged his works by the addition of a factory building 90x30 feet, three stories high, into which he will introduce a lot of new machinery.

THE Wooden Manufacturing Co., of Oxford, N.S., have been awarded the contract to build the Conservatory of Music in connection with the Ladies' College at Sackville, N.B. The amount of their tender was \$10,000.

THE works of the Mowat Manufacturing Company, Whitby, Ont., which have been idle for some time, have been taken over by Mr. Alexander Brown, who will reorganize the company and put the works into operation immediately.

MR. A. HASLAM, of Nanaimo, B.C., will place a large quantity of special machinery in his lumber mills at Coal City, B.C. A sash and door factory is being added to the business, and the sawmill is being greatly enlarged and improved.

MESSRS. F. G. STRICKLAND & Co., manufacturers' agents, New Westminster, B.C., have recently received an order for a sawmill plant for Messrs. Johnson, Walker & Flett, Rock Bay, B.C. It is stated that several other mills will shortly be ordered.

MR. W. H. LAW, proprietor of the Central Bridge Works, Peterboro', Ont., will, in addition to his other contract for similar pipe with the city of Toronto, furnish all the extra lengths of 48 inch steel pipe required for the city waterworks at \$8.31 per lineal foot.

MESSRS. HALL, ROSS & Co., proprietors of the Victoria Rice Mills, Victoria, B.C., will erect a 200-barrel a day flour mill at that place which will be equipped with the very best roller machinery, it being expected that the new mills will be ready for work by August 1st. Other improvements are to be made, the total outlay to be about \$30,000.

THE Therapeutic Terrapoise Company of Canada are applying for incorporation with a capital stock of \$5,000,000 (?) with headquarters at Windsor, Ont. The objects for which incorporation is sought are for the purpose of procuring and controlling patents for the invention known as the "Therapeutic Magnet" and all improvements thereon, and for the manufacture of the same in the Dominion of Canada.

THE Menasha Wood Split Pulley Company, Menasha, Wis., inform us that they manufacture a full line of split pulleys, and that they make the only split loose pulley in the market. It requires no oil. They make small split pulleys from one to eight inches in diameter. All the pulleys manufactured by this company are equipped with Field's patent paper bushing.

MESSRS. WM. GRAY & SON'S new carriage factory at Chatham, Ont., will cost \$10,000. The main building will be in "L" form, 163 feet on Wellington Street and 136 feet on William Street, the latter forty-three, the former forty feet in depth, and all three stories high. In rear of the William Street portion will be a blacksmith shop, 31x83 feet, and the kiln, boiler and engine rooms will be in rear of the Wellington Street part.

THE electric street railway recently put in operation at Victoria, B.C., has been received with such favor, that there is now talk of extending the railway into the rural districts. It is proposed to continue the road into the Saanich settlement, so that the farmers can take advantage of it to come into the city. Freight traffic would also be handled. A scheme is also on foot to build electric tramways connecting Vancouver and New Westminster with agricultural settlements in their districts.

THE Goderich Organ and Furniture Company's factory, recently established at Goderich, Ont., is claimed to be a model in its layout, and one of the best equipped works in Canada. The main building is 96x48 feet, three stories high, and the boiler house and engine room is 66x36 feet, a portion of this being used as a dry kiln. The power is obtained from a forty-five horse power Corliss

steam engine manufactured by Messrs. Cowan & Co., of Galt, Ont., the boilers being from Messrs. Chrystal & Black's works at Goderich.

ONE of the largest leather main driving belts in the Dominion has recently been furnished by Messrs. George F. Haworth & Co., Toronto, to the Ontario Government for use in the Central Prison works in this city. This belt runs on a fly wheel sixteen feet in diameter, and drives all the machinery in the works. It is thirty inches wide, double thickness, and one hundred and eighteen feet long, and is made of Hoyt's American pure oak tanned leather. Messrs. Haworth & Co. have furnished many of the largest driving belts in Ontario, some of which have been in constant use for the past thirteen years.

MR. E. D. MACKAY, of the firm of Mackay & Campbell, of Port Hastings, N.S., dealers in mowing machines, etc., has purchased, and intends to devote his attention to a woolen mill business at Antigonishe, N.S., which he expects to have running about the middle of April, and which will give employment to about fifteen hands. Mr. Mackay expects a rapid increase to the business, for which he has recently purchased machinery in the United States, and is confident that he will be able to manufacture yarn, to which he intends to confine himself, cheaper and give better satisfaction than mills which also manufacture cloth.—Halifax, N.S., *Critic*.

A NEW industry, the manufacture of rattan chairs and children's carriages, has recently been established under favorable auspices at Windsor, N.S., by a company known as the Windsor Rattan Company. The leading spirits in the new enterprise are Nova Scotians, who were taught the business at the extensive works of the Wakefield and Haywood Companies in Massachusetts, and have now returned to give their native province the benefit of their experience in a foreign State. The new company will have a large market in the Maritime Provinces for their products, as it is the only factory of the kind here, and may also find a still larger field in the West Indies, where rattan chairs are used very extensively.—St. John, N.B., *Sun*.

MESSRS. CHRYSAL & BLACK, Goderich, Ont., are manufacturing a heating apparatus invented by Dr. Nicholson, of that town, which is claimed to be exceedingly efficacious. It is described as presenting a most compact appearance, nearly square in shape, with round corners, the height being but four feet, and the width two feet seven inches by two feet three inches. This size contains seventy-five feet of tubing, arranged horizontally and longitudinally in an inner casing, which is surrounded by an outer casing or shell, the space between the two casings being filled with the water, which circulates through the whole apparatus. The supply is taken in at the base of the heater underneath the fire box or furnace, and the tubes and walls are so arranged that almost every inch of the whole structure presents a heating surface, giving the most circulation of the water. The tests made show that economy of fuel is one of the strongest points in this heater.

