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Vol. 17.

TORONTO, JULY 5, 1889.

No. 1.

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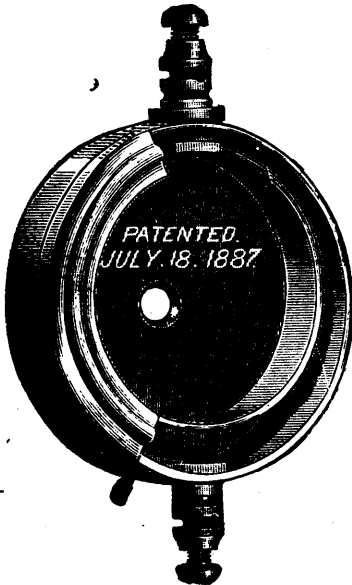
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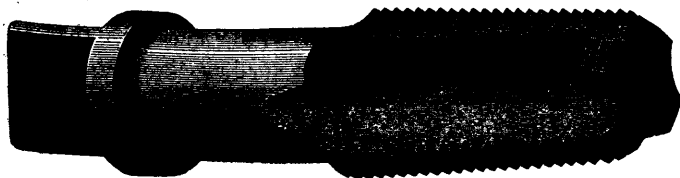


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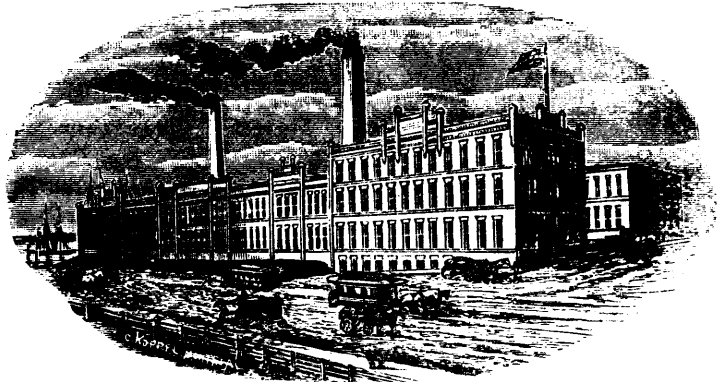
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### THE DOMINION OF CANADA.

TWENTY-TWO years ago, on July 1, the Dominion of Canada came into existence, and a new nation was born. The day was duly and enthusiastically celebrated throughout this broad land, and at the close of the festivities all participants felt a keener and prouder interest in our beloved country than ever before. Those whose residence in this country antedated Confederation recall the condition of affairs that then prevailed, and which demanded the broader and more substantial and enduring benefits of nationality; and in recurring to those days, rejoice that they have lived to witness the fullest fruition of their fondest hopes. The younger generation—those who have been taught regarding the previous conditions, now see how grand and glorious a country their heritage is, and with the enthusiasm always characteristic of the young, are possessed of a deeper and more enduring patriotism which bodes well for the future. The processions, the music, the booming of cannon, the oratory, and the exultant waving of flags were the effervescence of the celebration of Canada's natal day, and were the outward show of a joy in the present and a hope of the future that will become more and more intensified as the years roll by, and which we hope will never cease or diminish. All lovers of Canada, and all who wish her well, rejoice with these rejoicings; for they indicate that a young and powerful giant has appeared among the nations, and that with her own right hand and outstretched arm she will assume her position there and maintain it.

Twenty-two years ago, great as the Dominion of Canada then was, it was not as great as it now is. Then there were but four provinces embraced in the Confederation—Ontario, Quebec, New Brunswick and Nova Scotia—and the jurisdiction of the Dominion extended from the Atlantic Ocean only to the Rocky Mountains. Since then Prince Edward Island has linked her fortune with ours, as have also Manitoba and

British Columbia, thereby extending our borders entirely across the continent from east to west, and from the line dividing us from the United States northward over all habitable lands and to the North Pole. During this period of twenty-two years the growth of Canada has been steady and permanent. She has emerged from the obscurity that then enveloped her, when she was only known abroad as a portion of the frigid zone, constantly encased in snow and ice, into that more enlightened knowledge which recognizes her as being possessed of wide farming lands which always laugh with bounteous harvests when tickled with the hoe of skilled agriculture; as being possessed with immeasurable forests of magnificent timber; as having her bowels filled with inexhaustible mines of the most valuable ores and minerals; as being possessed of waters which teem with fish in sufficient quantities to feed the world, and as possessing the most equable and healthful climate on the North American continent. These natural advantages have been supplemented by others which owe their existence to the energy and wisdom of her people, and possessing which Canada to day stands before the world as an enlightened and progressive state, justly proud of her educational institutions and seats of learning; of her public schools; of her factories and manufacturing establishments, whose tall chimneys thickly dot the land from Halifax to Vancouver; of the importance of her commercial marine, which ranks third among the navies of the world; of her merchant princes, and of a political system of advanced democracy which enjoys all the better advantages of both republican and monarchical forms of government. Under the blessing of Divine Providence great and uninterrupted harmony has existed between the Provinces of the Dominion, but comparatively trifling internal troubles having ever occurred, and which were always pacified without much sacrifice to any material interest.

While Canada is proud of her connection with the Mother Country, and while she will consider long and well ere she severs it; while she is proud of the glorious old flag which waves over her, and which identifies her as being of close kin with all other British people dispersed wherever they may be throughout the world, we are becoming strongly individualized, Canadian characteristics becoming more and more distinct, demonstrating that we are a people with high ambitions and aims, and with a strongly fixed determination to endure as a nation. Without forcing this individuality, this Canadian sentiment is becoming all pervading, and all antagonistic sentiments are rapidly dying out.

Regarding our political relations with our neighbors, the history of the past twenty-two years impresses the conviction that the best interests of the North American continent do not lie in the direction of Canada ever becoming a part of the United States. We can be, and as far as Canada and her self-respect is concerned, we will be good neighbors, working in harmony for the attainment of all the benefits that can be evolved out of the situation to the people on both sides of the international boundary.

These optimistic views of Canada and her destiny are shaded, but by no means alarmingly, by questions that are now agitating the country. That Canadians have the ability and the disposition to successfully handle these questions none can doubt. When the Dominion came into existence there

was a legacy bestowed upon it which it cannot renounce, and which it must care for. Confederation brought together into the closest political intimacy two races which had previously and for a number of years been associated together for purposes of government, but which combination did not effect the creation of a homogenous people. The traditions of these two peoples were too distinct, and, in some respects, too antagonistic for such an event to be hoped for. But homogeneity is an indispensable prerequisite to a great and successful nationality, and it is here that we are brought to face a serious difficulty. The fact of the duality of language adds to the danger of the situation, and the difficulty of the people to understand each other's thoughts, feelings and desires, make it easier for unpatriotic and corrupt men to create and foment distrust and suspicion; to irritate and inflame passion; to intensify idle and unreasonable prejudice, and in many ways to widen the chasm between the French and the English speaking people of the Dominion. The correct solution of this important question is the most important matter now before the people.

What will be the solution? It does not lie in the attempt of one section or one linguistic element of the people to tyrannize over the other, for such a course could only end in disappointment and disaster, no matter on which side successful tyranny might abide. After such a conflict the intensified hatreds that would be engendered would probably never be obliterated. It is very evident that force, whether that of legalized oppression or of revolution and civil war, is not the remedy.

But there certainly must be correct methods and righteous measures to be advanced which will accomplish the desired results; which will harmonize the conflicting elements, and produce a happy and contented people; a people who, abandoning the prejudices and traditions of the past, will unite with progressive and enlightened vigor to build up our great Dominion, and to lift it to the zenith of national glory and power. In looking for indications of that higher statesmanship which is so necessary to the successful management of affairs in this crisis, we are confronted with the efforts of men—some of them very honest in their intentions, no doubt, and many of them politicians of whose integrity we cannot vouch—who are urging a course that cannot but result in dire consequences if carried out. The present agitation may have some beneficial educational effect, but one cannot close his eyes to the fact that at this time the distance between the French and English elements of Canada is greater than ever before. Would not a more temperate and conciliatory spirit, in which sound reason and disinterested good will predominate, promise a quicker and happier result? It is evident that as between the two races most unfortunate misunderstandings exist; and we should speedily convince ourselves as to whether the means proposed by some agitators of bringing about a change in the views of French Canadians are the best

The so called remedies of these agitators embody (1) the disallowance of the Jesuits' Estate Bill; (2) the revision of the Constitution and tinkering with the British North America Act, and (3) civil war, if need be, to effect the first two propositions. Would disallowance avail anything? Would it suppress the contention? Disallowance of the present Jesuits'

Estate Bill would not prevent its re-enactment by the Quebec Legislature, and that as frequently as the Dominion Government might see proper to attempt to defeat it; but this course would undoubtedly lead to deplorable but not unforeseen results. Adverse legislation cannot possibly effect a change in the sentiments of the two millions of French habitants in Canada, and in the event of civil war, conceding the triumph of the English element in it, and that at the point of the bayonet the English language was forced into the mouths of the subjugated French, their school system abolished and their church property confiscated, would these things induce them to fall in love with their conquerors? Alsace and Loraine, after nineteen years of captivity to Germany, answer this question. Neither the German Government nor the German language are in much favor there with these distressed, discontented and unhappy French people. In the dark cloud that surrounds the top of this Mount Sinai the hand of the Lord is not seen in the wrath that these amateur politicians would call down on the people, nor is his voice heard.

We must accept the situation as we find it. We must recognize the fact that there are two millions of Canadian citizens living in this Dominion who are of another race, language and religion, and who have their own peculiar code of laws; and that the full and free exercise and enjoyment of their language, religion and laws, is constitutionally guaranteed to them. We can neither remove these people or annihilate them; and until a better and more harmonious understanding is had with them they will remain a menace to our civilization and national progress.

How is this "harmonious understanding" to be effected? If the English language could be taught to the French Canadians it would reach far in the desired direction. With such education there would undoubtedly come a wider comprehension and more enlightened views regarding the institutions of the country, and greater familiarity with the patriotic aims of the balance of the Canadian people. A knowledge of the English language would bring the French habitant more fully in touch with the ambitions of his Anglo-Saxon fellow citizens, and make it possible for them to work in entire harmony towards the elevation and advancement of this great country, in which he is as largely interested as are his English confreres.

WHY NOT CANADA ALSO?

The production of pig iron in the United Kingdom and in the United States in the following named years was as follows:—

Year.	United Kingdom.	United States.
	Tons.	Tons.
1855..	3,218,154	784,178
1860.....	3,889,752	919,770
1865.....	4,819,254	931,582
1870.....	5,963,515	1,865,000
1875.....	6,365,462	2,266,389
1880.....	7,721,833	4,295,414
1885.....	7,297,295	4,529,869
1888.....	7,898,634	7,268,507

In 1865, at the close of the Free Trade era of the United States, when the Morrill tariff law was enacted, that country produced less than twenty per cent. as much pig-iron as Great Britain; in 1870 the relative proportion had increased to a little less than thirty three per cent.; in 1875 to over that proportion; in 1880 to more than half; in 1885 to more than

seven-twelfths, and in 1888 the difference between the production of the two countries was but 631,127 tons in favor of Great Britain, while the exportation of the article from that country to the United States amounted to 639,760 tons.

The production of Bessemer steel ingots in these two countries shows even more strongly in favor of the protected industry in the United States, as will be seen by the following:

Year.	United Kingdom.	United States.
	Tons.	Tons.
1868.....	110,000	8,500
1872.....	410,000	120,000
1877.....	750,000	560,587
1882.....	1,673,649	1,696,450
1887.....	2,064,402	3,288,357

The manufacture of Bessemer steel ingots in the United States did not assume any large proportions until 1868, while that country was still suffering from the effects of the war of the Rebellion, but in four years—in 1872—the production had increased from 8,500 tons to 120,000 tons, as against 410,000 tons made in that year in Great Britain; but ten years later—in 1882—the production of the two countries was substantially the same, while in 1887 the production in the United States exceeded that of Great Britain by 1,224,000 tons.

Protection has wrought this marvellous advance in the iron and steel trades of the United States, and has made that country the decided superior of Britain. If Protection will do so much for the United States, why would it not do as much for Canada? The natural advantages of Canada are certainly as great as those of our neighbors; and a persistent determination to rise to the same plane will elevate her to it.

#### AMERICAN VS. BRITISH TIN-PLATES.

In discussing the tin-plate industry in the United States, the *American Artisan* enquires how Americans may best succeed with that manufacture. Mr James M. Swank, general manager of the American Iron and Steel Association, in his last "Statistical Abstract," shows that the importations of tin-plates into the United States during 1887 aggregated 283 836 gross tons, of the value of \$18,699,145, about the whole supply coming from Great Britain; and Mr. J. S. Jeans, Secretary of the British Iron Trade Association, in his last "Annual Statistical Report," shows that the exportation of tin-plates from the United Kingdom in 1887 aggregated 6,207,388 boxes, or 353,506 tons, of which 4,526,367 boxes were exported to the United States.

That the United States should not manufacture any tin-plates whatever is a strange and anomalous fact, considering the extent in that country of other manufactures of iron; additional emphasis being given to the situation by the fact that that country imports about five-sevenths of all the tin-plates exported by Great Britain. The value of the tin-plates exported from Great Britain to the United States in 1887—according to Mr. Swank, 283,836 tons—were officially valued in Great Britain at £3,837,691, or \$18,574,424, the duty on which, on entry into the United States, would be \$6,357,926, or at the rate of one cent per pound. The cost of the goods in Great Britain, added to the duty paid in the United States, aggregated \$24,932,350.

Here it is seen that not one cent of this vast amount of money went into the pockets of any of the manufacturing,

commercial or industrial classes in the United States, although the United States Treasury, which was not in need of it, got about one-fourth of the total amount.

