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DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 17.

TORONTO, OCTOBER 4, 1889.

No. 7.

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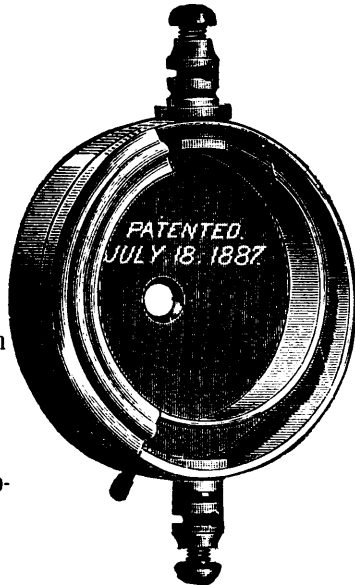
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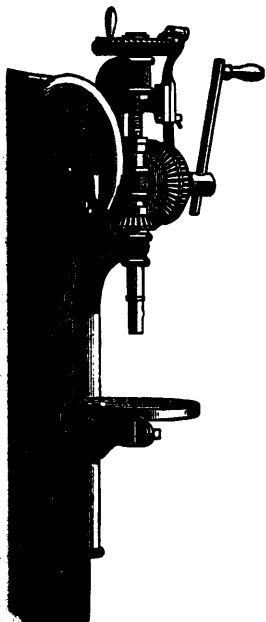
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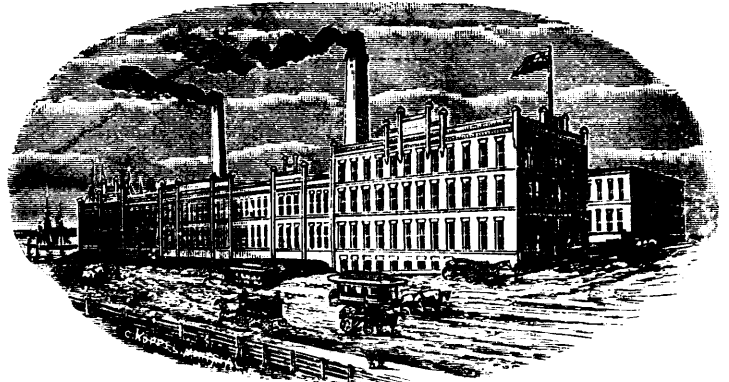
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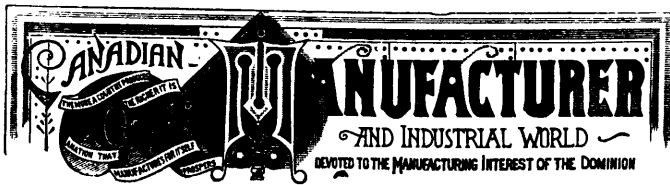
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UNJUST TAXATION.

ACCORDING to Sheriff McKellar, of Hamilton, during the last nine years there has been an unprecedented rush of young men to enter the ranks of the legal profession. He says that there are now over one thousand members of the legal profession practising in Ontario; and a few months ago there were four hundred and eighty articled law students, many of whom have since passed, others taking their places. Mr. McKellar asserts that at the close of the year 1890 there will be fifteen hundred members of the legal profession practising in Ontario. This large and rapid increase of what is largely a useless and unproductive class in the community, seems to have caused some anxiety on the part of the benchers of the Law Society; for it is said that the fees demanded for admission to the bar are to be increased from \$100 to \$500; and for certificates of fitness for solicitors from \$60 to \$400. Mr. McKellar also asserts that, owing to a change in the law regarding the matter, in 1888 the fees of lawyers were increased to the extent of over \$52,000 from fees that would otherwise have gone to the sheriffs—that the average amount of fees taken from the thirty-seven sheriffs of Ontario by transfer by this law to the lawyers, was over \$752 each.

During the current week, at the annual convocation of Toronto University, the wants of the University were set forth by some of the speakers, which, if gratified, would involve the expenditure of hundreds of thousands of dollars of the people's money; endowments being asked for for scientific appliances, for building a skating rink and gymnasium, etc. The returns of the tax assessors show that nearly twenty millions of dollars worth of property in Toronto is exempt from taxation. This property consists chiefly in churches and church property; the University and its belongings; several colleges and educational institutions, etc., in which the general public have no interest, except what it pays liberally for.

According to the showing of Sheriff McKellar, the community is overrun with a brood of callow lawyers who contribute nothing whatever to the support of the state, or to their own support; those who encourage the introduction of them into the profession feeling it necessary to force the sheriffs of the Province to divide their fees with them. If it were not for the special allowances, endowments and exemptions granted to them, the colleges in which these fledgling lawyers graduate, and from which they are turned loose upon the community, would be forced to restrict the production, keeping it within narrower bounds than what now obtains. So, too, as regards the medical colleges. These institutions are supported largely at the expense of the state; and while there are many and most worthy exceptions to the rule, it is an undeniable fact that these institutions are hot-beds of rowdiness, as the citizens of Toronto can attest. The daily newspapers, speaking of the influx of students into Toronto this week to attend at the various colleges, estimated their number at over five thousand. Probably nine-tenths of these would-be professional gentlemen will never acquire sufficient knowledge to conduct a lawsuit before a country magistrate, or to prescribe a dose of soothing syrup for a colicky infant; and while they might be of some benefit to themselves and to the community if they were engaged in cultivating cabbages or chopping sawlogs in the primeval forests, it is not at all probable that they will ever achieve renown as lawyers and doctors.