NEGOTIATIONS which have been in progress for some time between Messrs. McIntyre and Hewout, two Michigan lumber men of large capital and experience, and Mr. Sutton, of the Cowichan sawmill, have at last resulted in the purchase by the former of the latter's entire business interests in the Province, including the mill, timber leases and good-will. The amount of money moving in the big transaction is not stated. Mr. Sutton has already left on a trip East, and the new proprietors of the Cowichan mills have announced their intention of at once proceeding with the construction of a mill, on the present site, having a capacity of 150,000 feet of lumber per day. Important improvements will also be made to the river to increase its adaptability to the business, and altogether between \$150,000 and \$200,000 will be spent by the new firm before they begin to reap any profits from their business. A great part of the plant for the new mill has been already ordered, and a portion is now on the way from the East.—Victoria, B.C., *Colonist*.

THE Japanese use paper at every instant. The string with which the articles you buy are fastened is made of paper. Do you want a piece of string? Tear a sheet of paper, roll it between your fingers; it requires a strong wrist to break it. The handkerchief thrown away after use is paper! The partitions dividing the houses are paper! The pane through which an indiscreet eye looks at you is paper! The pane is truly wanting in transparency, or not at all transparent, and the Japanese, especially the ladies, who are just as curious as they are in other countries, are none the less embarrassed to see, without troubling themselves, what is taking place outside. The method is very simple. One finger is passed through the paper—that is all! When one has had a good look, a small piece is stuck on this opening with a grain of rice. The yakounine hat passing is paper; the porter's cloak, who carries his burden, singing a cadence,

through the rain; the garment of the boatman who conducts you on board; the tobacco pouch, cigar case—all are paper! Those elegant flowers ornamenting the beautiful hair of the Japanese ladies, and those robe collars, which are taken for crape—paper!

THE Imperial Chemical Company, Toronto, whose works are at Soho Machine Works, Esplanade Street, and of which Mr. Alfred Myers is general manager, are manufacturing an "Imperial" boiler compound for the prevention of scale in steam boilers. In alluding to the deposit of scale in boilers the company say:—As nearly all waters contain foreign substances in greater or less degree, and though this may be a small amount in each gallon, it becomes of importance where large quantities are evaporated. For instance, a 100-horse power boiler evaporates 30,000 pounds of water in ten hours, or 390 tons per month. In comparatively pure water there would be about eighty-eight pounds of solid matter in that quantity, and in many kinds of spring water as much as 2,000 pounds. The nature and hardness of the scale formed of this matter will depend upon the kind of substances held in solution and suspension. The various organized substances will make a hard and troublesome scale. The Railway Master Mechanics Association of the U.S. estimates that the loss of fuel, extra repairs, etc., due to incrustation, amounts to an average of \$750 per annum in every locomotive in the Middle and Western States, and it must be nearly the same for the same power in all stationary boilers. This company announce that the compound manufactured by them for the prevention of this scale is prepared only and separately for each case after analysis of scale from boiler to be treated, and they ask those interested to send them specimen of scale in envelope by mail, which they will analyse free of charge.

THE Dodge Wood Split Pulley Co., Toronto, report trade in their line as unusually brisk. They notice with a great deal of satisfaction that the sawmill men who have heretofore held back to some extent, seem to have fallen into line this Spring and ordered "Dodge" pulleys, and they hope soon to have them all doing so. The firm have lately shipped a complete stock of their belt pulleys to the Jenckes Machine Co., of Sherbrooke, Que., who have found it advisable to carry stock for the convenience of the "townships" trade; as also has Mr. Geo. H. Evans, of St. John, N.B., who has stocked up with a full assortment of "Dodge" pulleys for the benefit of his New Brunswick customers. The company describe three very fine rope drives just shipped by them to the Brunette Sawmills Co., New Westminster, B.C., consisting of two main drives from engines to line shafts, capacity 150 horse power each, and one main transmission from line to line capable of conveying 100 horse power. They say this is the first big mill in British Columbia to adopt the "Dodge" American rope system to any extent and the results will be watched with much interest by mill-men and power users in that Province as well as by themselves, as they have great expectations for this branch of their business, as soon as the working of the present three drives are seen. The company invite any who are interested in the economical transmission of power either by belts or rope to visit their new works at West Toronto Junction, where the merits of their specialty are practically demonstrated in daily use, and where letters from most of the large power users in the country can be seen, speaking in the highest terms of both the Dodge Co.'s belt and rope pulleys.

THE red cedar of British Columbia comes next in importance after the Douglas fir, but the time is rapidly approaching when it will be fully as well known and appreciated both in home and foreign markets as the latter. For inside finish the British Columbia cedar is unequalled in color and beauty of grain, and some handsome and striking effects can be produced by the use of this wood. To day some of the most palatial residences in Canada and the Eastern States are finished in British Columbia red cedar, and with excellent effect. It is susceptible of a high polish, which, apart from its rare and beautiful grain, makes it all the more valuable for panel work and ceiling. It is durable beyond belief, and is exceptionally easy to work. In common uses it is manufactured into doors, sashes and shingles, and an extensive market has already been found in the North-West Territories and the Eastern Provinces for these lines, and the demand is constantly growing. Shingles cut from red cedar are absolutely free from knots, and they neither curl, warp or split, and dampness has little perceptible effect on them. For the same reasons the wood is particularly adapted to the manufacture of sash and doors. Fort Nesqually, built in 1841, was covered with split cedar shingles, which are still sound. Roofs laid thirty years ago in Westminster, and for many years covered with moss, have never leaked, and appear little the worse for wear. The red cedar has always been in great favor with the Indians, who hollow their canoes out of the wood, because it is so light, splits so true and works easily. The early inhabitants of Queen Charlotte Islands

built their houses from the red cedar, they being able even with the rude tools then in use among them to split the logs to any thickness required. It is an invaluable timber for the many purposes mentioned, and it is bound to extend until it is found on every market on the continent.