Do our Free Trade friends consider the beneficial difference that would have existed in favor of the United States had there been a duty of two cents a pound on tin-plates, instead of one cent? There would have been no imports of tin-plates from Great Britain, and the United States Treasury would not have been burdened with the \$6,357,926. But, instead, there would have been probably a hundred millions of dollars additional invested in the United States in the many branches of the tin-plate industry; employment given to hundreds of thousands of unskilled and skilled workmen and artisans; railways would have had much additional work freighting the raw materials and the finished product; American banks and banking institutions would have been kept busy handling these active millions of invested capital, and American farmers would have been fully employed raising food for the largely increased army of consumers.

Suppose the additional cost of manufacturing tin-plates in the United States is two cents a pound greater than in Great Britain, that difference would indicate the larger wages paid American workmen. Reliable accounts state that the tin-plate industry in Wales is in a deplorable condition. Generally the mill buildings are old and dilapidated; the machinery and appliances old and inefficient, and the men, women and children employed in it wretched and miserable, in the extreme of poverty, because of the exceedingly low remuneration paid them. Surely no patriotic and humane American would be willing to see American men, women and children reduced to the condition that the Welsh operatives in tin-plate works are in to enable the production of tin-plates in the United States at £13 10s. 5d. per ton, the export price of the article in 1887. A duty of two cents a pound might mean an increased cost to American consumers of about six million dollars a year more than what they now have to pay, which would increase the *per capita* burden less than ten cents; and that burden, if it really be one, would indicate the difference in the United States between British and American tin-plates.

#### THE BRITISH IRON TRADE.

In the annual statistical report of Mr. J. S. Jeans, Secretary of the British Iron Trade Association, of the home and foreign iron and steel industries in 1888, in a number of tabulated statements are given the production of certain forms of manufactures of iron and steel, not only in Britain but in other countries, notably the United States, which possess special interest to Canada in that the contrasts are drawn between Free Trade Britain, where these industries have attained the zenith of their prosperity under a system radically different from that obtaining in the United States, under protection, and where these industries are not far advanced beyond their infancy. The lesson to Canada is that under Free Trade this country could never hope to attain to the high eminence in manufactures of metals now occupied by the Mother Country, while, under Protection, there is no reason why we should not, in an equal length of time, become as great an iron producing nation as the United States.



In a statement showing the number of Bessemer converters at work in the United Kingdom in a series of years, the total annual production of ingots and the average production of ingots per converter, it is shown that in 1886 there were seventy-eight converters at work in the Kingdom, which produced 1,570,520 tons of Bessemer steel ingots, the average production of ingots per converter being 20,134 tons; while in the United States in the same year there were sixty-five converters at work, producing 2,269,190 tons of ingots, the average output per converter being 34,967 tons. The total production of basic steel in the United Kingdom in 1888 amounted to 408,594 tons, as compared with a production of 364,526 tons for the previous year—the total production of basic steel, including both the Bessemer and open hearth processes amounting in 1888 to 1,953,234 tons; showing that the United Kingdom produced only about twenty per cent. of the whole. The proportions of the total make of basic steel contributed by the United Kingdom and continental countries respectively in 1888 were: Great Britain, 408,594 tons; other countries, 1,544,640 tons. Regarding the steel rail trade, the statistics for 1888 show a considerable falling off from the previous year. In 1887 the quantity of steel rails exported from Great Britain was 760,180 tons—the largest quantity in the history of the trade—valued at £3,330,205, the average value being £4 7s. 7d.; while in 1888 the exports were 707,854 tons, valued at £3,064,326—an average value of £4 6s. 7d. per ton.

Regarding tin plates, the largest quantity ever exported from the Kingdom was in 1888; the shipments aggregating 6,953,128 boxes, of which 5,070,499 boxes were sent to the United States, and 349,106 boxes to Canada and British North America. The exports above alluded to represent 391,291 tons valued at £5,538,310—an average value of £14 3s. 1d. per ton.

The total exports of iron and steel from Great Britain were—in 1887—4,143,028 tons, of which 1,284,999 tons were to the United States; against 3,966,984 tons in 1888, of which but 639,760 were to the United States. The decrease of more than 50 per cent. of the exports to the United States in one year is remarkable.

The fact applying to pig iron is also very remarkable. The total quantity of pig iron exported from the Kingdom in 1888 amounted to 1,036,177 tons, as compared with 1,158,174 tons in the previous year; while in 1887 the United States took 403,560 tons, against but 145,816 in 1888.

The exportation of railroad iron and steel was substantially the same quantity in 1887 as in 1888—in the latter year 1,020,264 tons; and an even more remarkable falling off of the quantities exported to the United States is observable in these products—from 182,232 tons in 1887 to 51,173 tons in 1888.

The imports of iron and steel into the Kingdom are large and rapidly increasing. Including girders, beams, etc. for structural purposes, in 1886 the imports were 296,096 tons; in 1887 they were 326,642 tons, and in 1888 the quantities aggregated 352,532 tons, coming chiefly from Belgium. Regarding this phase of the iron trade Mr. Jeans says that British manufacturers "find it very difficult to compete with Belgian manufacturers, who not only produce very cheaply, with low-priced labor and inexpensive transport, but are able to send their iron into London and some other ports at a lower rate of

freight than iron or steel girders or beams made either in Staffordshire or in the North of England.

### CANADIAN IRON AND COPPER WORKS.

THERE seems to be more than a probability that large works for the smelting of iron and copper will soon be erected in Ontario—in the Sudbury district. It is well known that Mr. S. J. Ritchie, a wealthy gentleman, of Akron, Ohio, represents a syndicate of American capitalists, who have for some years been largely interested in the rich mineral lands in the district indicated. The value of the iron and copper deposits in which these gentlemen are interested is practically immeasurable, and now strong efforts are to be made to develop them. This it is proposed to do by (1) the construction of a railroad from Coe Hill to Sudbury; (2) the construction of an iron blast furnace with capacity to produce 250 tons of pig iron per day, and (3) the construction of a copper smelting plant with capacity to treat from 1,000 to 1,500 tons of ore per day. The cost of operating these several interests will involve the expenditure of over \$5,000,000 per year.

The conditions on which Mr. Ritchie and his associates propose to erect these vast works are, (1) free admission of coke; (2) free admission of such mining plant as is not made in Canada; (3) a Federal subsidy of about \$1,000,000 to the projected extension from Coe Hill to Sudbury of the Central Ontario Railway.

The Dominion Government, it is understood, have promised to make the required concessions with respect of the free admission of mining machinery and fuel, and it is confidently believed that a liberal subsidy will be granted to the proposed railroad.

In an open letter written by Mr. Ritchie that gentleman says:—

#### "THE PROPOSED FURNACE

would have a daily capacity of 250 tons of pig iron, and would be so located that it could draw its supplies, not only from the mines upon the Central Ontario Railway, but also from any that might be had upon the Kingston & Pembroke road, the Napanee and Tamworth road and the Grand Trunk and Canadian Pacific lines. The actual daily cash outlay for running this furnace could not be less than \$3,500 or more than a million annually, and represents an expenditure of about \$9 per ton of ore to convert it into iron in Canada instead of about \$2 to mine it and ship it out of the country to be smelted in the United States. The extension and equipment of the road would require an outlay of between five and six millions of dollars.

"The members of the Canadian Copper Company have also appealed to the Government both in their own interest and in the interests of this railway and the proposed smelting furnace. They also asked that coke for smelting purposes be admitted free of duty, and also all the machinery used in the mining, smelting and refining the ores, which is now manufactured in Canada, and in return they propose to the Government that if it will at once grant this they will erect a furnace plant at Sudbury having a daily capacity of from ten hundred to fifteen hundred tons of ore, and that they will also erect their own refining works at some large place in Canada, either Montreal, Toronto or Hamilton, whichever place will offer the Company the greatest local inducements. The daily cash expenditure for mining, smelting and refining of this amount of ore would be more than four times the amount necessary to run the iron smelting furnace upon the line of the railway. Every dollar of the capital used in the promotion of these enterprises would be obtained



outside of Canada, and used in the development of a country, at least where the mines are located, which can only be made available by the expenditure of very large sums of money, and it might not be out of place to say no man connected with any of the enterprises has up to the present time received one dollar in return, either for his labor or upon investment.

"The Copper Company proposes to at once extend its plant so as to have a capacity for treating ten or fifteen hundred tons of ore per day, and also to erect its own refining works, so that all the mattes produced by the smelters can be refined in Canada without being sent to England for treatment. At the lowest price charged at any place in England, the cost of mining and treating this quantity of such ores as are mined at Sudbury would be much more than \$20,000 per day. The cost, as I have before said, of running such an iron furnace as spoken of, would be at least \$3,500 per day, and there would be still in addition whatever would come from the operation of at least three hundred and twenty-five miles of railway, outside of what it earned from supplying this one furnace. So much importance is attached to enterprises of this kind on this side of the line that the Canadian Copper Company were offered, if they would bring their ores to the United States to be smelted, the free use of large grounds and plant and the free use of natural gas, both for smelting and refining purposes. They only ask from your Government that their fuel be free from taxation. As above stated, the cost of mining, treating and refining the amount of ore named at Sudbury, and the running of the iron furnace at the lowest prices which it can be had, done in the United States or in England, would be more than \$25,000 per day. The whole of this sum would be expended in Canada, save the amount paid out for coke."

#### EDITORIAL NOTES.

To Mr. N. C. W. :—There is more odor than glory resulting from arguments with Mephitis, Mustelidæ or Aves Tardas.

THE San Francisco *Evening Post* states that \$1,000,000 has been subscribed for the proposed cable between Honolulu and San Francisco, and the work of laying the cable will be commenced within eighteen months.

MR. CHARLES H. LITCHMAN, late general secretary of the Knights of Labor, has been appointed a special agent of the United States Government to prevent violations of the contract labor law. Mr. Litchman will be supposed to stand at Niagara Falls, Detroit and other convenient crossing places and club his Canadian brother Knights if they attempt to obtain jobs across the line.

CANADA'S Great Industrial Fair and Agricultural Exhibition for this year is looming up. Mr. H. J. Hill, the Manager and Secretary, has shown his usual enterprise in flooding the country with advertising matter so that all Canada, and all the circumjacent and contiguous world, even to the ends of the seas are familiar with the fact that Toronto's Great Fair will be "on" as usual, extending from the ninth to the twenty first of September next. This is the only "greatest" Fair on earth, St. Louis to the contrary notwithstanding, and this fact should be carefully treasured in the recesses of an forgetful memory. Keep your eye on the day and date.

THE Imperial Bank, of Toronto, call attention of travellers going to Europe of the convenience they offer in issuing cheques

of the Cheque Bank of London, England, which are negotiable and payable at any point in Great Britain or the Continent. These cheques are issued in all denominations, and no identification or other annoyance is required in using them, as is the case in negotiating other evidences of money. They are cheaper, more convenient and equally as secure as letters of credit or circular notes; and they are available always and everywhere in making purchases or paying hotel bills. The Imperial Bank, also all its branches issue these cheques; and give all desired information concerning them.

THE Dominion Post-office Department has concluded a convention with the Department of Communications of the Empire of Japan for the exchange of money orders between the Dominion and Japan, taking effect on October 1, next. The maximum amount of orders is to be \$50, the commission to be the same as for all other foreign money orders. The amounts of the orders will be expressed in Canadian currency in both directions, but on account of the frequent fluctuations in the rate of exchange between the two countries, it has been agreed that all amounts shall be converted into their equivalents by the Japanese official. Tokio, Japan, and Victoria, B.C., will be the exchange offices for the respective countries.

A FEW days ago Mr. Clark Wallace, M.P., appeared before a mass meeting of the Knights of Labor in this city to discuss with them his anti-combines bill, now pending in the Dominion Parliament. The amusement committee, consisting chiefly of Messrs. W. H. Parr, A. W. Wright, A. F. Jury and D. J. O'Donohue performed their parts to their own satisfaction, some of them going so far as to become quite offensive in their language towards Mr. Wallace. The general sentiment of the polite and gallant Knights was against Mr. Wallace's anti-combines bill as it now stands, the feeling being that it is more desirable to bear the ills we now know of—to wit: the possibility of pools, corners and combinations in commercial circles, and the certainty of boycotts, and conspiracies in labor unions—against which it is now fondly hoped there is no law—than to fly to the law for relief from the former and make the latter unmistakably violations of law.

JOHN JARRET has just sailed for Europe, after enlightening us all as to how the English make tinplates. It were a good use of his summer outing if he next bring us back some pointers as to how Americans may best succeed with the same manufacture.—*American Artisan*.

What the *Artisan* declines to remember would fill a hole. The obstacle in the way of the successful manufacture of tinplates in the United States is the tariff—it is not high enough. Mr. Jarrett and many other men who have studied and discussed the question, and whose views have been put in print which even the *Artisan* could read, have shown that a slightly greater duty than that which is now imposed on the article would result in the starting up of tinplate works in the United States which would supply the wants of that country. As the law now stands, the duty collected on imports of tinplates is "for revenue only," not for Protection, as there is no tinplate industry there now to protect.

At the mass meeting in this city last week, called to denounce Mr. Clarke Wallace's anti-combines bill, Mr. D. J. O'

Donohue, a silvery-tongued jawnsmith in the employ of the Ontario Government, said that "the object of the Trades Union Act was to permit us to carry on our trades and avocations. We had that right under the common law, the right of all free men, but now we are bound down so that we dare not ask for an increase of pay lest we be imprisoned for conspiracy." The great trouble with these jawnsmith orators is that they conveniently disregard the difference between *meum* and *tuum*. The Trades Union Act does not encroach upon the common law in defending the right of all free men to carry on their lawful trades and avocations; but the remembrance of recent events in Hamilton reminds Mr. O'Donohue and some of the rest of the jawnsmith orators that they have much cause for thankfulness that they didn't happen to be in the same boat with jawnsmith D. O. Gibson and the dupes William Mitchell and William Littlejohn.