But the taxpayers pay for their education.

So, too, as regards the exemption from taxation of church property. There are millions of dollars invested in such property in Toronto upon which the tax-gatherer is not allowed to lay the weight of his hand. Most of these churches are costly edifices in which poor men and women would find a chilly reception if they should visit them, for they are for the comfort and convenience of the rich. But the poor man, living in an humble and lowly cottage, and earning scant wages—the poor man who has his own children to clothe, to feed, to provide shelter for—is forced to contribute to the support and maintenance of colleges and universities where rich men's sons only can enter, and from which poor men's sons are debarred; and to the support and maintenance of churches where only the proud and wealthy can worship.

The manufacturer who invests his money in a workshop or factory is obliged to pay taxes on his investment, although his industry gives employment to working people who would else be in idleness. His factory may cower beneath the shadow of the stately cathedral, but taxes are levied on the factory while the cathedral goes untaxed.

It is well enough to have lawyers and doctors and churches; but the people should not be taxed to produce and support them.

STATUTORY RESTRICTION OF CHILD LABOR.

WE invite careful perusal of a communication to be found in another page regarding the restriction of child labor in the Province of Quebec. It is from a gentleman whose large experience in this direction, both in England and in Canada, extending through a score or more of years, entitles his expressions to great consideration. Having been accustomed to operating under the English law, and satisfied that it is about

as good a law as could be framed, both for employee and employer, he is not averse to the prevalence of similar laws in Canada; but his objection to the Quebec law is that it does not accomplish the object for which it was designed, while at the same time it operates against the interests of both employer and employee. He shows that while the Quebec law forbids the employment of female children under the age of fourteen years—that is, in factories—and that having attained the statutory age, their hours of labor in factories are limited, no restriction either as to age or hours is laid on the employment of girls in certain other industries, notably that of dress-making, in which occupation large numbers of girls are always employed. He shows that in England children are allowed to work in factories even under the age of thirteen years, but their hours of labor are restricted to a maximum of half a day, and only then when the other half day has been passed in attending school; and if by chance the child has not attended school on all the school days of the week, it is not allowed to work in a factory until the absence from school has been made good. If the child is necessarily absent from school because of sickness, that sickness is sufficient reason to prevent working in the factory. In contrast with this, the Quebec law does not require school attendance corresponding with factory work—in fact it does not require school attendance under any circumstances, that matter being left in the discretion of parents, and in but too many cases children who might be advantageously employed in factories, but are prevented because of their not having attained the age of fourteen years, do little more than run the streets in idleness, acquiring objectionable habits, making them all the more untractable and difficult to teach when they arrive at the statutory age. If the Government insists that children shall not work in factories until they are fourteen years of age, provision should also be made for their compulsory attendance at school. There are many families in which there are children who are quite able, physically, to work and earn something that would be a great help in their own support, which now suffer because of inadequate income. In these families parents are compelled to see their children growing up in enforced idleness, conscious at the same time that the youngsters are able to work; that if they were allowed to work the remuneration for their labor would help to keep the wolf from the door; that plenty of work could be had if they were allowed to accept it, but that the law intervenes and declares they shall not work. Because of their restricted means, every cent being required for the support of the family, they find it impossible to put the children at school, while if the children were allowed to work, the remuneration for that work would enable the parents to provide the necessaries requisite to a decent presentation of their children at school.

The question is of great importance to manufacturers, but it is of vastly more importance to impecunious parents. Its importance to the children themselves possesses a vitality that will affect them all through their lives, and even beyond.

CANADIAN PROSPERITY.

SIR ALEXANDER CAMPBELL, Lieutenant-Governor of Ontario, in a recent speech, referring to the farming interests of the Province, made a statement showing the relative financial positions of the farmer in Ontario and in the United States. The State of Michigan was compared with Ontario as to

farming. Michigan came into existence as a State about the same time as Upper Canada—about the time of the war of 1812. The comparison was equal in respect to the land, the natural resources in timber, railway facilities, and everything else. And yet in comparison at the present time Ontario had the advantage in every single respect. The progress of the Ontario farmer was greater, better and faster than the progress of the farmer of Michigan. Said the speaker:—

Taking the average of several years—in Michigan from 1878 to 1885, in Ontario from 1882 to 1887—showing good and bad seasons together, the position of the two countries is as follows:

	Yearly average	
	Ontario.	Michigan.
Wheat, bush.....	27,317,193	27,873,327
Average per acre.....	18.00	17.26
Barley, bush.....	19,166,413	843,830
Average per acre.....	26.1	22.05
Oats, bush.....	54,419,177	18,691,199
Average per acre.....	35.7	33.58
Peas, bush.....	12,932,450	629,311
Average per acre.....	20.7	17.11
Potatoes, bush.....	18,360,115	9,802,734
Average per acre.....	117.6	91.30
Hay, tons.....	3,098,547	1,405,042
Average per acre.....	1.41	1.22

The Michigan Bureau of Labor and Industrial Statistics (report of 1887) says:

From the work of this bureau can be deduced these facts: (1) That one-half of the farms of Michigan are mortgaged and are paying a double tax, and (2) that by reason of this mortgage, indebtedness and double taxation, business of all kinds is seriously affected.