WHAT is undoubtedly the greatest piece of ship repairing ever done on the Pacific Coast is that now in progress and nearly completed by the Albion Iron Works Company of Victoria, B.C., upon H.M.S. *Amphion*, at the dry dock at Esquimalt, near that place. It will be remembered that some months ago the *Amphion*, with Governor-General Stanley and suite on board, struck on a rock which approached Victoria, and was only saved by the superior skill of the officers in charge. She was gotten safely into dock at Esquimalt, where the repairs are now being done. About three hundred men are employed, both at the works in Victoria and at the dock, and the greater part of the material is manufactured. Some of the largest castings were of necessity imported from the East, but the greater part by far were turned out in Victoria. Operations on the disabled ship were commenced on January 4th, and, with the exception of a few days when the men were compelled to knock off by the intense cold, have been vigorously prosecuted ever since. A survey showed that the full extent of the ship's injuries was as follows: The starboard side had been smashed in to abate the mainmast, a total distance of 160 feet, seven keel plates were broken, the 8x20 frames and reverse frames were badly demoralized, and forty-four plates were smashed. One hundred and sixteen feet of the bilge keel was gone, the stringers and second and third longitudinals were destroyed, as well as the coal bunker bulkheads and double bottom plating. The boiler room required renewal, as did the bulkheads and coal lockers. On the port side, seven frames were gone and three of the garboard strakes. The keel, wherever damaged, has been renewed, and the injury to the side is being made good. On the port side the keel has been completed and two-thirds of the frames and reverse frames are in position. The coal bunker bulkheads have been finished and are being caulked. On the completion of this work they will require to be tested by water pressure and afterwards cemented. The new propeller has not yet left the founding room of the Albion Iron Works. In order to perform the work required at the dock, it has been found necessary to erect a shop 40x60 feet in size, supplied with a powerful engine and boiler and a quantity of other special machinery. Included in the latter there is a big furnace for heating the frames and a cast-iron floor for bending them. There is also a punching and shearing machine. The punch will put an inch-and-a-half hole in a 1½ steel plate, and the shearing apparatus finishes the plate. A planing machine, twenty feet long, is also on the spot, and rolls eighteen feet in length for rolling 1½ plate. Drill machines, forges for welding the frame angles, steam crane, etc., are also to be found on the spot. The facilities provided are pronounced excellent by the Admiralty Inspector, and what is being done on the *Amphion* demonstrates that Victoria workmen are capable of anything in the shipbuilding or repairing line.

THE ELECTRIC MOTOR FOR DOMESTIC PURPOSES.

MR. H. B. PRINDLE, writing on this subject in a recent issue of *Building*, asserts that when the use of the electric current was confined to lighting, at first in public squares and important streets, then gradually extending to cover the entire city or town, and into stores and houses, we were content to know that electricity produced the light in some way, and there our investigation ceased, until, at last, its use became so general as to induce a study and knowledge of its principles. That the same subtle something should become a most powerful agent for the transmission of energy was not for a moment suspected. That it has taken an important position in the world of power can no longer be questioned. Unquestionably the world has never witnessed such remarkable progress in the introduction of power-transmitting agencies so radically at variance with previously existing forms. The facts are not to be wondered at when the advantages of electric power are fully considered. The electric motor in its present form is efficient, economical, safe and sure; yet all these advantages would amount to but little were it not for the fact that the range of the adaptability of the motor is so wide. The comparison with a steam plant may, perhaps, show this clearer. The installation of a steam plant requires heavy foundations, expensive boilers, with their auxiliaries, coal bins, which are a source of heat and dirt. The engine requires the best skilled attendance, and, owing to its complicated nature, necessitates repairs to which the electric motor is not subject.

The electric motor is complete within itself, requiring no auxiliaries—except the wire for supplying the current—needs but little

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attention, and runs practically without noise. While there is competition between steam and electricity for isolated plants, there is no direct antagonism between the two, as, with the exception of cases where water power is used, steam is a necessary factor in the generation of the electric current. Electricity, therefore, advocates concentration of steam plants, an arrangement the economy of which cannot be denied, and distribution by means of wires or cables, which has been found by thorough practical trial to be the most economical method yet devised.

In applying the motor to domestic uses it has found a ready adoption for freight and passenger elevators, possessing as it does such marked features of superiority over an isolated steam plant.

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SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Indian Supplies," will be received at this office up to noon of MONDAY, 21st April, 1890, for the delivery of Indian Supplies, during the fiscal year ending 30th June, 1891, consisting of Flour, Beef, Bacon, Groceries, Ammunition, Twine, Agricultural Implements, Tools, etc., duty paid, at various points in Manitoba and the North-West Territories.