A most important proposition has been made by the Dominion Government to the United States Government through the medium of the Foreign Office. It is that both Governments should consider the propriety of removing the import and export duties on lumber of all kinds, or in other words, that the Canadian Government will abolish the import and export duties on lumber providing the Washington authorities reciprocate. As an earnest of good faith, the Dominion authorities have meanwhile reduced the export duty on pine logs from \$3 to \$2 per thousand feet, board measure, the figure at which it stood in November last, previous to the representations of the lumbermen asking for an increase. This reduction in the export duty took place on July 1. Under all the circumstances the action of the Government is a most commendable one, and will doubtless be received with approbation by the lumbermen of Canada and the United States. As our export duty of \$2 per thousand is nearly equal to the United States import duty on lumber, it might be to the mutual advantage of both countries if the duties were removed altogether.

HAVING decided by 189,000 majority that it is inadvisable to prohibit people from buying and selling cheap whiskey, may we not hope in the future for liberty to buy and sell cheap steel rails, lumber, sugar, wool, salt and other useful commodities whose greater diffusion is of much more consequence than the rum traffic? If we don't want to be protected against bad things why should we continue to protect ourselves against good things that we can't have too much of.—*Philadelphia Record*.

In this country we have many journals which advocate protection against the good things, but not against the bad.—*Toronto Globe*.

The *Record* and *Globe* are two of a kind. The *Record* knows, and the *Globe* knows that the recent issue in Pennsylvania was not as to the advisability of prohibiting the people from buying and selling cheap whisky, but whether the trade in whiskey, either manufacturing, buying or selling, should be entirely prohibited. It was an issue between high license and prohibition. The *Record* and the *Globe* close their ears to the *vox populi*. The people of the United States and the people of Canada have repeatedly declared their preference for Protection, and the ravings of Free Traders will not influence public opinion against it.

AN English gentleman by the name of Shakespeare is credited with the couplet:

"No thief e'er felt the halter draw,  
With good opinion of the law."

In a recent spread-eagle speech before a meeting of the Knights of Labor in this city, speaking of the ridiculous tendency of Canadian judges to enforce the law as they find it writ, jawnsmith D. J. O'Donohue is reported as saying that "The experience of labor bodies is that judges do not interpret the law according to its intent, but according to the letter. However, when the judges find that the letter is in our favor, they construe the intent against the trades unions." It is evident that Judge Sinclair, in his now celebrated Hamilton verdict, exploded a bomb in the camp of the trades unions that hurt. It is also evident that Buscombe floats aloft in the empyrean blue of anti-trades unionism like Britain's meteor flag at Trafalgar. Judge Sinclair recognizes the right of all free men under the British flag to work for their living wherever they can find a job, unmolested and unrestrained, and that is just what the labor jawnsmiths don't want, unless the workmen are members of their trades unions.

WE infer that Prof. G. A. S. O'Leone is acting on the suggestions he made in a letter published in the last issue of this journal—insuring his house and furniture and his wife's life, and making her a present of a gasoline stove, in hopes that the darned thing would "bust" and send the whole concern to kingdom come, leaving him free to go on an extended pleasure jaunt to Europe. We infer this because he has sent us a picture in which is represented Mrs. G. A. S. O'Leone standing over a jim dandy vapor stove, in the act of preparing breakfast, while on the bottom of the card is the information, "Mrs. G. A. S. O'Leone is in heaven now." How sad. The Prof. may have got rid of wife and home, but we have not yet heard of his having been paid the insurance money; and he has not yet put in a claim for the thousand dollars which we told him he could have by simply demonstrating the fact that a vapor stove can be made to "explode." It can't be done. The Prof. will not be likely to do much traveling this summer on either his insurance money or the thousand dollars reward.

THE *New York Times* points out that Reciprocity would be of immense benefit to the languishing industries of New England, which would thereby obtain plenty of coal from the Maritime Provinces, and an enlarged market for their manufactures. On the other hand, the people of the Maritime Provinces would gain a splendid market for their coal.—*Toronto Globe*.

If this be true, it is remarkable that the coal mine owners of the Maritime Provinces are a unit in favor of the National Policy. Surely the mine owners know as much about their own business as does either the *New York* or the *Toronto* editor. Possibly the New England manufacturers would benefit, but the fact that thousands of tons of soft coal are coming into Canada from the U. S. in spite of the duty, rather neutralizes the assertion that our mines would be benefited by the removal of the duty.—Moncton, N. S., *Times*.

We are pleased to learn from our Moncton contemporary that the coal mining industry in the Maritime Provinces is in such flourishing condition. We wish we could say as much for the flour milling industry in Ontario. Several weeks ago,

when the Ontario millers petitioned the Government to increase the duty on imported flour, making the duty on a barrel of flour only as high as the duty on the wheat necessary to make a barrel of flour, the members from the Maritime Provinces objected so strongly that the petition was refused; and now Ontario millers are at the mercy of their Yankee competitors. It is a bad rule that won't work both ways; Protection is good for the coal miners, and it also would be good for the millers—if they could get it. Better all pull together and save the N. P., than to see it slaughtered in detail. *The Times* says: "It will require a great deal of assertion to convince the coal miners and the coal mine owners of the Dominion that their condition would be improved by competition with the products of the Indiana mines." Then why should they object to the Ontario millers improving their condition by shutting out the competition of the Minneapolis millers?

A YANKEE has invented an electrical census machine. The census collector will call with his printed blank and answers to questions will be written in the usual way. These sheets will then be placed before a person who operates a machine which may be likened to a type-writer, except that instead of the usual ink mark on paper, small round holes are punched in a card. The cards, one for each person, are about  $6\frac{1}{2}$  inches in length by 3 inches in width, and the particular position of a hole in a card indicates an answer to some of the questions in the printed blank. As many as 250 items of information can be punched out upon a card, although no one card would ever have more than one tenth part of the whole number; as, for example, no one person can be classed as both white and black, American and foreign born, and if foreign born he can only come from one country. These cards, when punched, are placed, one at a time, in a sort of press, and a lever operated by one hand is brought down, when a series of pins are brought against the card. Whenever a hole has been punched in a card the corresponding pin passes through into a mercury cup beneath, completing an electric circuit. These circuits, one for every hole, pass out to a large number of counters which operate electrically, and which add upon their dials all items of the same kind upon the same dials; as, for instance, all white men upon a dial marked "white males"; all business or professional people upon dials which indicate their particular business or profession. The cards, as they leave the press, are all sorted by means of an electrical sorting device, whereby they may be separated into groups or States of the Union. It will thus be seen that the machines are much more reliable than the most accurate human agency, and that one machine will do the work of a large number of clerks. The next census of this country will be taken with these machines, and two will be sent to New York soon for the 1890 census-taking.

MR. H. J. PETTIFER, secretary of the Workman's Association for the Defence of British Industry, in an address recently made at Cheadle, Cheshire, England, giving his views on Protection, said:—

"I have been four times to the United States, and on one occasion worked there at my trade for over three years. I was sent out the year before last by my association to gather information in America, and last year I went there again at the invitation of a number of workingmen to explain to them the

condition of English workingmen under Free Trade. During that visit I had the opportunity of visiting over thirty towns in America, and in every one I had the privilege of going over many of the large mills and factories, of inspecting the time sheets and looking through the wage books, and the conclusion I came to was this, that the working classes of America are better housed, better fed, and better clothed than the working classes of any other country on the face of the earth, and that it was Protection pure and simple that did it. I should like to give a few authentic figures to show you the rate of wages they get. The wages which come closest to English wages are in the cotton trade. The cotton trade in America does not produce very much higher wages than here. Taking all those employed—men, women and young people—in England, the average is about 19s. 7d. a week, and the average in America is only 28s. 1d.; so that they only have 8s. 6d. the best of it. The woolen trade goes a step higher. In England the wages average about 26s. 7d. a week; in America it is 43s. 3d.; so that the Americans have 16s. 8d. the best of it. But taking one trade with another all through, the average paid in England is £35 6s. for twelve months, against £73 in America, or above double. But, then, the actual figures of wages are no test at all. What you want is to know what you are going to buy with the wages, because if a man gets double wages and takes it all to keep himself alive it is no use having them. I will tell you exactly how they stand. I will give you what it costs a man to live, not in New York, but all through the country at large. A sovereign or a dollar is bound to buy a little bit more food there than here, because if food is not cheaper there than here, how can they afford to send it here and sell it cheaper than we can? A sovereign will buy more flour, more meat, more butter, more coffee, tea and lamp oil there than here. It will buy as much cotton sheeting, shirting, as much print, calico and boots as here. There is a wonderful thing about those boots. The pair I have on at present cost \$3 (12s. 6d.), in Boston, America—not in a little shop but in an ordinary good shop. The average wages in my trade—silversmith and electroplate worker—in America are \$3 a day (12s. 6d.), and in London 6s., so that it takes one day's wages to buy my boots in America and two days' wages in London. Which country is the cheapest and which is dearest in that particular case? There are some things a sovereign will buy less of there than here: sugar, woolen goods, and hats, as well as house rent."

By a general and patriotic impulse, a very large proportion of the Protestant clergy of the country, particularly of Ontario, on last Sabbath—the day preceding Dominion Day—made it a point to shape their sermons in laudation of Canada, her laws, government, institutions and political prospects. The newspapers contained sketches of many of these patriotic utterances, and it gives us much pleasure to mention the fact that the general impression is that these sermons went far to congeal and solidify the "Canada First" sentiment now so generally prevailing. Lovers of Canada appreciate these efforts, and thank the clergy for what they have done in this direction. The only objectionable tendency shown on the occasion, on the part of some of the over zealous ones, was to speak inconsiderately and unthoughtedly regarding the disallowance of the Jesuits' Estate Bill; but even this was an exception to the general tenor of the sentiments expressed, and in strong contrast to the healthy and conservative views of those who think that French Canadians are not a bad lot by

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any means, and that they have some "rights" which English-speaking Canadians are bound in honor to respect.

LABOR-SAVING machinery continues to excite the hostility of the operatives in some of the New England manufacturing centers, notwithstanding the object lessons of the last fifty years. One of the most noteworthy illustrations of opposition in this direction is furnished just now at Worthley's shoeshop in Lynn. Several of the Boston Lasting Machine Company's latest appliances were recently set up there, whereupon the Lasters' Union undertook to get them out. For various reasons, however, the demand of the men appears so unreasonable that the other labor organizations in the "City of Shoes" refuse to lend their aid. The Cutters' Union and the Heelers' Union, among others, have voted not to help the Lasters' Union in their warfare, and there seems to be good foundation for the published statement that the Lynn Knights of Labor in general do not sympathize with the lasters. The men who run the machines easily earn little, if any, less than \$35 a week, while as much \$7 has been made off one of them in a single day. Those who take a broad view of the matter, even among the operatives themselves, argue that the result of the introduction of labor-saving inventions has always been to increase the amount of work to be done besides cheapening the product, so that the hand-lasters have nothing to fear from the application of machinery. Lasting machines have been employed to some extent at Brockton, Worcester and elsewhere, and have attracted much attention during the periods of general labor upheavals, but the present demonstration at Lynn is the most important yet undertaken. The same device is in use quite largely at the west without exciting organized hostility.—*Bradstreets.*

UNDER the head of "the unemployed in East London" an English firm of manufacturers publishes the following:—

"At a time when much thought is being given to this matter a practical suggestion may be of service. Last year more than £300,000 worth of foreign matches were purchased by inconsiderate consumers in this country, to the great injury of our own working people—so true is it that "Evil is wrought by want of thought, as well as want of heart." If all consumers would purchase our matches, we would be enabled to pay £1,000 a week more in wages."

If this firm were established in Canada or the United States it could compel people to buy its matches instead of issuing this piteous appeal. It could not, however, be compelled to pay the £1,000 a week more in wages. If such compulsion were attempted there would be a howl about socialism, demagogues, interference with our just rights, etc.—*Toronto Globe.*

Probably the matches alluded to were manufactured in Sweden, as that industry is a vast one in that country. But Sweden has Protection, and according to the theory of the *Globe* the match manufacturing industry there, being protected, ought not to be able to successfully compete in the markets of the world with the match manufacturing industry of Great Britain, where Free Trade prevails, much less ought it be able to sell \$1,500,000 worth of matches in that country. It is evident that the English manufacturer alluded to can't sell matches in Sweden; and it is also evident that he would like to see some protection afforded his business. The *Globe* well says that if this firm were established in Canada or the United States, where the industry is protected, they would not have to issue this "piteous appeal."

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

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

I WILL give a free deed of ten lots on the Scugog River to anyone who will start a manufacturing establishment employing a certain number of hands. A. D. MALLON, Lindsay, Ont.

FOR SALE—at Merrickville, Ont., within five minutes' walk of the C.P.R. station or the Rideau canal wharf, a first-class Water Power with substantial buildings suitable for roller mill or other heavy machinery. Apply to Mrs. M. P. MERRICK, Merrickville, Ont.

THE *Cornwall Standard*, published at Cornwall, Ont., comes to us in an entirely new and most attractive dress, presenting an appearance equal in beauty to that of any other newspaper published in Canada. A valuable feature of it is the concise and pithy manner in which its local items are displayed, particularly those relating to manufacturing industries.

IN the course of some evidence given before the House of Lords Committee on Sweating, Mr. Wilson, town councillor of Sheffield, formerly in the cutlery trade, said, in reply to the Duke of Norfolk, that Sheffield still held its own against all the world, and had recently received an order for three thousand dozen of table cutlery for Pullman cars in America.

A MANCHESTER (Eng.) firm are the contractors for furnishing a spinning mill in China with 12,000 ring spindles. The mill is constructed for 20,000 spindles, and the remaining 8,000 will be put down later on. They are also supplying the mill with the latest and most improved machinery and the entire plant. They are also sending out skilled workmen to the mill.

PETROLE is the name given to a manufactured substitute for coal, made by a firm in Minneapolis, and is the direct outcome of the scarcity of fuel which has retarded the birth of manufacturing industries in that city, and in fact the whole Northwest. It is made from saw-dust, the residuum of crude petroleum, and a number of other ingredients which are not made known by the inventors.