Taking Ontario in 1881 and Michigan in 1880, we get the following statistics:

	Ontario, 1881.	Michigan, 1880.
Population.....	1,923,228	1,633,059
Number of families.....	360,776	327,387
Acres improved.....	10,172,712	8,286,862
Number of farms.....	170,000	154,000
Number of acres improved per farm.....	66	53
Value of farms and buildings.....	\$765,054,075	\$499,103,181
Value of farm implements.....	\$37,029,815	\$ 19,419,360
Value of live stock.....	\$80,540,720	\$55,720,113
Value of produce for the year.....	\$130,044,065	\$91,159,858
Value of produce per acre.....	\$11.50	\$10.77
Number of horses.....	558,809	378,778
Number of working oxen.....	14,516	40,398
Number of milch cows.....	665,382	384,578
Number of other cattle.....	882,732	466,660
Number of sheep.....	1,915,303	2,189,389
Number of swine.....	890,226	964,071
Butter made, lbs.....	34,335,538	38,821,890
Cheese made, lbs.....	57,752,105	440,540
Wheat raised, bush.....	40,921,101	35,532,543
Hay raised, tons.....	3,094,912	1,303,889

Ohio has a larger population than we have—3,198,062 in 1880 to our 1,923,228 in the same year—but smaller area.

In comparing Ontario and Ohio, in 1883, the speaker said the following facts prevail:

	Ontario.	Ohio.
Wheat, bush per acre.....	13.6	10.67
Barley " ".....	24.3	18.00
Oats " ".....	38.5	32.70
Potatoes " ".....	98.0	98.08
Hay and clover, tons per acre.....	1.75	1.26

Cheese made in factories, Ontario, 32,495,811 lbs.; Ohio, 22,868,209 lbs.

Price of wheat in September, \$1.15 in Toronto.
Price of wheat in September, \$1.01 1-10 in Chicago.

From that statement the speaker added that he was persuaded the progress of Ontario was better than many States of the Union. He referred to the formation of the "Canada Society" in his younger days, and spoke of the spirit which urged its members to start that society. It was the same Canadian spirit that had made the progress of Canada in agriculture, arts and manufactures so great as they saw it to-day. They were the fifth people in the world. They had railways from the Atlantic to the Pacific. They had a people with strong, vigorous hearts, and he would say with all his heart, "Canada for ever."

INCONSIDERATELY INCONSISTENT.

THE Senatorial committee on relations between this country and Canada, has just brought its labors in this city to a close. A good deal of evidence was given by those whose business brings them into close relation with that country. The majority of these seem to have been in favor of reciprocity. Such an arrangement ought to be of benefit to both nations, and none are better aware of its advantages than the farmers of Canada, especially those of the maritime provinces, where that period when Canadian produce was admitted to this country duty free, and American manufactures could be bought in Canada with equal facility, is looked back to with regret as a sort of vanished golden age. Unfortunately, however, the party now in power in Canada, led by the veteran politician, Sir John Macdonald, is committed to high protection, or, as they prefer to term it, the "National Policy," so that until a change of government there is little likelihood of a change which would be as distasteful to the manufacturers as it would be welcome to the farmers of Canada.—*Wade's Fibre and Fabric.*

We are surprised that our respected contemporary should have blundered into making such statements concerning Canada. *Fibre and Fabric* bears the reputation of being a sound "Protection" journal; and while it may be consistent in desiring to apply its policy as against the older manufacturing nations of the world, and in desiring to have free trade with those nations whose manufacturing industries are not yet on as secure a basis as are those of the United States, it is not fair in advocating unrestricted reciprocity with Canada, to suggest that "the farmers of Canada" look back with regret to the times when such reciprocity prevailed, and view it as a sort of vanished "golden age." We would respectfully invite our contemporary to indicate where the "misfortune" to Canada comes in in having that "veteran politician, Sir John Macdonald" as its political leader; why Canada should be "unfortunate" in being committed to "high protection," and why a change from protection to free trade would be "welcome to the farmers of Canada?" Of course such a change would be distasteful to Canadian manufacturers; but would not a similar change be equally distasteful to the manufacturers of the United States, of which class our esteemed friend poses as a champion and defender? Consistency, friend, is a jewel. To be willing to grant to others that which you claim for yourself would be but consistent. We have no objection, friend, to your advocacy of unrestricted reciprocity between Canada and the United States, if you desire it, although we oppose it for obvious reasons. It will require two to make such a bargain. Don't be inconsistent. You argue to the farmers in your country that "protection" is a good thing for them—why is not protection also a good thing for Canadian farmers? Re-

member this: The farmers of Canada, together with the manufacturers, placed Sir John Macdonald in office for the express purpose of establishing our National Policy, and these elements will retain both Sir John and the N.P.