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

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

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

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

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

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Deputy of the Superintendent-General of Indian Affairs

Department of Indian Affairs,
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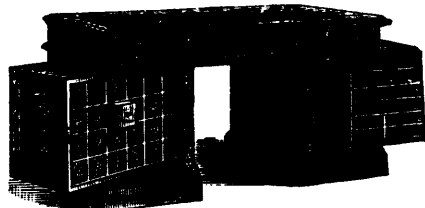
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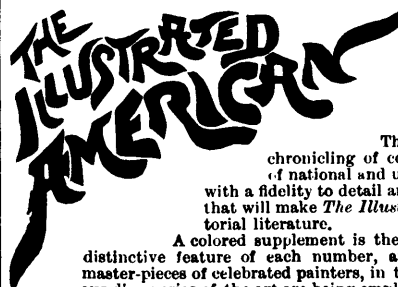
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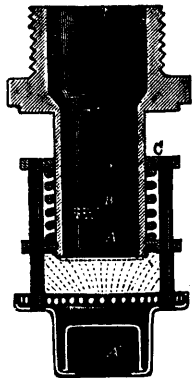
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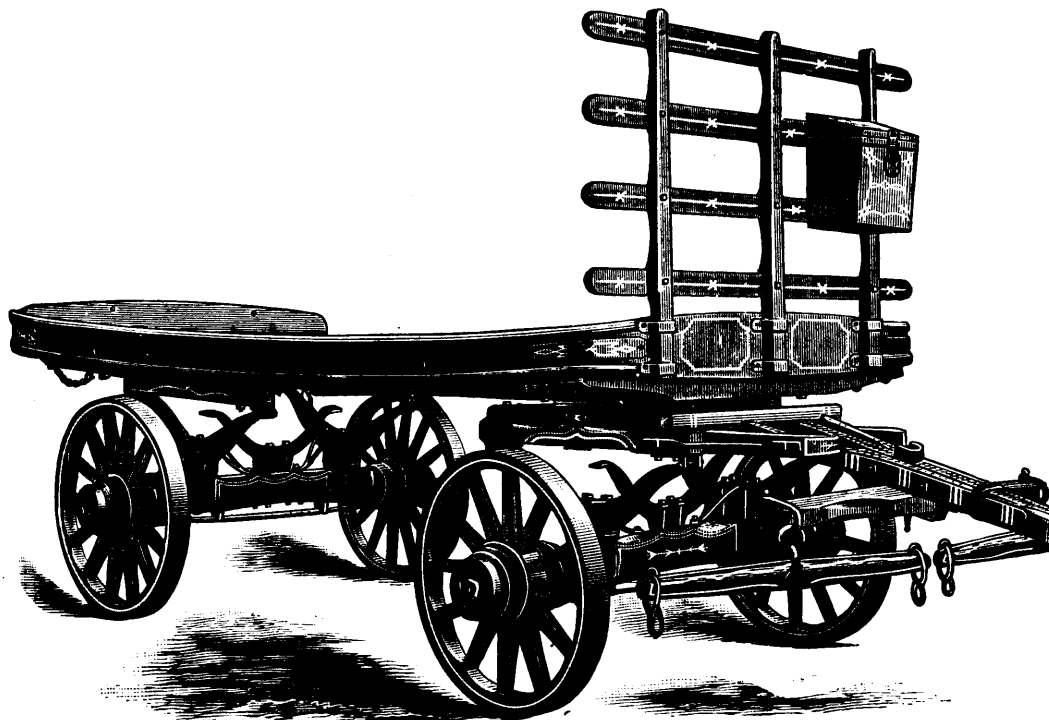
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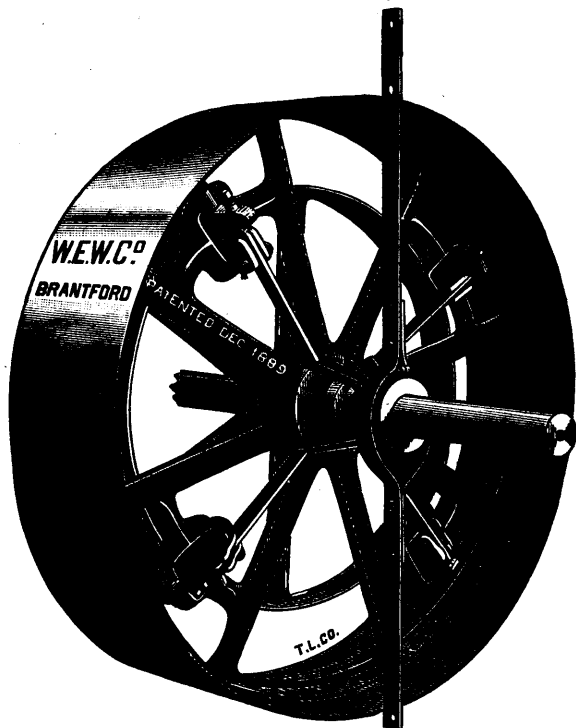
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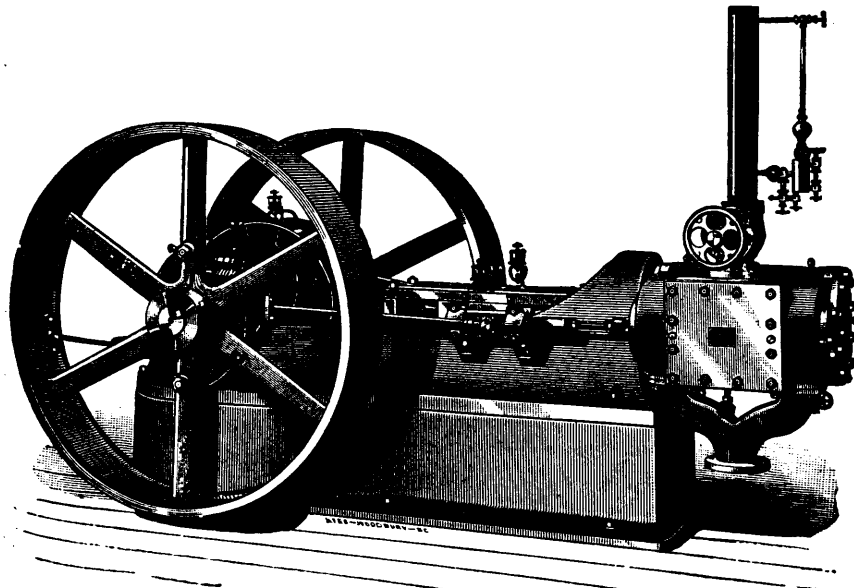