AN Order in Council has been passed placing camwood, when imported to be used for dyeing or tanning purposes, i.e., manufacturing purposes, not further manufactured than crushed or ground, on the list of articles that may be imported free of custom duty. White ash lumber, sawn but not shaped, planed, or otherwise manufactured, may be imported free of duty until the end of next session of next parliament.

A WRITER in a London journal calls attention to the unappreciated uses and preservative qualities of soapstone, a material, he says, which possesses what may be regarded as extraordinary qualities in withstanding atmospheric influences, those especially which have so much to do with the corrosion of iron and steel, and from experiments made it is said that no other material is capable of taking hold of the fibre of iron and steel so readily and firmly as this. In China soapstone is largely used for preserving structures built of sandstone and other stones liable to crumble from the effect of the atmosphere; and the covering with powdered soapstone in the form of paint on some obelisks in that country, composed of stone liable to atmospheric deterioration, has been the means of preserving them intact for hundreds of years.

THE new serial by Catherine Owen, which is to begin soon in *Good Housekeeping*, will be entitled "Helps to Young Housekeepers over the Hill of Difficulty." The title is a promise of help where help is often most sorely needed, and the name of the writer is a guaran-

tee that the help will be really helpful, encouraging and strength-giving. Mrs. Owens not only knows the difficulty that lie in the path of the young housekeeper, and the way to surmount or remove them, but she has a happy way of writing about them so that she does not seem to be dealing in theories and generalities, but in actualities and practical things. No writer on housekeeping topics has had greater success in furnishing more of what is actually needed in the way of instruction, and her books have the value of standard housekeeping text-books.

"ENGLISH, PAST AND PRESENT." By Richard Chenevix Trench, D. D., Archbishop of Dublin. The Humboldt Pub. Co., 28 Lafayette Place, New York. This is another standard work added to the Humboldt Library Series—a work that has had a sale second only to "The Study of Words" by the same distinguished author. Twenty editions of the latter and thirteen of the former are the best evidences of the popularity of the works. The English language is spoken in almost every country of the globe, and seems destined to be the universal language of the next century. It was the language used at the late conference in Berlin supplanting French, until now the language of diplomacy. A most interesting study, therefore, is the history of the English language past and present. It can be found in Nos. 108 and 109 of the Humboldt Library.

THE July *Wide Awake* has many strong, timely features, notably two especially American. One is Miss Seward's "Fourth of July at Robert College"—the American college in Constantinople, a seed-bed of American ideas in Europe; the other is Mrs. Burton Harrison's "The Republican Court," in which she gives portraits and charming little biographies of eighteen of the prominent young society women who were in General Washington's circle of friends, Mrs. Washington herself leading the train. These portraits are from the celebrated Baltimore porcelains—an heir-loom which ex-Mayor Hodges of that city has "founded" for his descendants; the eighteen plaques form the wall decoration of his dining-room. "Mademoiselle Papa" is a touching little tale from the French, translated by Miss Virginia Champlin, who, it will be remembered, met a fate quite as sudden and terrible as death from an explosion in the mines described in this story. There is a thrilling story of another French child in this number, "The Child Knight of Boufflers," written by Madame Cramer Bernhard, a niece of General Grant. Mrs. Clara Doty Bates has a delightful contribution, the best thing in amusing verse for children which has appeared for some time, "The Monkey and the Camel" illustrated by Garrett. There are also many other bright things in verse and picture. *Wide Awake* is \$2.40 a year. D. Lothrop Company, publishers, Boston, Mass.

Some timely warnings—one of a most unfortunate character—have been recently sounded, calling attention to the necessity of taking care of fire apparatus. All over the country are villages and cities which, for protection, rely upon a volunteer or more or less efficient paid fire department. In some of these settlements fires may never have occurred. The natural consequences of disuse accordingly tend to overtake any fire engines, hose, etc., which they may possess. Years ago, it may be, a subscription was started and fire equipment was purchased. For a year or so the enthusiasm would last, and it would be carefully kept. But gradually the feeling of interest would die out and the effects of rust and decay would make themselves felt, and in the course of time the elaborately painted engine, hook and ladder truck, or hose carriage would be nearly useless, the hose couplings would become so corroded that they could not be screwed together, and the hose would become so buckled and stiff as to be incapable of effective manipulation. The above is no imaginary picture. In a Massachusetts village the chief engineer of the fire department, in his annual report, calls attention to the bad condition of the fire ladders. They are, he says, "old, heavy, worm-eaten, and unfit for use." The same, we doubt not, could be said of many other pieces of apparatus in villages all over the land. From Washington, the new State just added to the Union, comes the report of a fire that swept away the greater portion of the business portion of Cheney. The fire apparatus was drawn out and the hose was attached to the engine, when it was found that the nozzle was plugged with wood. Many thousands of dollars' damage was done because the fire gained such headway before the plug could be extracted that it could not be checked. The need of daily inspection was here emphasized. The many thousand sufferers by the Johnstown disaster received warnings enough to have saved every life if acted upon, but they had come to regard them as an old story, so often had they been repeated in the past. Thus it is with the unused fire engines and general life and property-saving appliances. The warning in the shape of danger from fires is ever present, and is disregarded. When the danger is realized, and a conflagration actually occurs, the fire guardians find themselves unprepared to cope with it.—*Scientific American*.

## 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. JOSEPH BOATS has established a carding mill at Tyne Valley, P. E. I.

THE use of barb wire for fencing has been prohibited by law in Winnipeg, Man.

MR. JOHN BARLOW has started a carding and cloth dressing mill at Wellington, P. E. I.

MR. J. LIVINGSTONE, Baden, Ont., is introducing new flax carding machinery into his mill.

MR. THOMAS T. THOMPSON will start a stove and general foundry at Fort William, Alberta.

SNELGROVE'S steam carriage works, at Beaverton, Ont., were destroyed by fire June 20; loss heavy.

THE brewery of Mr. A. Pendola, at Savona, B. C., was destroyed by fire a few days ago; loss, about \$10,000.

THE knitting machine factory of Messrs. Campbell & Kay, at Georgetown, Ont., was destroyed by fire June 27.

THE Oriel Sanitary Drain Pipe Company has been organized at Vancouver, B. C., for the manufacture of drain and sewer pipe.

MESSRS. ISBESTER & REID, Amherst, N. S., are quarrying 9,000 tons of stone for the great railway bridge at Grand Narrows, C. B.

THE Londonderry Iron Company, Acadia Mines, N. S., are running their works to their fullest capacity, chiefly on iron water and gas pipe.

MESSRS. PRESTON & MCKAY, of Stratford, Ont., are interested in the construction of a 100-barrel a day roller process flour mill at Deloraine, Man.

THE Hantsport Foundry and Machine Company, Hantsport, N. S., are advertising for bids for the construction of a foundry and machine shop complete.

THE McLaren-Ross saw mills now being built at New Westminster, B. C., are nearing completion. The cost of the machinery in them aggregates \$60,000.

THE Royal Soap Company, whose works near Winnipeg, Man., were recently destroyed by fire, have just completed and occupied enlarged works in that city.

TWELVE thousand nails a minute is the alleged capacity of a new nail machine recently perfected by a Massachusetts man. This story ought to be promptly nailed.

MESSRS. FROST & WOOD, Smith's Falls, Ont., manufacturers of agricultural implements, are running their works to their fullest capacity to enable them to keep up with orders.

MESSRS. SHAW & Co., Calgary, N. W. T., are starting a new woollen mill at that place, included in which is machinery for making tweeds, blankets, etc., chiefly for custom trade.

MESSRS. WALTER PATTERSON & SON, Peterboro, Ont., have been making some important changes and additions in their tannery, in which is included a Goldie & McCullough steam engine and boiler.

THE Canadian Locomotive and Engine Company, Kingston, Ont., recently manufactured a crank for a pump which weighed 18,000 pounds—said to be one of the heaviest single castings ever made at the works.

MR. JOHN STEWART, bridge builder, New Glasgow, N. S., has been awarded a contract for the construction of an iron bridge across the John River, N. S. It will contain one 160-foot and two 80-foot spans.



THE Rosamond Woollen Company, of Almonte, Ont., are introducing electric storage batteries for lighting a part of their works, the storage of electricity being done when the motive powers of the mills are not otherwise engaged.

THE Central Bridge Works, Peterboro', Ont., of which Mr. W. H. Law is proprietor, have been awarded a contract by the Canadian Pacific Railway Company for the construction of two steel railroad bridges, one at Lennoxville and one at Cookstown, Que.

THE Canada Pipe and Foundry Company, of Montreal, has been incorporated with a capital stock of \$100,000. The objects of the Company are the manufacturing of gas, water and soil pipes, and all descriptions of cast iron and other pipes, all descriptions of castings, etc., etc.

COL. FANNING, the Minneapolis engineer, who visited Winnipeg, Man., to inspect the water power there, of the Assiniboine river, having reported favorably, the necessary financial arrangements have been made by the water power company to commence operations at once.

THE Morrisburg Implement Works, at Morrisburg, Ont., of which Messrs. J. F. Miller & Son are proprietors, includes a three-story and basement main building 112x40, with iron roof; one annex 60x40 feet and another 40x20 feet, employment being given to about forty hands.

MAYOR CLENDENAN and Messrs. G. Gurd, R. L. McCormack, William Johnston and William James, of West Toronto Junction, have been granted a charter for an elevator company. A considerable amount of stock has been subscribed, and the construction of an elevator will soon be begun.

UNDER the new arrangements by which the Magog Print Works, at Magog, Que., are to be operated, important alterations and improvements have been made, the expectations being that samples will be printed during the current month, the regular printing work to be put in full blast in September.

MESSRS. PATTERSON & CORBIN, St. Catharines, Ont., have been awarded the contract for the construction of a number of street cars for the new electric street railway at Victoria, B.C. These cars are to be of first-class workmanship and finish, and will have capacity to accommodate from sixty to seventy persons each.

MESSRS. P. HEMOND & SON, Montreal, manufacturers of boots and shoes, have just completed and moved into their large new factory in St. Therese street, that city. The building is five stories high, 84x42 feet, fitted with all the latest improved machinery and appliances, by which they have trebled their capacity for manufacturing.

THE Charlottetown Woolen Mills, at Charlottetown, P.E.I., are the largest of their class in the Maritime Provinces. They are capitalized for \$200,000, employ fifty hands, twenty looms and three sets of cards, and turn out blankets and tweeds. The annual product will run between 150,000 and 200,000 yards of woolen goods.

THE Northern Pacific and Manitoba Railway Company are said to be contemplating the establishment at points along their line of elevators, although they will be nominally the property of an elevator company. It is also reported that the Keewatin Milling Company will erect a number of elevators at various points throughout the province.

MESSRS. THOS. MARKS & Co., of Port Arthur, have closed a contract for the transportation of ten thousand tons of Pennsylvania coke from Lake Erie ports to Algoma Mills, to be thence transported via Canadian Pacific to Sudbury where it will be used for smelting copper, nickle and other ores before their final shipment to Swansea, Wales, for refinement.

THE proprietors of the Welland Flour Mills at Thorold, Ont., are refurbishing their mill at an expense of about \$15,000, which will enable them to turn out 400 barrels of flour per day. There will be six water-wheels capable of developing 250 horse power. The machinery will occupy five stories, and it is expected that it will be set in motion about the 1st of August.

THE Wells-Richardson Company, Montreal, began the manufacture of their specialties there about six years ago, one of their chief products being household dyes. This department of the business has increased to very large proportions, and the demand for these dyes comes not only from Canada, but also from England and Australia, where they are sent in large quantities.

MR. J. W. KELLER, Victoria, B.C., has engaged in the manufacture of drain and sewer pipe at that city. The sizes of pipe that are to be made will include all standard sizes from 22 inches down

to 3 inches diameter. Mr. Keller claims that pipes manufactured by him have stood the most satisfactory tests, and that he can produce them at a lower cost than the imported article.

MESSRS. I. MATHESON & Co., New Glasgow, N.S., whose card appears regularly in these pages, occupy works which cover three acres of ground. These works were established in 1867, a specialty being the manufacture of marine engines and boilers of all sizes. The firm also pay special attention to the manufacture of mining machinery. They give employment to seventy-five hands.

A FARMER at Gretna, Man., recently imported an engine and thresher from the United States that was the product of convict labor, contrary to the Inland Revenue Act, with the result that the articles were confiscated by the customs department. An agent for a local implement firm warned the importer what the result would be if the importation was made and was the means of the seizure.

AN electrical alarm attachment has been devised that can be applied to ordinary clocks. The hands can be set at any given five minutes of each hour. No winding is necessary; simply turning a switch allows the circuit to be completed at the time the alarm is to ring; and the ringing does not stop until the current is switched off. The device is compact, the battery being inclosed in the clock case.

THE first shoe was patented in 1811 by two Massachusetts men. It was of undressed leather, and there is considerable difference between the workmanship of that and the present machine stitched shoe. So well was the work done, however, that it was impossible to tell whether it was pegged or sewed until some clerk cut the sole and ascertained that it was pegged.—*Canadian Shoe and Leather Journal*.

MR. ALEX. DOWNEY, the stenographer, of Toronto, has brought out an ingenious device, which he has patented, and which he calls an Aligner, for correcting faulty alignment in typewriting machines, enabling an operator to make perfectly aligned work with any number of copies, and restoring the alignment to worn machines. The invention is very highly spoken of by those who have had it placed on their machines.

THE Hochelaga Cotton Company, of Montreal, have bought out the Magog Textile and Print Company, at Magog, and will fill the cotton mill with machinery at once. They expect to start printing about August 1. These mills contain 130,000 spindles and 2,500 looms, and manufacture gray and white shirtings and sheetings, canton flannels, drills, pillow cottons, ducks, bags, towels, etc., and consume about 250 bales of cotton per week.

THE Victoria Tramway Company, Victoria, B.C., have awarded some contracts for the construction of their electric street railway. The Thompson-Houston Company of Boston, Mass., will supply the installation for about five miles of electrical apparatus. Messrs. Patterson & Corbin, of St. Catharines, Ont., will supply the passenger cars, and Mr. T. W. Patterson, of Victoria, will construct the roadway and track. The contracts thus far given out aggregate about \$80,000.