COMING HOME TO ROOST.

THERE are other things than curses that, like chickens, come home to roost. As is well known, the Knights of Labor and other labor organizations object to the technical education of youths, arguing that to thus educate them would be to create a large number of embryo workmen who would necessarily become at a later day competitors in the labor market at reduced wages. They also object to the taking on of but the fewest possible number of apprentices in any of the trades for the same reason. A result of this in the United States is a painfully short supply of American workmen in the glass industry, and an influx of Belgian glass workers to supply the deficit. A labor organ, discussing the matter, expresses regret that this situation prevails, and remarks that the scarcity of American workmen is due to the narrow policy pursued by the glass-blowers assembly Knights of Labor "in restricting American boys from learning the trade." Regarding this situation a Pittsburgh paper says that from a labor standpoint it is very inopportune that so many foreign workmen should be making their appearance at the glass works at a time when a strike is threatened, "but a much more important consideration is that the sons of American citizens, who might be making good wages in the works, have been prevented from learning the trade through the narrow policy referred to." This paper says:

There are hundreds of intelligent, well-educated boys in our cities to-day who would be only too glad to enter as apprentices into our shops and factories, but are prevented through the interference of the trades unions. When there is an active demand for skilled labor, as happens to be the case now in glass blowing, in the various building trades and in other departments of mechanical activity, the supply comes largely from foreign lands, and our own boys are living in idleness or picking up such odd jobs as may fall to them. Trades unions may have just occasion to complain of the injurious consequences of the importation of labor under contract, or of inducing foreign mechanics to come here voluntarily, but so long as they pursue their present policy, which prevents the sons of American tradesmen from learning the particular occupations which they follow, they will not be without blame in the premises. The influx of foreigners will not cease so long as the ranks of labor are not kept fully recruited from the young men of the land. Until they appreciate the importance of giving their own boys a chance they will have neglected the first step towards turning back the tide of European immigration.

EDITORIAL NOTES.

A MEETING of the Canadian Manufacturers' Association was held to-day, in the office of the CANADIAN MANUFACTURER, 63 Front street west, at which several important matters were considered.

THE Intercolonial Railway now has its own complete system of incandescent electric lighting with dynamos and other appliances of well-equipped electric light stations at Moncton, N.B., and Levis, Que. for the storage of its own batteries.

The through trains on this road have for some time been lighted by electricity, and last winter steam heating was introduced.

At the World's Field Trial of agricultural implements held in connection with the great Paris Exhibition, at Noisiel, near Paris, on July 19-22 last, where fifteen of the most noted machines on earth were brought into competition, the Toronto Light Binder, manufactured by the Massey Manufacturing Company, of this city, was adjudged the highest award, a gold medal also being awarded this company for their general exhibit of agricultural machinery.

MR. CLEVELAND is spoken of as a candidate for the seat in the U.S. Senate rendered vacant by the death of Mr. S. S. Cox. —*Montreal Herald.*

This is about as near as a Grit newspaper can approach facts. Mr. S. S. Cox never occupied a seat in the U.S. Senate; nor is there any vacancy in the representation of the State of New York in that body. Mr. Cox was a member of the House of Representatives.

WHILE Grit politicians depreciate Canada and see nothing brilliant for her in the future except through the abandonment of her great and growing manufacturing industries in favor of Yankee competitors, Canadian manufacturers build the best agricultural machinery in the world, display and operate it at the great World's Fair, at Paris, France, and capture gold medals and highest awards. Canada has more to hope for from her manufacturers than from her Grit politicians.

WHEN the exhibitors of Canadian manufactured products at the recent Toronto Industrial Exhibition observed the shabby treatment accorded them by the Fair managers, they became quite sick and nauseated with disgust. It was sought to cure this sickness by feasting the exhibitors at a fifteen cent lunch table, and inviting them to make speeches in reply to toasts offered by the Exhibition officials, but the scheme did not work. Fifteen cents worth of poor lunch is not a satisfactory offset against discourteous treatment and official neglect.

THE Directors of the Toronto Industrial Exhibition have received, and are constantly receiving notice that if they hope to keep their next annual Fair from disastrous collapse, they should make such alteration in the management of it as will lift it from the reputation it has achieved of being not so good as a back country show, where snide exhibits and fakir exhibitors flourish in disgusting prominence, and re-instate it upon a plane where self-respecting and respectable manufacturers will take pleasure in displaying their products, and explaining their excellence.