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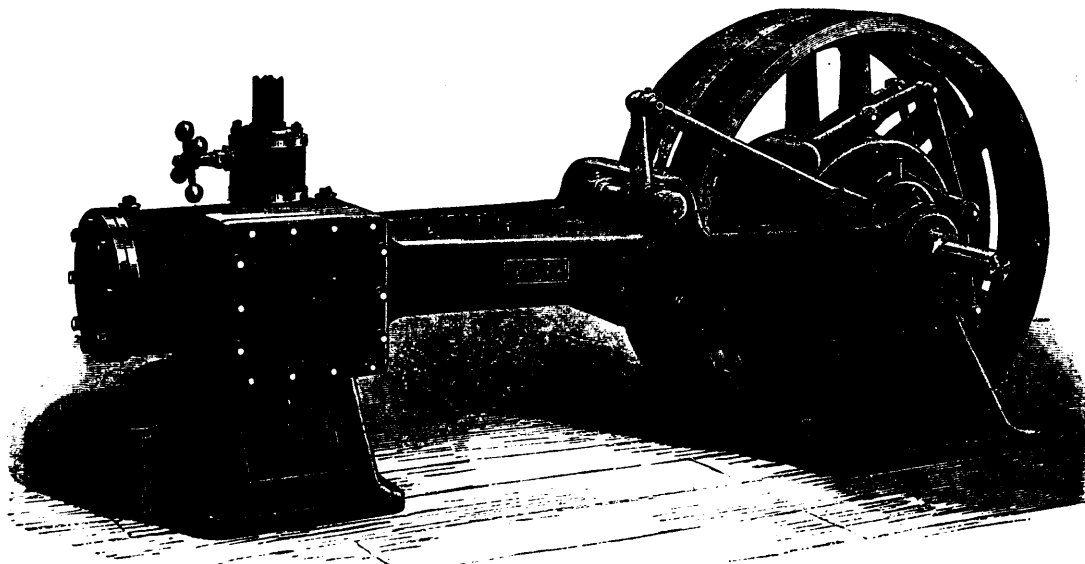
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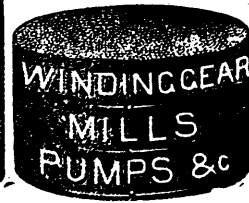
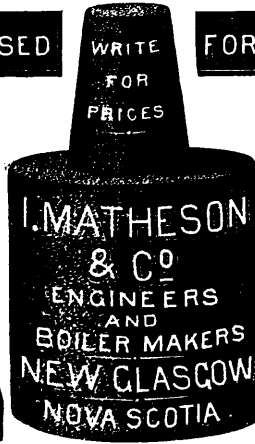
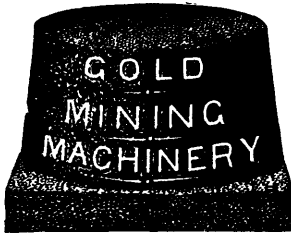
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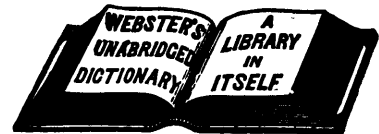
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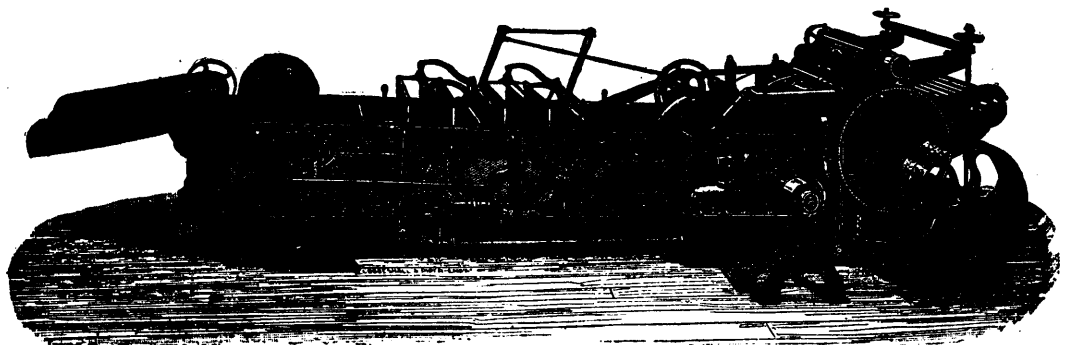
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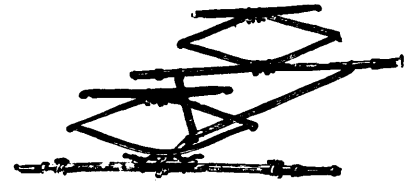
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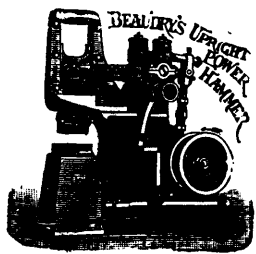
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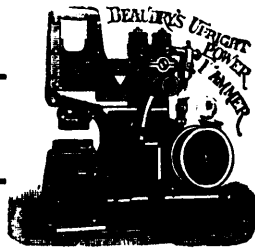
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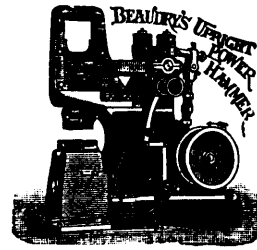
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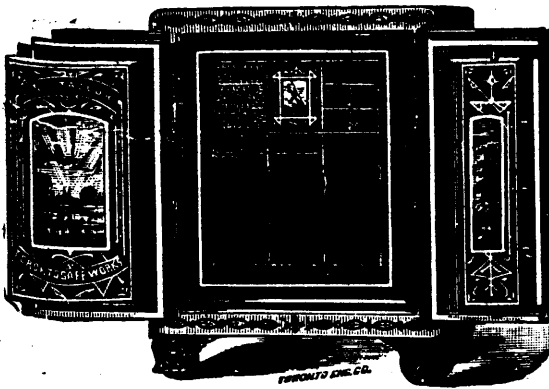