MR. W. H. LAW, of the Central Bridge works, Peterboro' Ont., has recently placed in his works a massive tripled combined punch and shears, the weight of which is over 12 tons. It is capable of shearing off a bar of steel 10 inches wide by 1½ inches thick at one bite. Plates can be cut through two feet from the edge. The punch will drive a hole 1½ inches in diameter through a steel plate 4 inches thick, and in the angle iron shears bars 6x6 inches can be severed with the greatest ease.

THE J. B. Armstrong Manufacturing Company, Guelph, Ont., call attention to the Armstrong improved defiance vehicle gear manufactured by them. In its construction are embodied the Armstrong perfect two-plate spring, which, it is claimed, is the only spring made which rides easy, either light or full loaded. The body of the vehicle is hung in free swinging shackles, which make it exceedingly comfortable. This gear is specially adapted for carriage makers' use. Descriptive circulars sent on application.

AMONG the first through patrons of the Short Line Railroad were Messrs. McDonald & Son, of Milltown, near St. John, who shipped by Monday's train to Cookshire, Quebec, one of their patent lever set gang edgers. They had their patent renewed March 11, 1889, for five years. They have an order for another of their improved edgers for a party in Nova Scotia which will be ready for shipment soon. The wide circulation of this indispensable part of the equipment of the saw mill strongly attests the high value manufacturers place upon this device of Messrs. McDonald & Son.—*Halifax, N.S., Critic*.

MR. JOHN STEWART, of Hamilton, Ont., has been awarded the contract to construct the King street subway, in this city, for \$84,666. The structure will be composed of steel, iron and timber.

On the last trip of the steamer *Parthia* to Vancouver, B.C., from China, she brought over a steam launch which had been built in Hong Kong for a gentleman in Vancouver. This yacht was constructed of teak wood, was 47 feet long and 9½ feet beam, provided with an expansion engine and a 37-inch screw.

THE Truro Condensed Milk and Canning Company, Truro, N.S., manufacturers of Reindeer brand of condensed milk and condensed coffee, have an equipment with capacity to manufacture 25,000 cases of goods per year. The capital stock of the company is \$25,000, and they give employment to about fifteen hands.

THE Truro Foundry and Machine Company, Truro, N.S., manufacturers of stoves, hollow-ware, ship and mill castings, rotary saw-mills, steam engines and boilers, etc., make a specialty manufacturing gold mining machinery, for which they enjoy a very large demand. This concern are successors to Messrs. Clish, Crowe & Co.

THE Preston Carriage Company, Preston, Ont., is a concern that came into existence last year, an account of which appeared in these pages at the time. Since then the company have erected a suitable factory which is now in successful operation. It is three stories high, 100x40 feet, with annex 26x24 feet, well supplied with best new machinery.

THE C.P.R. Telegraph Company have established their call box system at Winnipeg, Man., and placed instruments in those business houses whose transactions with the company are of sufficient amount to warrant their so doing. The latest improvements are embodied in the system, which works well. Both closed and metallic circuits are worked and a duplex register records the signals in the central office.

A NEW and important invention whereby iron founders can, without alteration of plant, or, in fact, any departure from their present methods of moulding and pouring of the heated metal, secure a casting with a wrought iron or semi-steel exterior. Besides, not only a clean casting is secured, but one of a bright surface is given. The inventor, Mr. F. D. Taylor, M.E., of Brockville, Ont., after many years' experience, has, it is said, succeeded

THE Aerated Fuel Company's system for burning crude petroleum has, among other establishments, been recently adopted by the U. S. Cartridge Company, of Lowell, Mass.; Fayette R. Plumb, manufacturer of tools, at Frankford, Philadelphia; Scoville Manufacturing Company, Waterbury, Conn.; St. Louis Shovel Company, St. Louis, Mo.; Dominion Bridge Company, Lachine, Quebec; the W. H. Fish Manufacturing Company, Columbus, Ohio; and in the Boston and Albany Railroad Company's shops, at Springfield, Mass. All speak highly of its economy and effectiveness. W. S. Collins, 171 Broadway, New York, is licensee of the system for a large part of the Middle States. This company is represented in Canada by Mr. Chilion Jones, Gananogue, Ont.

In old times, dogs were in constant use as turnspits, and according to the *New York Sun*, at a blacksmith's shop in Stanton, dogs are there used to supply power for a furnace. A wheel eight feet in diameter has been constructed, and it is of sufficient width to admit of one dog standing in it. Four dogs are used, each working for one hour and resting for three. When not at work the dog on duty stands in the wheel facing the forge until told to "go ahead." He then sets the wheel spinning merely round, and by means of a crank and lever the bellows are worked. Large numbers of spikes are turned out at this smithy, and the furnace is seldom idle. The proprietor is a German, who has himself trained the dogs, and their use saves him a considerable sum yearly in wages.

MR. C. D. GRAHAM, the Niagara whirlpool rapids crank, recently caused a boat to be built for him at London, Ont., with which he announced that he would shoot the rapids on July 4th, instant. A few days ago the boat was taken to the Fall for an experimental trip, during which it was smashed into kindling wood, and the Fourth of July event was declared "off." The boat was buoy shaped, 12 feet long and 3½ feet across the centre. Across the ends it was about two feet, and had 24 iron hoops encircling it and 5 running lengthwise. The boat was divided into three compartments, and in the two ends were air chambers. In the centre is where the fool-hardy navigator intended to place himself. It had a manhole on the top which Graham was to close down after he got into it.

THE labor of canning fruit is dreaded by even those housekeepers who take pleasure in the task of "putting up" the various products

of the field and garden for winter use. The time required is often long and tedious, and the expense is no inconsiderable item. "Thrifty Jane's Easy Method," described by Mrs. Ormsbee in the current number of *Good Housekeeping*, offers a way out of one of the difficulties that beset the thrifty housekeeper in this work. It is worthy of attention in any household where much canning is done, or where only a little is done for that matter, as it eliminates some tedious processes heretofore considered necessary, but which appears to be a needless expenditure of labor and patience.

M. ROBERT, of Stenay, France, has patented a rapid mode of converting iron into steel by providing means for maintaining constant relations throughout the whole period of conversion, which is effected by varying the position and volume of the blast. He applies a blast of air to a body of molten metal at maximum pressure at the beginning of the operation, and after thus overcoming the inertia of the metal and imparting to it the proper speed of gyratory motion he lowers the level of the blast, without carrying it into the body of the metal, and varies its pressure and volume in accordance with the requirements caused by the reduction in the combustible elements of the iron and the increased fluidity of the metal.—*New York Telegram*.

THE Windsor Foundry Company, Windsor, N.S., are among the oldest and largest manufacturers of stoves and ranges in the Dominion of Canada. The business was founded over a third of a century ago. They are manufacturers of cooking and heating stoves ranges and rank in this line among the best makers on the American continent. They also manufacture the best grades of hollow-ware, all varieties of mill and gold mining machinery, vessel castings, Canadian and English open fire grates, fenders, curbs, hand irons, tile panels, hearths, etc. This company hold the exclusive right for Canada to make the celebrated American Ship Windlass Co's windlasses and capstans, which have the approval of underwriters, owners, masters and builders, as the safest and best now in use in the United States and Canada marine service. This plant covers seven acres and gives employment to 75 hands.

THE Asbestos industry, Quebec, continues to rapidly increase in importance, and at all the mines operations are going ahead briskly. It is thought, from present indications, that the output of this mineral from the various districts will be largely in excess of former years. The demand for the product continues strong, and many manufacturers, being unable to obtain their supply of *First*s, have to be content with *Second* and *Third* qualities. At the Bell's Company mines the new machinery is working smoothly and gives entire satisfaction to the management. It is confidently anticipated that the year's output will not be far short of 2,000 tons, the greater proportion of which will be No. 1 quality. The Johnston Company continue to produce large quantities of *First*s, and your correspondent estimates that the profits of this concern will figure close upon \$50,000 on this season's operations.—*Mining Review*.

THE Intercolonial Railway Company are about building a new round house and an extension to their machine shops at Moncton, N. B. The new round house will be quite similar to the present one and will be of brick with iron roof. It will contain stalls for 28 engines, the capacity of the present round house having originally been 18 engines, but enlarged about four years ago to accommodate 27. The erecting shop will be 201 feet long and 110 feet wide. It will be of brick, with a lantern roof, supported by iron trusses. It will not be quite so large, but will be much more substantially built than the present shop, and will be furnished with steam, water and all the modern improvements for heating, etc. The lighting arrangement is specially good. The extension will be built between the present shop and the round house. Plans are also being prepared for a new coal shed on an improved plan. It will be 160 feet by 30, will be furnished with steam hoisting apparatus, with 20 cars on the upper level constantly loaded for the quick supply of engines.

It is interesting to trace the evolution of paper back from the oil can to the paper lamp, paper bottles for ink and bluing, paper pails and wash basins, paper car wheels, building paper, wrapping paper, printing paper and writing paper, which we believe, was the first use to which paper was put; at any rate, it is evident that there is "nothing like paper." It has been the means of recording the world's history and enlightening the world, and each year finds some new use to which it is adapted. The latest evolution of paper is a paper oil can, so prepared with a patent composition lining that it is impervious to even kerosene oil and is handsomer and more durable than any other can in the market. It is very difficult to solder tin cans so that some are not defective, besides which kerosene oil seems to soon corrode them so that the oil works through, while those that are glass-lined are easily broken; hence, the paper oil can fills a want.

in accomplishing the above objects. It is known that in past years great strides have been made in improving and reducing the costs of both wrought iron and steel. But whilst these improvements have been going on, little or no improvements of any note have been made in the foundry beyond that of running the iron into the ordinary sand and chill moulds. Mr. Taylor has invented a cheap lining which can be fitted into any mould, and which, so soon as the molten iron comes in contact with it (during the process of pouring) reduces the carbon in the iron to its minimum, thereby producing a casting of increased strength and superior finish.

The iron foundry, engine works, and machine shops of A. Robb & Sons have, during the last twenty years, gradually increased their productions and pushed their business into all parts of Canada, meeting successfully the competition of the oldest establishments in the country. The rapid expansion of Rhodes, Curry & Co.'s business, and their ability not only to underbid building contractors in all parts of Nova Scotia and New Brunswick, but to send their workmen and builders to Newfoundland, is an exemplification of our facilities for the successful conduct of that branch of manufacturing. The success with which Christie Bros. & Co. have been able to compete with the older establishments in the Upper Provinces in the manufacture of caskets and coffins, for which they have had a constantly increasing wholesale trade, is another evidence that our manufacturing capabilities are in no way limited, and to this may be added the manufacture of carriage and cart hubs and spokes, carried on to no small extent by the same firm. Then there are the productions of C. R. Casey & Son, whose steam tannery turns out large quantities of leather, and who also manufacture a great many oil-tanned moccasins and larrigans for the wholesale trade of the Provinces. The Canada Electric Company, though in operation but a few months in Amherst, now has its hands full of orders.—Amherst, N.S., *Record*.

It is a curious commentary on the frequent efforts made by a section of the press to impress it upon the public that the manufacturing interests of Canada are of trifling extent and importance, to glance over a single number of such a paper as the Toronto CANADIAN MANUFACTURER. Within six columns of notices of different businesses throughout the Dominion, the number of hands employed are incidentally mentioned (in the issue of 7th June) in the following instances:—

Amherst Boot and Shoe Company.....	180
A plow manufactory at Ottawa.....	20
The Toronto Radiator Company.....	100
The A. S. Whiting Company, Oshawa.....	100
Wagon Works, Chatham, Ont.....	120
The Martin Manufacturing Co., Whitby, Ont.....	50
The Oshawa Malleable Iron Co.....	300
Oshawa Gear and Carriage Works.....	45
The Globe File Manufacturing Co., Port Hope.....	55
The Cobourg Woolen Company.....	175
The Galt Edge Tool and Carriage Spring Works.....	80

These instances in which the number of hands employed is given are totally independent of treble the number of extensive works mentioned in the same issue in which that item is not given.—Halifax, N.S., *Critic*.

A FORMIDABLE rival to lighting by electricity, both in economy and beneficial results, is water gas. Of equal or greater importance to gas consumers is the Welsbeck incandescent burner, which can easily be applied to any gas fixture, and which uses only half the quantity of gas. The results obtained from this burner are due chiefly to a chemical net or mantle which fits over the jet, and is almost imperceptibly consumed, furnishing a brilliant, soft and steady light that fairly rivals the incandescent electric light. These mantles last for 500 hours, or on an average, for six months, when they have to be replaced by new ones. The burners are now being manufactured in Halifax, and in time a large number of hands will be employed at this work. We paid a visit to the factory and were shown through the premises by Mr. Giles, the manager. The net work which forms the basis of the mantle or cover is knitted from cotton on a knitting machine. It is then dipped in the chemical mixture in the dry room, and dried on long glass tubes. It then passes through the hands of various operatives who mould it into shape and finally burn out all the cotton in powerful gas jets, the smoke, etc., being carried off by suitable conductors. The cone-shaped mantle or mineral is now ready to be fitted to the burners, and the completed burner, after being fitted with a shade, is ready to be packed in boxes for shipment. Three competent operatives have been imported from Philadelphia and will act as forewomen of the different departments.—Halifax, N.S., *Critic*.

THE NOVA SCOTIA STEEL AND FORGE COMPANY.

In point of dimensions, amount and value of annual product, and capital represented, the Nova Scotia Steel and Forge Company, of New Glasgow, N.S., ranks among the largest and most important industrial interests of the Dominion. The plant covers fifteen acres along the East River, and about a mile distant from New Glasgow. They were established in 1882, with a then paid-up capital of \$280,000, now amounting to \$400,000 paid up, two-thirds of which stock is represented by the citizens of New Glasgow.