MR. JAMES M. SWANK, the indefatigable general manager of the American Iron and Steel Association, has begun the publication of his special tariff literature for 1889. He has also begun the publication of a 4-page circular, made up of articles from the *Bulletin*, which he calls "Tariff Miscellany for 1889." It is full of tariff facts and arguments. Mr. Swank has that rare sense, "newspaper sense," and in his selection of matter for the "Tariff Miscellany" he exhibits it in a high degree.

The publication is a new departure, and will be a most valuable one.

IN the CANADIAN MANUFACTURER this week their appear several articles, the burden of which is a complaint that manufacturers are not allowed to buy their labor where and on such terms as they please. The CANADIAN MANUFACTURER is an uncompromising supporter of a system which prevents Canadians from buying their goods where and on such terms as they please.—*Toronto Globe.*

The CANADIAN MANUFACTURER is an uncompromising supporter of a system which is building up Canada and making it one of the greatest countries on the globe. That system is Protection. It made Britain what she is; it made the United States what it is, and it will make Canada the equal of either of them.

"A MANUFACTURER" who is connected with one of the largest textile manufacturing industries in Canada, in a communication to be found in another page, suggests that those who are in the same boat with him take some steps looking to a representation of their case before the Ottawa Government with a view to the removal of duties, or a material reduction of them, on certain lines of materials essential in the business and not manufactured in Canada. He directs special attention to some of the newer dye stuffs that are not mentioned in the tariff schedule, but which the rulings of the Department have placed at such high rates as to make their use almost or quite impracticable. This is a matter that comes properly before the Textile Section of the Canadian Manufacturers' Association, and that Association as a body; and if it is thus presented it will without doubt receive the attention it deserves.

THE importance of the dry dock at Halifax, N.S., opened to business a few days ago, is not confined to that city. It is of the utmost importance to the whole Dominion; and Ontario and Manitoba are as much interested in it as are Nova Scotia and New Brunswick. The importance of it is not even confined to Canada, for Great Britain has an interest in it that could not be overestimated if that country and any on the American continent should ever become embroiled in hostile strife. With a dry dock at Halifax, in the East, in which any war ship of the British navy could be expeditiously repaired; with a similar dock at Esquimalt, in British Columbia, on the West; with abundant stores and munitions of war at both places, and with the Canadian Pacific Railway traversing all the territory between them, and entirely beneath the shadow of the British flag, the Old Country is in a favorable condition to maintain her prestige among the nations of the world. Halifax and Esquimalt, Nova Scotia and British Columbia, and all of the intervening earth now happy and contented under the ægis of the Old Flag, will never be less to Britain or more to any other nation than it is now.

"AN EXHIBITOR," who was indeed an exhibitor at the recent Toronto Industrial Exhibition, writes us a letter in which he criticizes the management of the Exhibition in giving so much prominence to the circus, side show, and fakir accompaniments of the show, and so little consideration to the exhibitors of Canadian manufactured products. His letter, which is printed in another page, calls attention to the fact that the management of the Exhibition expended their efforts in the

direction of making money, regardless of the great objects in view by the originators and supporters of the Association. Visitors to the Fair will recognize the force of what our correspondent says regarding the overcrowding of the Main Building with such stuff as is usually sold at the street corners by hucksters and perapetic vendors, to the great disgust, annoyance, and disadvantage of legitimate exhibitors. The suggestion is advanced that this favored class of noisy fakirs obtained their privileges to annoy and disgust visitors and decent exhibitors alike, by the liberal payment of money; and really, the realization of the almighty dollar seems to have been the uppermost thought and chief object in view by the management in conducting the Fair; for precious little attention or care was bestowed upon any person or anything that did not contribute to swell the cash receipts.

ANOTHER exhibition of trades union tyranny occurred in Montreal this week. About 100 men employed in Messrs. Mullarky's shoe factory went out on strike, giving as their sole reason that they wanted the foreman in the bottoming department discharged. Messrs. Mullarky express themselves as being perfectly satisfied with the way this man attends to their business. The strike originated in the fact that one of the hands had been discharged because he declined to begin work at the hour the other hands began. After some discussion it was agreed that the man should resume his labor provided he would go to work at the same time as the other employes. Soon afterwards the men demanded that this foreman be discharged, alleging that his conduct was so harsh that they could not work under him. To this demand Messrs. Mullarky would not accede at the moment, promising that the matter should be investigated, and if it was found that the foreman was not acting properly, he would have to go. If, however, his conduct was found to be all right, he should remain, even though all of the hands in the factory quit work. To tell them that their foreman should be discharged simply because the employes were not pleased with him, was dictating to them how their business should be conducted, to which the firm would not submit. The discontents declined to act on the suggestion of the firm, and immediately went out on strike. All of the strikers operated machines; and as the other departments could not be operated except in connection with that in which the trouble was, these were closed and some 300 other hands were thrown out of employment. It is a repetition of the old, old story. The "union" determined to take charge of Messrs. Mullarky's business for them, and Messrs. Mullarky determined that they should not do so; 100 discontents go out on strike, and 300 contented ones are thrown into idleness in consequence. It is a bad case of labor oppressing labor—of a few oppressing and injuring the many.