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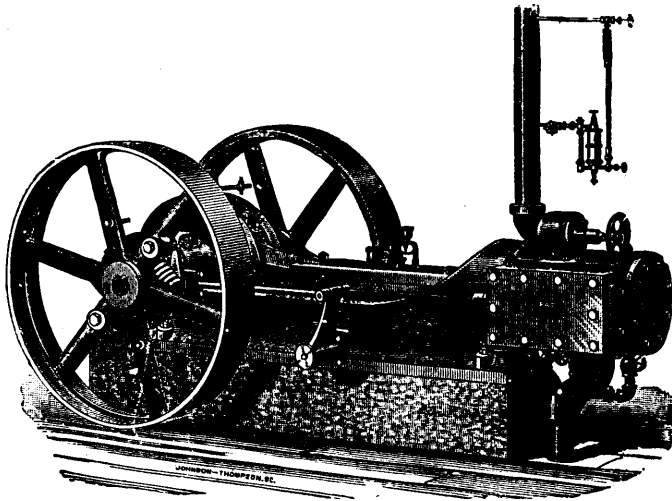
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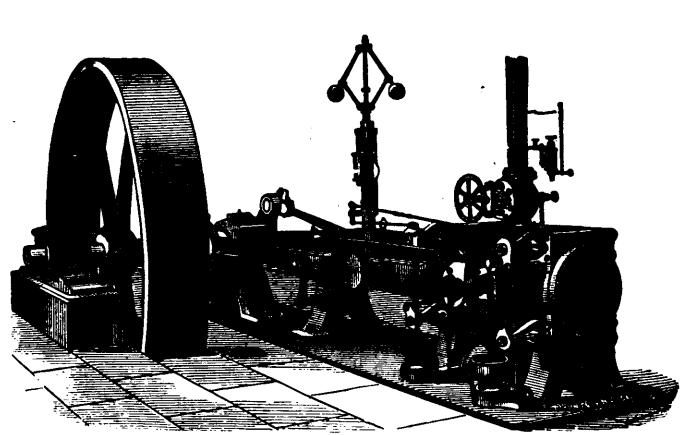
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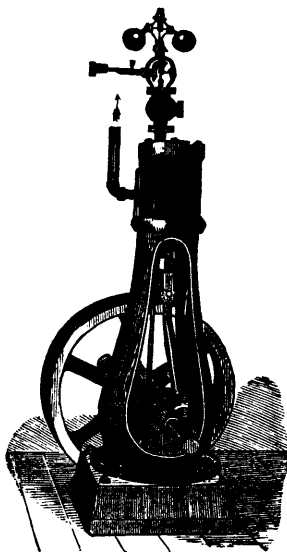
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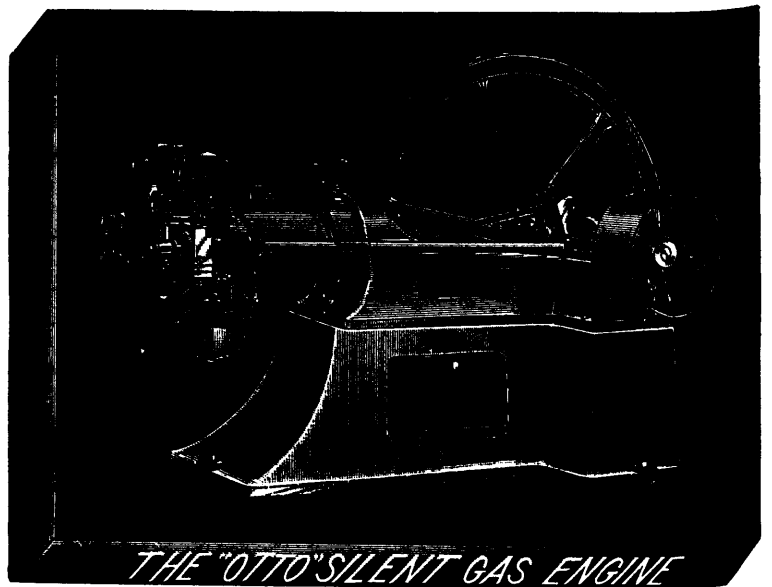
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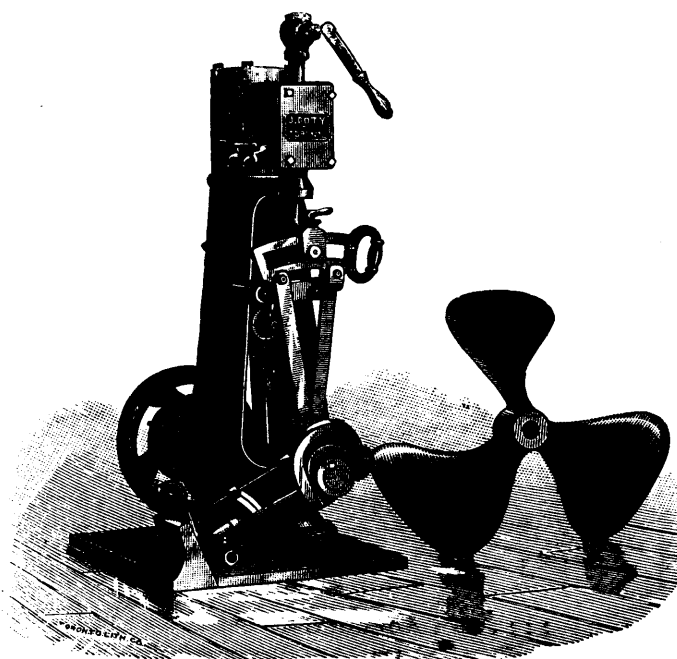
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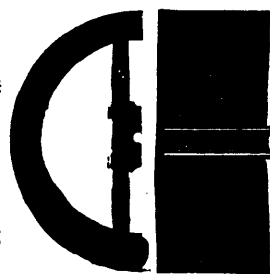
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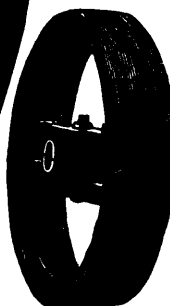