On January 1st, 1889, the Nova Scotia Steel Works absorbed the Nova Scotia Forge Company, with all its franchises, lands, buildings and equipment, when the *nom de commerce* of the enlarged and new arrangement became the Nova Scotia Steel and Forge Company.

Since July, 1888, they have expended \$50,000 in improvements, enlargements and for the obtaining of other facilities whereby they have increased their product and perfected their methods and systems. The main building of the steel works, in contradistinction of that of the old Forge Company, occupies an area of nearly 125,000 square feet, all covered with roof, around and through which are some two miles of railroad track. The heaviest items of the plant are the two open hearth steel-furnaces—one 15 and the other 20 tons capacity; five re-heating reverberatory furnaces, and two re-heating Semens gas furnaces. These are supplemented by the following machinery:—One 26-inch cogging mill, fully equipped, with rolls, hot billet shears, etc.; one 22-inch sheet mill and one 17-inch nail plate mill, driven by a pair of compound condensing engines of twelve hundred horse-power; one 16-inch bar mill, and one 9-inch merchants' bar mill, driven by a high pressure engine of 800 horse-power; plate and cropping shears; one steam travelling crane of ten tons capacity; and a number of steam hammers. In all there are forty steam cylinders in operation in the works.

In the steel spring tempering department are heating and annealing furnaces, drop hammers and all other plant necessary for the rapid production, in large quantities, of springs and teeth for agricultural implements.

In another department are the necessary shears and punches for the production, on a large scale, of railway fish plates, both bar and angle; tie plates, plow plates, etc.

In the machine shop are all the usual and necessary plant for such an establishment, as planers, lathes, drills, etc.

THE OUTPUT

consists largely of steel for agricultural implements, together with the usual sizes of merchants' steel, in round, flats and squares, with angles and special sections. A large quantity of spring steel is also made. Rivet steel, of specially low carbon, is also manufactured, besides tramway and pit rails; nail and plough plate, and large quantities of "sections."

Being situated on the Pictou Branch Railway, and the East River, the Company has excellent facilities for shipment of products both by rail and water. The bulk of the output passes over the I. C. R. for consumption in the Upper Provinces. In 1884 the shipments from the establishments were only 2,270 tons; in 1887, they amounted to about 6,000 tons; in 1888, 12,000 tons.

At the present there are 375 men on the pay list, and the monthly pay roll amounts to \$15,000 a month.

The amalgamation of the Nova Scotia Steel Company with the Nova Scotia Forge Company in January of the current year, makes this an industry of mammoth proportions. The general management of the Nova Scotia Steel and Forge Company is now largely in the hands of the former proprietors of the Forge Company. The works of the Forge Company were established in New Glasgow in 1872. In the following six years they out-grew the surroundings, and removed the plant to its present site. The buildings in this division of the Nova Scotia Steel and Forge Company's works, are, main building 360x66 feet, machine shop 100x60 feet. The mechanical equipment comprises four steam hammers, four reverberatory furnaces and one pair heavy scrap shears. In the machine shops are all the necessary equipments for dressing and finishing heavy forging. One of the largest forgings made by this company was a rudder over eight tons weight supplied to a French steamship that had arrived at Halifax disabled. The rudder, stern post and stern of the Government steamer Northern Light—the winter ice boat between P. E. I. and the main land—and a crank shaft for the Government steamer Newfield, were also manufactured by this Company. The principal item of manufacture is

RAILWAY CAR AXLES.

The full capacity of the works in this line is about 3,000 axles per month.

THE Davis and Lawrence Co., Montreal, have recently added another branch to their extensive manufactures by establishing a factory for the production of such rubber goods as are required in the practice of medicine, or by the drug trade. The demand for articles of a first-class quality gives encouragement to the opinion that, in time, this branch will become one of the most important in connection with the establishment. Syringes, rubber bags, feeders, tubing, nipples, stoppers, bandages and other lines are already being turned out, and are ready for the market. An inspection of these goods shows them to be fully up to the standard of the best which have heretofore been imported.

THE Works of the Ammonia Company of Toronto have been completed and put in operation, and the company are now successfully conducting the business of manufacturing anhydrous ammonia. A ready market is found for this article in the vast breweries, distilleries, packing, and storage houses, and ice factories of the United States, and every day, according to the *Canadian Pharmaceutical Journal*, fresh applications open up for the employment of this great refrigerating agent. The condensed gas, which must be absolutely free from water, is shipped in steel cylinders, ten inches in diameter, and seven feet long, which have been tested to a pressure of 500 pounds per square inch. In these it can be safely carried, and attachments are provided whereby connection may be made with a coil of pipes, or other means for the circulation of the liquid. Arrangements have been made in New York by which the steam pipes used for heating in winter may be employed for cooling apartments in summer, and it is said that one effect is as readily produced and controlled as the other. The principle of refrigerating by ammonia is, that when liquids assume the form of gases they absorb a large amount of heat. This is illustrated in the case of water, which, in boiling, that is in taking the form of steam, or vapor, requires the consumption of much fuel. Liquid anhydrous ammonia boils at a much lower point than water—under ordinary circumstances at 40° F., below zero. Heat is absorbed, and this is at the expense of any bodies or surface with which the ammonia comes into contact. For instance, if a coil of pipes, through which this agent is injected, is immersed in a vessel of water, the heat is abstracted from the latter and it is rapidly converted into ice. A similar coil in a refrigerator or room, cools the air correspondingly. Liquid ammonia is a solution of this gas, and as the Ammonia Company

manufacture the pure anhydrous article, they can readily furnish solutions of any strength. We understand that it is their intention to manufacture all of the commercial kinds, and, in time, probably all the salts, none of which are yet made in Canada, the supply of sulphate, from which the liquid has heretofore been made, having been all imported. The material used by this company in the manufacture of this article is the liquors of the gas works of this city and Hamilton, which, heretofore, had been allowed to run to waste, and even to do injury by contaminating the water supply. The enlistment of capital in a new undertaking, of a nature so little understood by the public, was at first somewhat difficult, but, ultimately, nearly the whole of the stock, amounting to \$40,000, was taken up. The erection of a plant, to be as nearly automatic as possible, for the direct production, at one operation, of about one and a half tons of liquor ammonia per day, necessarily occasioned the lapse of considerable time, and it was subsequently thought better to add to this a complete apparatus for the preparation of anhydrous ammonia, an article for which the United States presents a market which is practically without limit, and for which a demand is already springing up in our own country.

## The Standard Drain Pipe Co.

ST. JOHN'S, P.Q.

### INVERT BLOCKS

FOR BOTTOMS OF BRICK SEWERS.

These Blocks are made of Fire Clay, SALT GLAZED and VITRIFIED, and form the most perfect Invert known. Amongst their special advantages, they are indestructible perfectly smooth, affording the minimum of friction to flow.

Easily and cheaply laid on ANY BOTTOM.

Made in lengths of 18 inches, or to suit buyers.

The Standard Drain Pipe Company, St. John's, P.Q.

ROBT. CARROLL, Agent for Toronto.

## To Manufacturers! - TO RENT -

The Flats and Basement of that centrally situated property on Bay Street, below Front Street, being the BEST BUSINESS PREMISES and location in the City of Toronto, WITH POWER (guaranteed steady), Steam Heating. W. C., Wash-rooms, etc., on each floor. Heavy Weight Steam Hoist; good light on three sides; Lowest Insurance Rates; entrance from front or rear to each flat. Specially adapted for Factory, Warehouse and Office purposes.

The building has a depth of 100 feet, with a frontage of 54 feet on the west side of Bay Street and 34 feet on lane in rear; four stories high and basement. RENT CHEAP.

We have also in the same locality, Lot 70 feet front by 100 feet deep to a lane, on which we will erect factory buildings specially to suit a good tenant. For further particulars apply to

DICK, RIDOUT & CO.,  
11 & 13 FRONT ST. EAST

## "The Princess" Baby Carriage Rugs

MANUFACTURED BY

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Registered and Patented in Canada and the United States.

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

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ACTON, ONTARIO,  
For CIRCULARS and PRICE LISTS.

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Galt, Ontario,

Have the following Machinery For Sale:

- 80 H.P. Wheelock Engine—New.
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- 25 H.P. Inglis & Hunter Westinghouse Engine.
- 4-Side McKechnie & Bertram Moulding Machine.
- 35 H.P. Boiler.
- 12 H.P. Upright Engine and 20 H.P. Boiler.
- 30 H.P. Boiler.
- 20 H.P. Slide Valve Engine.
- Macgregor, Gourlay & Co. Planer and Matcher.
- 35 H.P. Killey & Co. Engine.
- 100 H.P. Killey & Co. Engine.
- 40 H.P. Slide Valve Engine.
- 10 H.P. Engine and 12 H.P. Boiler.
- 80 H.P. Dickey, Neil & Co. Engine.
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- Iron Turning Lathe, 18 feet bed, 32 inch swing.

For Particulars Address

GOLDIE & McCULLOCH, GALT, ONT.

**THE GOLDIE & McCULLOCH "WHEELOCK" ENGINE.**

Messrs. GOLDIE & McCULLOCH, Galt, Ont., inform us that they are having an exceedingly strong demand for the Wheelock steam engine manufactured by them. Since electric lighting, and the use of electricity for other purposes, has come so largely into use in Canada, this concern has been favored with a great many orders for their Wheelock engine, among which they mention Yarmouth Electric Light Co., Yarmouth, N. S.; Fredericton Electric Light Co., Fredericton, N.B.; Halifax Gas Light Co., Halifax, N. S.; Oshawa Electric Light Co., Oshawa, Ont.; Guelph Gas Co., Guelph, Ont.; Berlin Gas Co., Berlin, Ont.; Galt Electric Light Co., Galt, Ont.; Orillia Electric Light Co., Orillia, Ont.; Belleville Gas Co., Belleville, Ont.; Brockville Gas Co., Brockville, Ont.; Renfrew Electric Light Co., Renfrew, Ont.; Ball Electric Light Co., London, Ont.; Woodstock Electric Light Co., Woodstock, Ont.; Cobourg Electric Co., Cobourg, Ont.; Orangeville Electric Co., Orangeville, Ont.; Mount Forest Electric Light Co., Mount Forest, Ont.; Hamilton Electric Light Co., Hamilton, Ont.; Corporation of Town of Goderich, Goderich, Ont.; Stratford Gas Co., Stratford, Ont.; Reliance Electric Light Co., Waterford, Ont. Among other Wheelock engines Messrs. Goldie & McCulloch are now building is one for the Kay Electric Light Company's works in Hamilton, Ontario. The use of the Wheelock engine is not confined to driving electric machinery, but it is in high favor with saw mill men and other manufacturers; in fact its use is extended to nearly all purposes where steam power is required. Following is a partial list of other parties in Canada to whom these engines have been supplied; Gilchrist, Green & Co., Wingham, Ont.; Thomas Bell, Wingham, Ont.; The Patterson & Bro. Co., Woodstock, Ont.; McDougall & Co., Galt, Ont.; Corporation of Town of Goderich, for their Electric Light Station, Goderich, Ont.; Methodist Publishing House, Toronto, Ont.; Ontario Industrial Loan and Investment Co., Toronto, Ont.; Paris Wincey Mill Co., Paris, Ont.; W. H. Verity & Son, Exeter, Ont.; Malcolm & Smith, Brussels, Ont.; Courtland Carriage Co., Brantford, Ont.; A Dobson & Son, Cannington, Ont.; Berlin Felt Boot Works, Berlin, Ont.; Stratford Gas Co., for the Stratford Electric Light Co., Stratford, Ont.; John Bertram & Sons, Dundas, Ont.; Wm. Mason & Sons, Ottawa, Ont.; D. Hibner & Co., Berlin, Ont.; Macgregor, Gourlay & Co., Galt, Ont.; A. W. Brodie, Hespeler, Ont.; Thomas Foster, Tara, Ont.

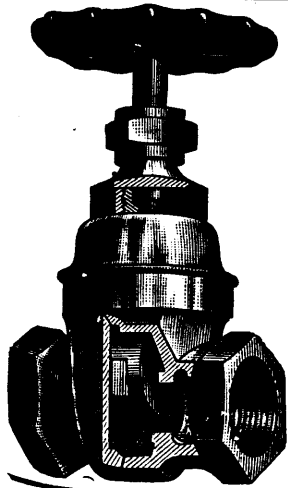
T. Eaton & Co., Toronto, Ont.; M. J. Smith & Co., Toronto, Ont.; George Cassidy, False Creek, B.C.; Sandy McVean, Dresden, Ont.; Wm. Partto, Ingersoll, Ont.; John Cameron & Sons, Toronto, Ont.; Sykes & Ainley, Glen Williams, Ont.; M. F. Beach, West Winchester, Ont.; Spink Bros., Toronto, Ont.; Mount Forest Electric Light Co., Mount Forest, Ont.; A. Davis & Son, King, Ont.; George Bros., Stouffville, Ont.; A. Newell & Co, Hamilton, Ont.; Greening Wire Manufacturing Co., Hamilton, Ont.; McKechnie Machine Co., Hamilton, Ont.; M. Beatty & Sons, Welland, Ont.; Ireland National Food Co., Toronto, Ont.; Thomas Eyre, North Augusta, Ont.; Kay Electric Light Co., Hamilton, Ont.; Charles Boeckh & Sons, Toronto, Ont.; D. S. Clemens & Co., Fisher's Mills, Ont.; A. Harris, Son & Co., (being the second Wheelock inside of one year.) Brantford, Ont.

Messrs. Goldie & McCulloch are now building high pressure, compound, and compound condensing engines of the Wheelock type.