A GENTLEMAN lately from England invites the *Globe's* attention to the fact that the same class of sugar retailed in Great Britain at 2½ pence, or five cents a pound, is sold in Canada at 9½ cents. Every housekeeper in the Dominion could get her sugar fully four cents a pound cheaper than now if the restrictive sugar duty were abolished. She could get it about two cents a pound cheaper if the duties on sugar that accrue to the benefit of the public Treasury were retained, and the duties that accrue to the sole benefit of Mr. George Drum-

mond and the other sugar barons were wiped out.—*Toronto Globe*.

Wholesale grocers in Montreal and Toronto are now offering Scotch refined yellow sugars at 6 cents per pound, said to be worth fully ¼ cent more than the Canadian yellow sugars selling at 6¼ cents per pound, with which they are classed. The original cost of these yellow sugars f.o.b. in Scotland is \$2.85 per 100 pounds, and the total duty on importation to Canada \$2.69.—*Toronto Globe*

"Sugar retailed in Great Britain at five cents a pound is sold in Canada at 9½ cents." Thus saith the *Globe*. The difference is just 4½ cents. The cost of transportation, according to the *Globe*, is one-half cent; and the inference is that the tariff absorbs the other four cents. Scotch refined yellow sugar, according to the *Globe*, is being sold in Montreal and Toronto at six cents a pound, that cost 2.85 cents a pound in Scotland, the duty on the importation into Canada being 2.69 cents a pound. This is a queer world. In one instance the duty, according to the *Globe*, is four cents a pound, or rather the difference between the cost in Scotland and the price in Canada, freight paid, is four cents, in which is included the duty; while in the other instance the duty is only 2.69 cents, a difference of 1.31 cents a pound. In this latter instance the cost in Scotland—2.85 cents—and the total duty—2.69 cents—amounts to 5.54 cents per pound, leaving but .46 of a cent with which to pay freight, insurance, commissions, wharfage, storage, handling, etc., when sold at six cents a pound. The *Globe* must be mistaken in its figures, or the Scotch refineries must be endeavoring to break down the Canadian refiners by underselling the market.

SPECIAL ADVERTISEMENTS.

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

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

200 LIGHT GAS MACHINE for sale, only used two winters. Apply Wagner, Zeidler & Co., West Toronto Junction.

FLOUR MILL FOR SALE.—One of the best Water Powers on the Welland Canal. Could be converted for other manufacturing purposes. Address Richard Wood, St. Catherines, Ont. P. O. Box, 977.

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.

IRON TURNING LATHE—12 inch over sheens, 20 inches in gap, 6-foot bed, in good order—for sale or exchange for small shaper. Standard Needle Co., Paris.

FACTORY TO LET.—About eleven thousand square feet floor space, with engine, boilers, shafting and hangers; steam water and gas fittings complete. Apply SAMUEL MAY & Co., 111 Adelaide street west.

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.

FOUNDRY AND MACHINE SHOP FOR SALE IN DUNDAS—Formerly occupied by Thomas Wilson and Co., and lately by Cochrane Roller Mill Co., very suitable for manufacturing purposes; steam engine, boiler (new), also water power; a quantity of machinery and shafting in building. Apply to Thomas Wilson, Dundas; Kingsmill, Cattanach & Symons, Toronto; or Bruce, Burton & Bruce, Hamilton.

EVERYBODY should read *Once a Week*, a meritorious family journal, issued weekly, as the name implies. It is replete with bright and interesting reading matter and is profusely illustrated. It is published by P. F. Collier, 104 to 110 Attorney street, New York City. We have been acquainted with this journal for some time and cheerfully recommend it to the reading public.

AN Order-in-Council has been passed declaring that wire of steel, flat, of No. 16 gauge, or thinner, when imported by the manufacturers of crinoline wire and corset wires, to be used for those purposes only in their own factories, and also wire of Bessemer steel, No. 16 gauge, or smaller, when imported by the manufacturers of pins, to be used for that purpose only in their own factories, may be admitted free of Customs duty until the end of the next session of Parliament.

Wide Awake for October steadily maintains the reputation which it long since acquired as being one of the very best magazines published. It is specially intended for the pleasure and information of young people, but there are but few of maturer years into whose hands the magazine may fall who are not equally delighted with it. No parent or friend could bestow a more substantial and useful present upon a boy or girl than a year's subscription to *Wide Awake*; and when the half-yearly numbers are stoutly bound into a book, the life and usefulness of it extends through many years. Its price—\$2.40 a year—places it within the reach of all. D. Lothrop Company, publishers, Boston, Mass.

Good Housekeeping for September 14th announced another new departure that will be received with intense interest by all readers of the magazine. It is a new department entitled, "Woman's Work and Wages," and edited by Mrs. Helen Campbell, who has acquired fame through her studies in the field of industrial and social economics among women. The subject covered in the title is broad and important. It covers not only domestic service and labor for employees in factories and stores, but the innumerable other directions in which the efforts of women are directed toward self-support, or to assisting in the support of the home. Under Mrs. Campbell's direction the department will immensely enhance the great value and usefulness of *Good Housekeeping*.