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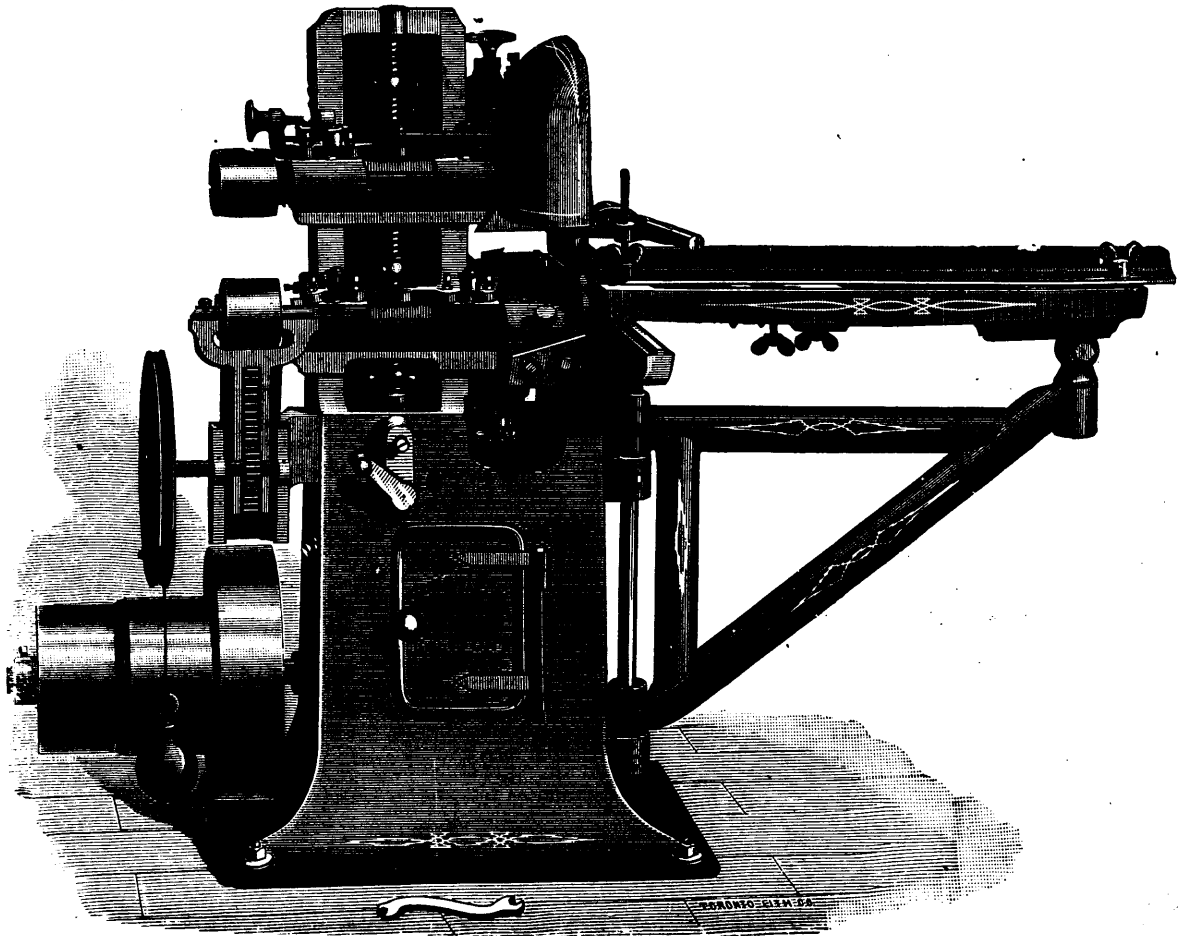
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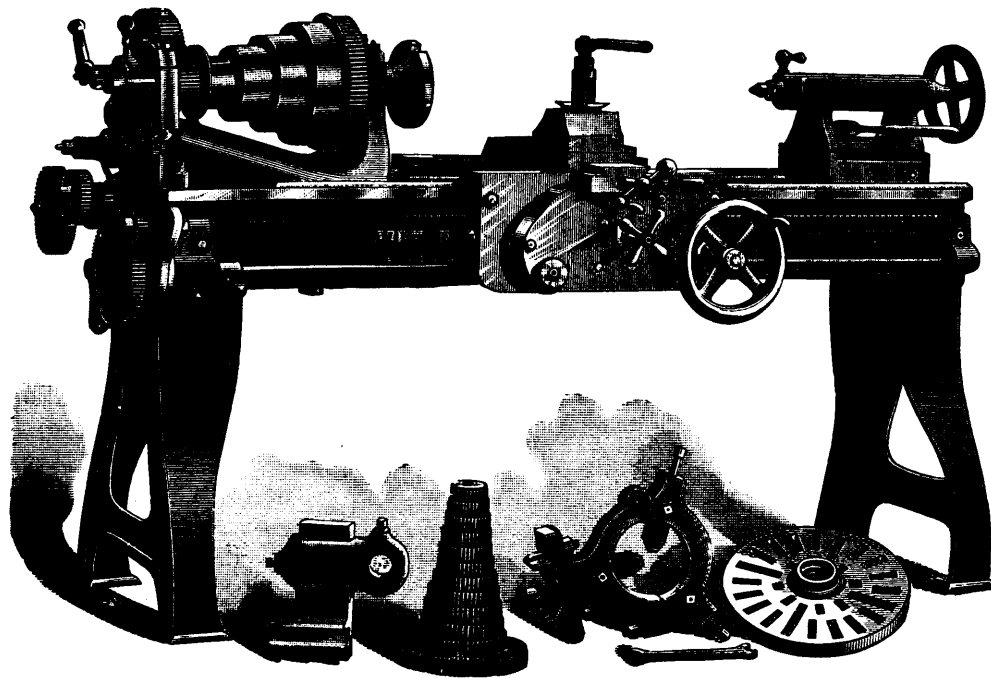
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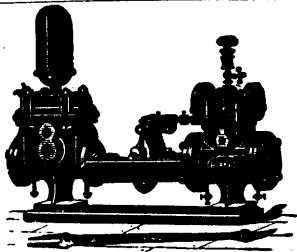
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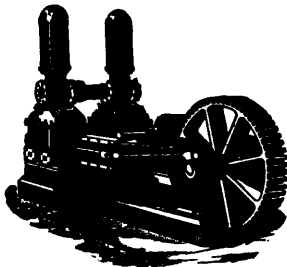
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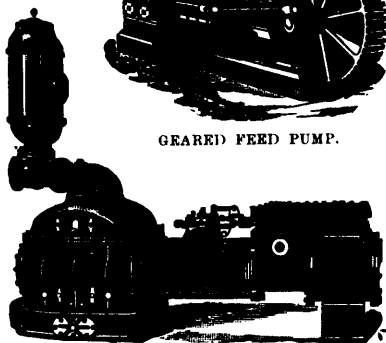
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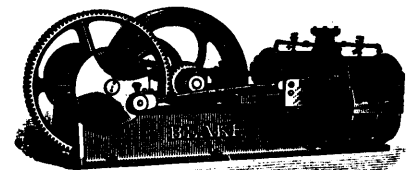
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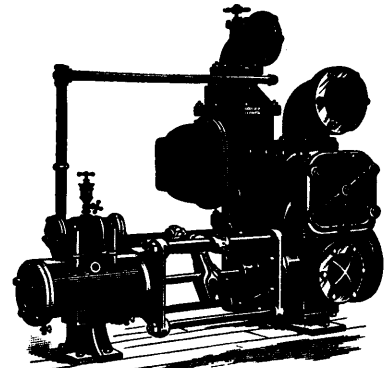