Regarding the inventor of this engine, the engine itself and the reputation it has achieved, we reproduce the following from the Worcester, Mass., *Evening Gazette*:

' Mr. Jerome Wheelock has just returned from a business trip to England, and reports a most favorable errand. He is now engaged in getting out several drawings of his improved cut-off engine, to send abroad. The machinery in the London, Eng., Exhibition building is driven by a Wheelock 300 horse-power engine, which is admired by the crowned heads and expert mechanics of all Europe. Another of his engines is in use in the British arsenals in Woolwich, having 1,000 horse-power. The French Government has ordered engines sufficient to cover 4,500 horse-power to be distributed throughout its various arsenals, and also engines having several thousand horse power for the water-works of Paris. Another is about to be put in a 100,000 spindle-mill at Manchester, Eng., having a 56-inch cylinder and 8 ft. stroke: another at Oldham, and still another is being put up at India by British authority. In this country one of the largest shipments was recently made to the Chicago City Railroad Company for drawing street cable cars, consisting of two engines 36 x 72, making the eleventh consecutive engine sent to this company.'

In our own Dominion the success of the Wheelock engine is unparalleled, upwards of two hundred and sixty of them now being in use, and the firm are very busy on ordered work.



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Straightway Valves**

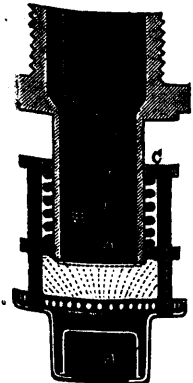
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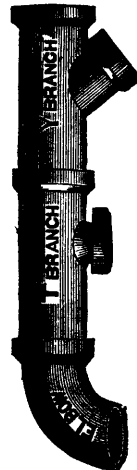
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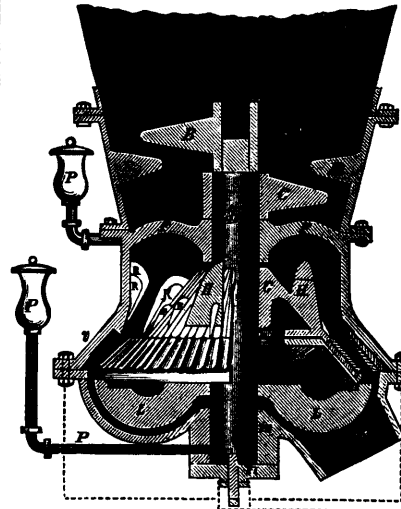
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For Grinding any hard substance  
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Cement, Plaster, Bones, Bats,  
Ores, Paint, etc. It is also  
used to grind Liquorice  
and Sarsaparilla roots.  
Also as a Corn  
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The Segments will retain  
their cutting edges longer than  
those of any other Mill, and  
when dull can be quickly and  
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It has the following good  
qualities, viz.:—Fast grinding;  
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erected and small power re-  
quired to drive it.

It works with ease in damp  
or frozen bark, and break-  
ages are prevented by safety  
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Railway Cars of all descriptions. Chilled Car Wheels, "Washburn Peerless" Steel Car  
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Architectural Iron Work of all kinds. Stairs, Gates,  
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HOSE—Rubber, Canvas and Linen.

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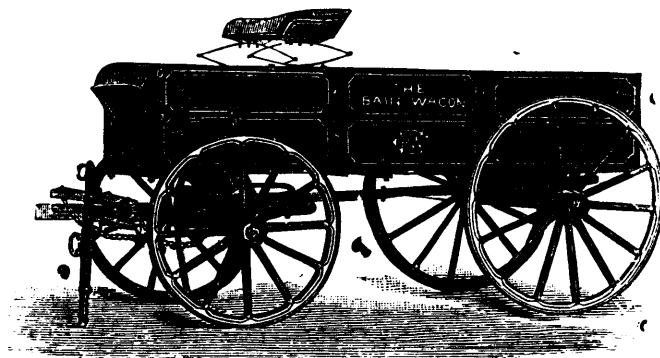
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**FARM, SPRING AND FREIGHT WAGONS**

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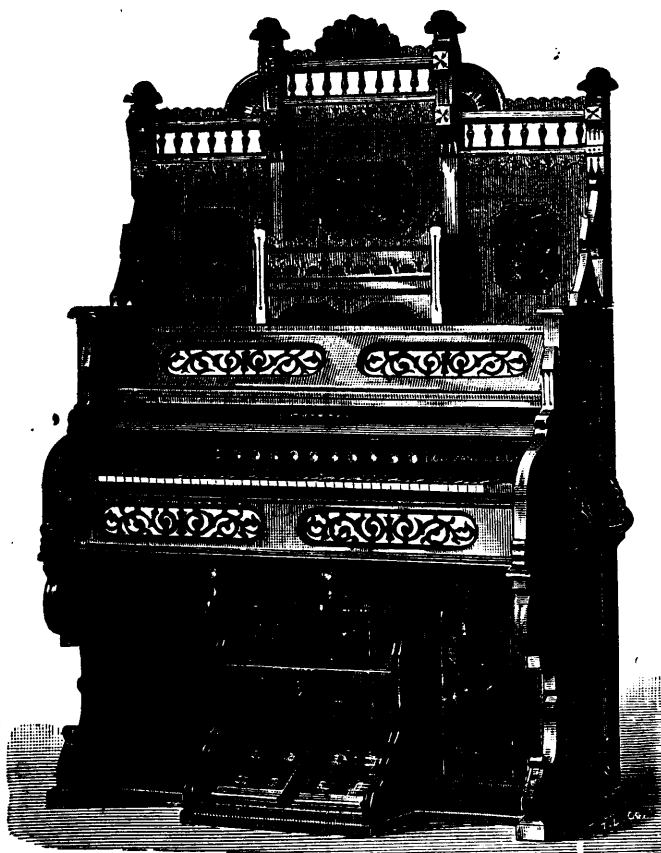
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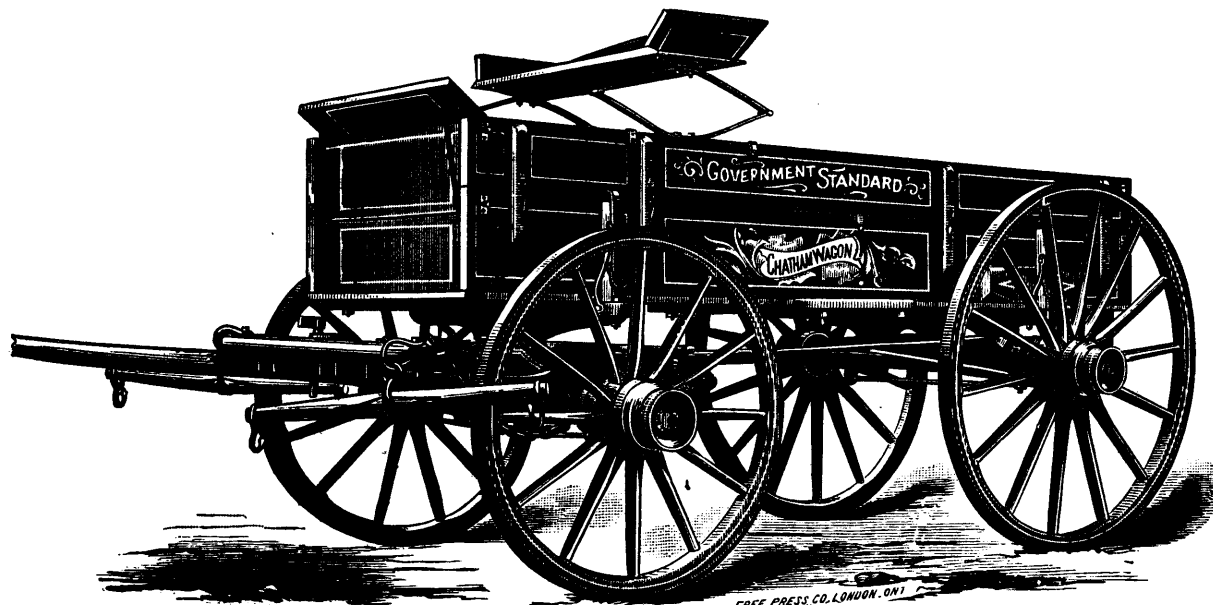
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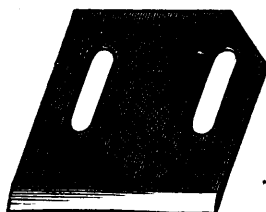


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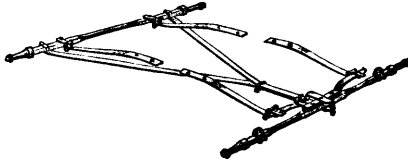
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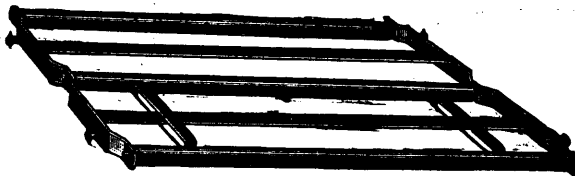
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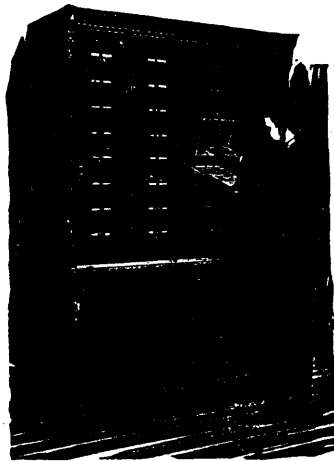


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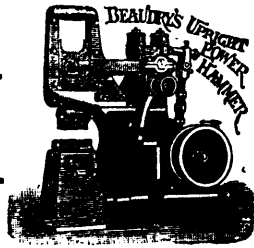
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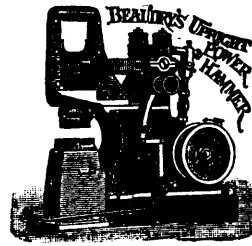




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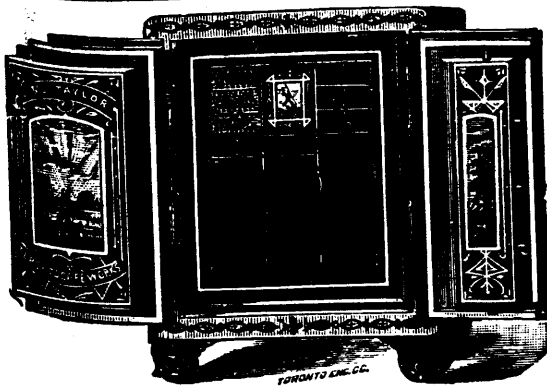


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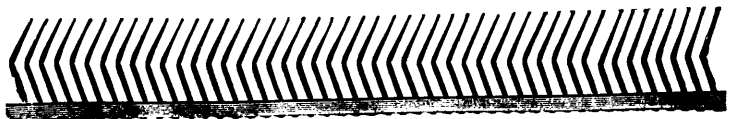
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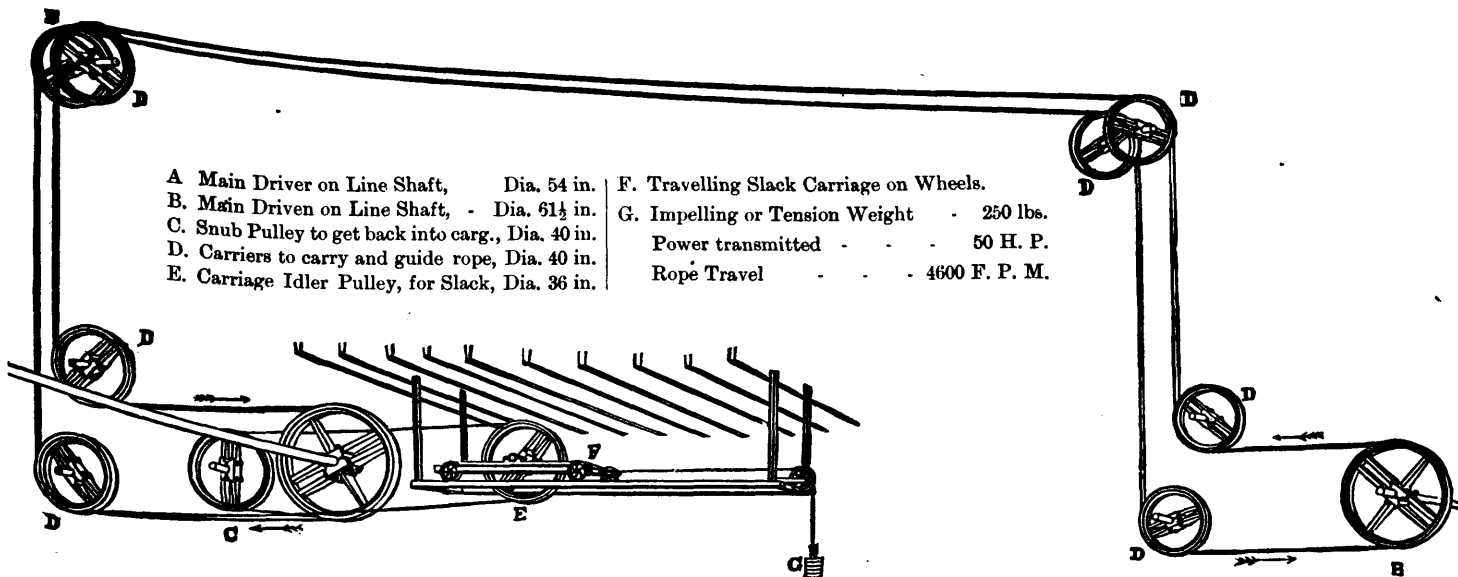
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❧ PATENTED. ❧



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| A Main Driver on Line Shaft, Dia. 54 in.           | F. Travelling Slack Carriage on Wheels.   |
| B. Main Driven on Line Shaft, - Dia. 61½ in.       | G. Impelling or Tension Weight - 250 lbs. |
| C. Snub Pulley to get back into carg., Dia. 40 in. | Power transmitted - - - 50 H. P.          |
| D. Carriers to carry and guide rope, Dia. 40 in.   | Rope Travel - - - 4600 F. P. M.           |
| E. Carriage Idler Pulley, for Slack, Dia. 36 in.   |   |

The above illustration shows the Dodge System of transmitting power by manilla rope and grooved hard wood pulleys, as manufactured and erected by Dodge Wood Split Pulley Co., Toronto, and demonstrates fully the practicability of the system. That it may be clearly understood and appreciated, we give the following description :

A transmission similar to the above was erected and started up in September, 1886, and has been running constantly ever since, conveying the power (50 H. P.) to drive a line shaft on the opposite side of the street.