CAREFUL examination shows that in many respects Alden's *Manifold Cyclopaedia* is superior to any of its competitors, especially in its adaptation to popular use; its combination of an unabridged dictionary with the ordinary features of a cyclopaedia of universal knowledge is unique. The definitions and pronunciation of the words are clear and accurate, the illustrations are excellent, the topics are thoroughly treated and embrace the results of the most recent investigations and discoveries. Then, too, the extremely low price places it within the reach of all. The eighteenth volume is fully up to the high-water mark of its predecessors. It is especially rich in its biographies. We find sketches of Hall and Hayes, the Arctic explorers; John Hall and Robert Hall, celebrated clergymen; Hallam and Herodotus, great historians; Haller, the philologist; Alexander Hamilton, the statesman, and Sir William Hamilton, the scientist; Handel and Hadyn, the musical composers; Hannibal, the foe of Rome; Hegel, the philosopher; Heine, the poet, and Hengstenberg, the theologian; Herschel, the astronomer, and many other men of renown. Among important articles in other lines are: Hallucination; Hand; Hanseatic League, the famous trade union of the Middle Ages; Harbor; Hartford Convention, unique and famous in American political history; Harvard University; Hay; Hayti; Heat; Heart; Heaven; Hell; Heredity; Heresy, and Hieroglyphics. The forty volumes in which this

great work will be completed, will make a splendid library. The price, which must advance as the work nears completion, is wonderfully low. If received before Oct. 15, 1889, \$17.90 will pay for a full set in cloth binding, or \$25.90 for the half morocco style. A specimen volume, which can be returned if not satisfactory, will be sent for 60 cents in cloth, or 85 cents in half morocco. John B. Alden, publisher, New York, Chicago and Atlanta.

PROGRESS OF INVENTIONS SINCE 1845.

In the year 1845 the present owners of the *Scientific American* newspaper commenced its publication, and soon after established a bureau for the procuring of patents for inventions at home and in foreign countries. During the year 1845 there were only 502 patents issued from the U. S. Patent Office, and the total issue from the establishment of the Patent Office up to the end of that year, numbered only 4,347.

Up to the first of July this year there have been granted 406,413. Showing that since the commencement of the publication of the *Scientific American*, there have been issued from the U. S. Patent Office 402,166 patents, and about one-third more applications have been made than have been granted, showing the ingenuity of the people to be phenomenal, and much greater than ever the enormous number of patents issued indicates. Probably a good many of our readers have had business transacted through the offices of the *Scientific American*, in New York or Washington, and are familiar with Munn & Co.'s mode of doing business, but those who have not will be interested in knowing something about this, the oldest patent soliciting firm in this country, probably in the world.

Persons visiting the offices of the *Scientific American*, 361 Broadway, N.Y., for the first time will be surprised, on entering the main office, to find such an extensive and elegantly equipped establishment, with its walnut counters, desks, and chairs to correspond, and its enormous safes, and such a large number of draughtsmen, specification writers and clerks, all busy as bees, reminding one of a large banking or insurance office, with its hundred employees.

In conversation with one of the firm, who had commenced the business of soliciting patents in connection with the publication of the *Scientific American*, more than forty years ago, it is learned that his firm had made application for patents for upwards of one hundred thousand inventors in the United States, and several thousands in different foreign countries, and had filed as many cases in the Patent Office in a single month as there were patents issued during the entire first year of their business career. This gentleman had seen the Patent Office grow from a sapling to a sturdy oak, and he modestly hinted that many thought the *Scientific American*, with its large circulation, had performed no mean share in stimulating inventions and advancing the interests of the Patent Office. But it is not alone the patent soliciting that occupies the attention of the one hundred persons employed by Munn & Co., but a large number are engaged on the four publications issued weekly and monthly from their office, viz.: The *Scientific American*, the *Scientific American Supplement*, the Export Edition of the *Scientific American*, and the Architects and Builders' Edition of the *Scientific American*. The first two publications are issued every week, and the latter two the first of every month.

THE TORONTO "INDUSTRIAL" CIRCUS.

To the Editor of the CANADIAN MANUFACTURER:

DEAR SIR,—The Toronto Industrial Exhibition for 1889 is over, and, as usual, valuable lessons have been learned and experience gained by those who sought for instruction there. To the observing person it is a marvel how many thousands on such occasions give their whole attention to the momentary pleasure of being in the crowd, rushing hither and thither aimlessly, giving merely a passing glance at the useful and valuable exhibits, and going in for a good time, enjoying the side-show business, the dancing, tumbling, horse racing, and the numberless little fakes which seem now to be the principal objects of attraction at a modern exhibition of agricultural products, manufactures, etc. Your Toronto Exhibition had many notable and valuable features, but this year the chief efforts on the part of the Directorate seemed to have been arranged with the view of making money, regardless of the chief objects for which the exhibition was established. If the elements were against it, the Directors and their indefatigable secretary were not to blame. They had provided amply for the amusement of the crowd in the circus de-