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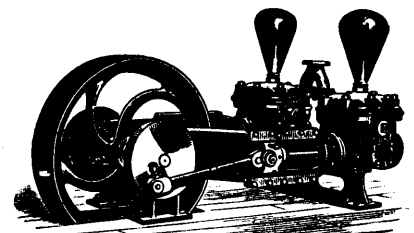
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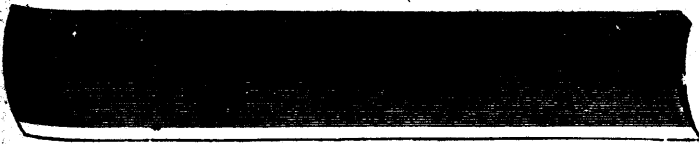
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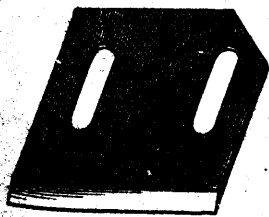
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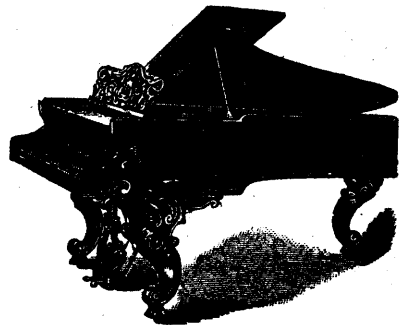
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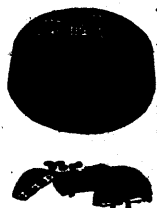
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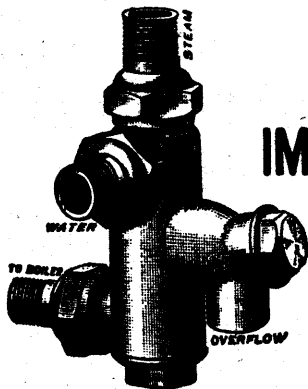
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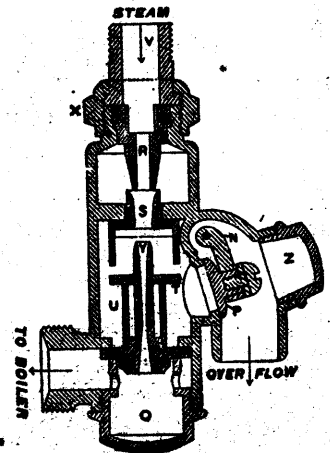


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