This shaft is on a parallel line with the main line or power end.

In order to avoid obstructing the street it was necessary to go back from the power end and up through the upper stories of the main building over idlers, then across the street into the upper story of the building where the power is to be used, then down again into the lower story, where is located the driven shaft.

The transmission is a very simple one and consists of a series of wood split pulleys, and best quality of tallow laid manilla rope. The power is taken from the main line, making 280 R. P. M. Referring to the Cut, A represents the driver and is 54 inches diameter with two grooves. B, the driven, is 61½ inches diameter with two grooves, located, as stated, in a building on the opposite side of the street, about 125 feet from the driving end. The idlers, D, are of 40 inches diameter, and each has two grooves, and the carriage pulley is 36 inches diameter with one groove.

A journal containing valuable suggestions to those who would apply rope in place of belting for the transmission of power over long distances, with thirty illustrations and much special matter relating to this, the most perfect system ever devised for transmitting the power of a prime mover to distant machinery, sent free on application to the

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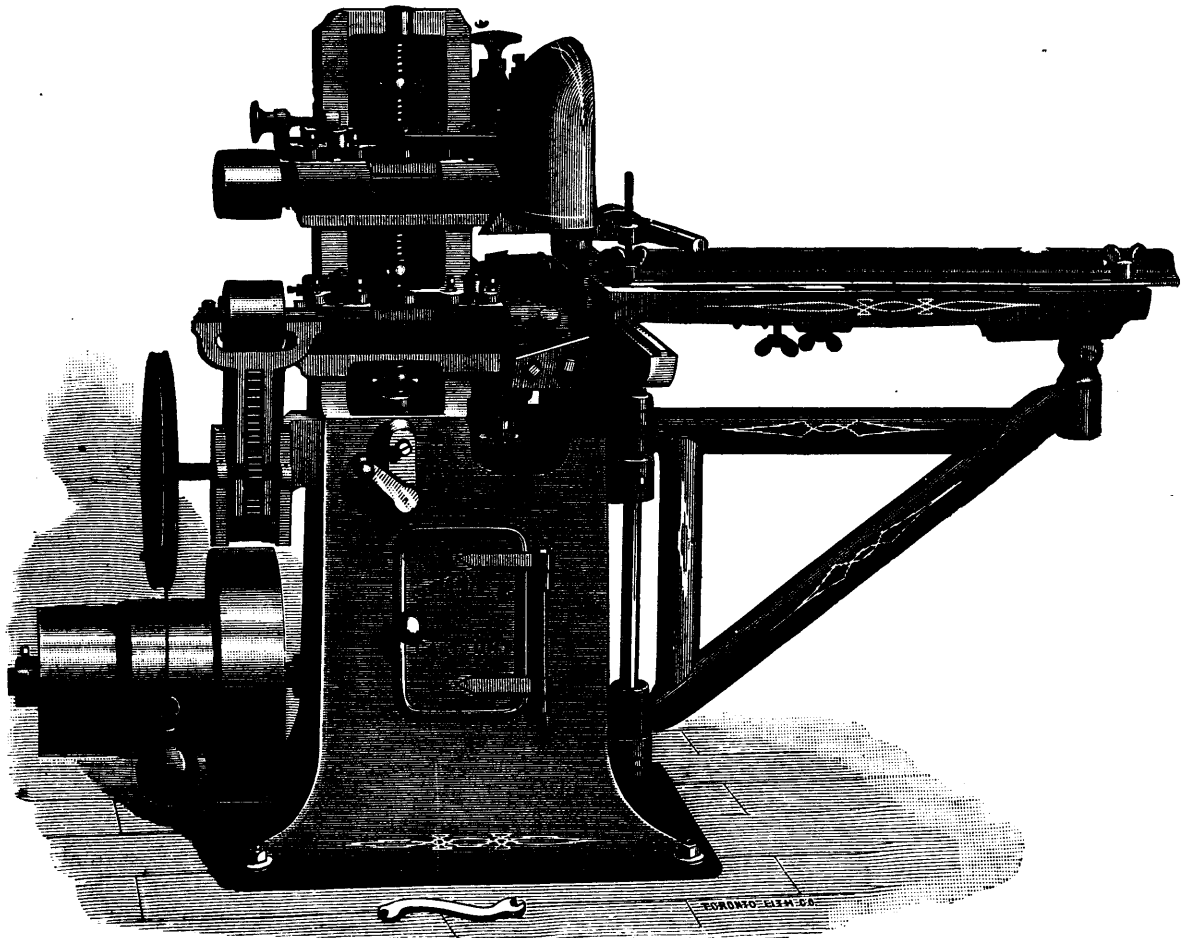
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This is an entirely new style of Tenon Machine. The frame is cast in one piece, and the working parts stand solidly on a pedestal, avoiding all vibration.

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

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

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

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

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

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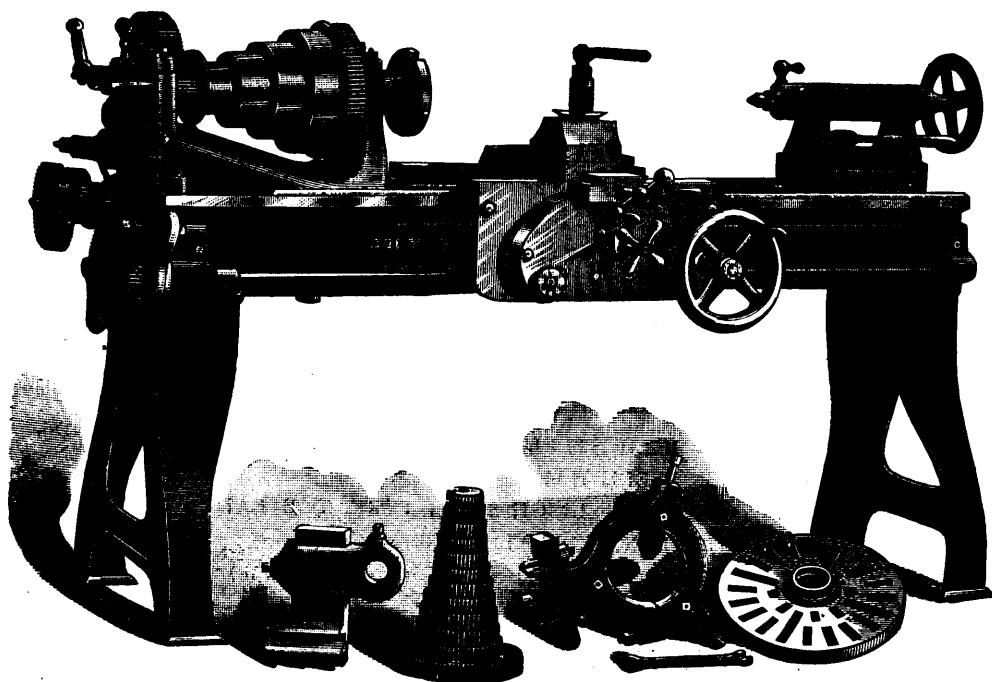
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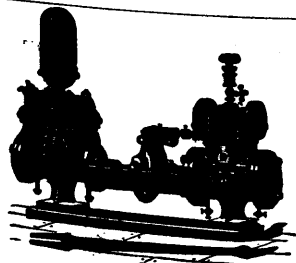
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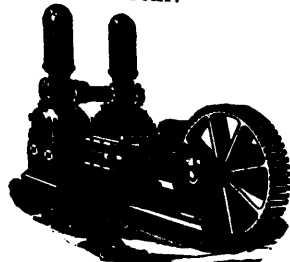
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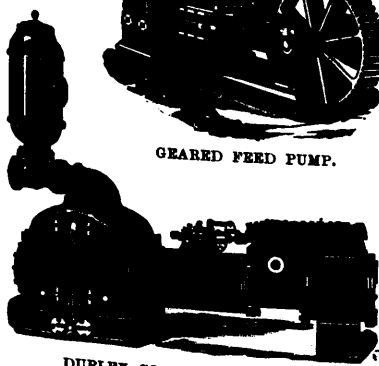
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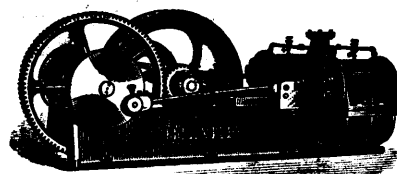
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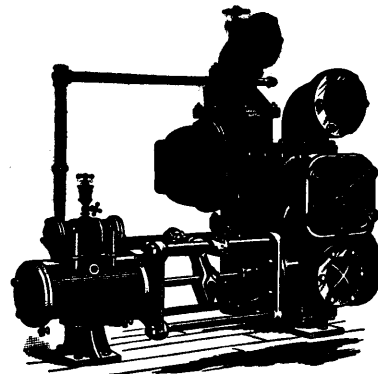
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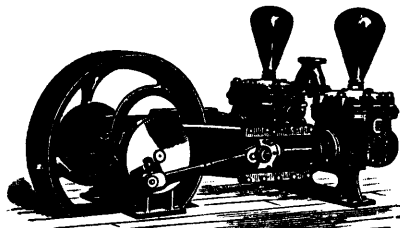
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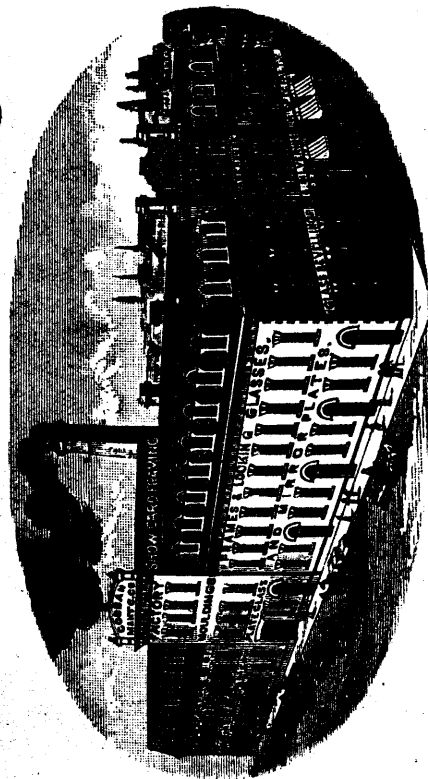
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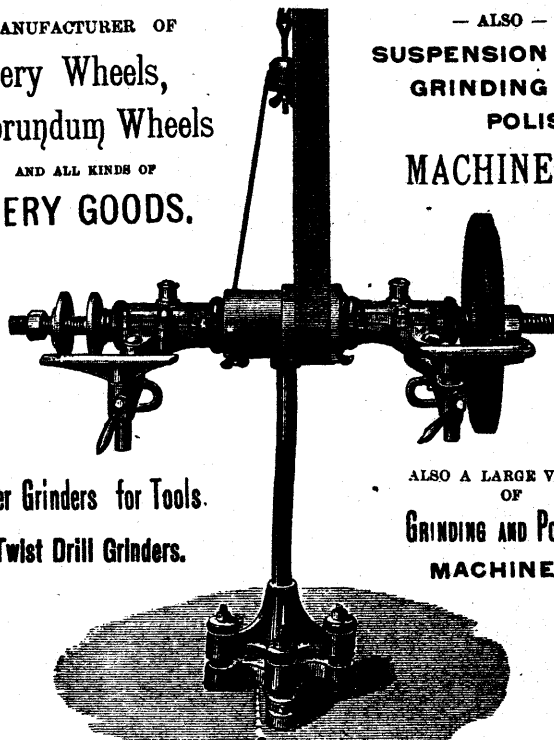
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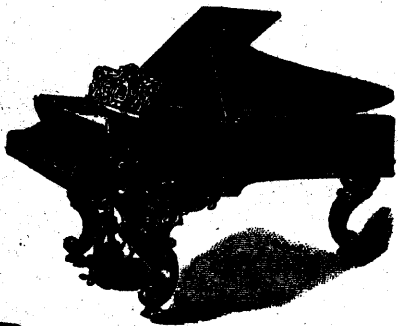
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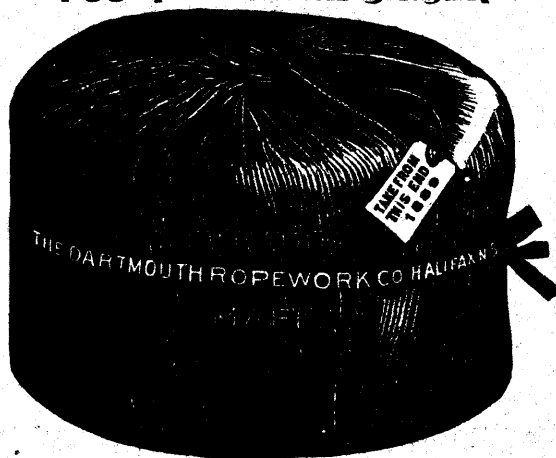
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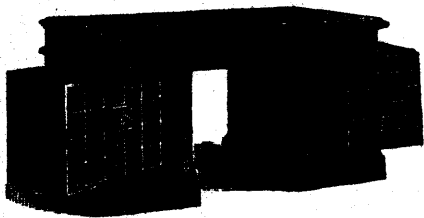


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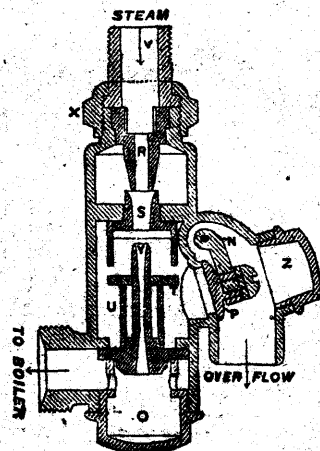
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