partment, the balloon ascensions, the Moscow conflagrations, and various other illusions and delusions. So far their part was well done; but in another particular it was overdone. The Main Building was originally intended, as I understand the matter, as a place for the exhibition of the smaller classes of manufactures, fine arts and ladies' work. Now it has become one vast salesroom for all sorts of wares—shoe blacking, patent soap, spectacles, potato parers, cement, stove polish, and a thousand and one knick-knacks—useful enough in their way, no doubt, but when the vendors thereof are the gentlemen who hold forth on the street corners in way-back villages, whose lungs and voices have become abnormally developed by shouting the many desirable qualities of their wares, then the modest, unassuming manufacturer, with some specimens of his skill to exhibit, has to hide his diminished head. He is buried beneath the tremendous eloquence of his boisterous neighbor, and the gaping crowds block the passages and crane their necks to see the talented gentleman wash the grease from a strip of cloth by the application of his wonderful soap. Then the modest exhibitor is made to feel that he is wasting his time, and that the exhibition as an advertising medium is, for him, a delusion and a snare.

The truth is that the sale of permits to dispose of all sorts of articles in the Main Building has destroyed the usefulness of that part of the show. There was a marked decrease in the number of small manufactures exhibited, and in future the falling off will be still greater. It may pay the Directors better to receive the \$15.00 or \$20.00 from a soap vendor than \$1.00 from a manufacturer, but the result will be that before long the name "Industrial Exhibition" will be a misnomer, and we shall have instead a grand circus with all the side show and fakir accompaniments.

I had hoped that the representatives of the Manufacturers' Association on the Board would have had some influence in making the Toronto show a representative manufacturers' exhibition, and that if it was necessary to have salesrooms an annex would be provided for the purpose. But it seems to have drifted out of its course, and I will be much mistaken if next year does not show a material dropping away from the number of those who have exhibited in the past, unless a different policy be adopted. I am yours truly,

AN EXHIBITOR.

THE RESTRICTION OF CHILD LABOR.

To the Editor of the CANADIAN MANUFACTURER.

DEAR SIR,—During the present year the Government of the Province of Quebec have put into operation in that Province a Factory Act. Although a large employer of labor, I am not adverse to a well considered and intelligently carried out Factory Act. Having had considerable experience of the working of such Acts in England, I can appreciate its advantages as well as disadvantages to those who employ labor. In an experience of twenty years I have found much in the workings of the Factory Act, as in force in England, that has merited my distinct approval. I mention this, lest my remarks upon the Factory Act lately put in force in the Province of Quebec, may be assumed to be only the outcome of the objections of an employer of labor to any factory regulations whatever.

The particular regulation to which I desire to draw the attention of such of your readers as may reside in the Province of Quebec, is that which relates to the age at which it is legal to employ young girls. The Quebec Act limits such employment to fourteen years of age. This limit of age, I presume, was fixed in order to secure the better education of the rising race of women. But I am of opinion that whilst this limit will in the future seriously injure such of the industries as employ largely of female labor, and whilst many poor families will seriously suffer by its enforcement, the end in view will not be secured.

The regulations of the English Act secure education with much more certainty, without doing damage to the industries and without so much loss to the poor families.

In the English Act young boys as well as young girls may be employed under the age of thirteen for one half the day, providing they attend school the other half. Should they miss school for any half day during any one week (unless kept at home from sickness that also necessitates their absence from work), they cannot be employed at labor until they have made up their lost time at school attendance, by being at school sufficient whole days.

It has been found that by this means young boys and girls employed in factories were far more regular in attendance at school than those where this method did not prevail.

But mere learning is not the only education required by young people. The discipline usually found in a well conducted establishment, the having to be neat, industrious, and obedient, does the

young as much real good as the actual learning. In fact, these go far towards making them valuable citizens, and in building up a country.

Now, as it is, although the girls cannot come to the factory until after they are fourteen years of age, it is by no means the case that they attend school in the meantime. I know that where I reside it is not the case. They only idle away their time at home, and when they come to the factory they are more difficult to teach and manage.

In England the usual age at which girls marry is certainly two years later than in such parts of the Province of Quebec as I have knowledge of, and when married they generally continue to work until they may be obliged to stay at home. Here, as soon as they marry, they leave the factory altogether, so that the result is that in the Province of Quebec a girl of fifteen, who came to the factory at fourteen, is only about as valuable as a girl would be in England at the age of thirteen, having worked half time for a year or so previously. This means two years against the Province of Quebec—she leaves two years and a half earlier, making a difference of four and a half years. It has become a question whether it is worth while to go to the trouble and expense of teaching girls the business. Yet work must be found for girls to do. Most factory work is far more healthy than dress-making, yet in this occupation the Government puts no restriction upon time or age.

The manufacturers of Quebec should make representations to their Government concerning this matter. If they do not do so, they will find out to their cost how much it will handicap them in a competition every year becoming more keen. When the Government understands that whilst this part of the Act, as it stands, does no good but only harm, I cannot but think that they will be only too willing to have the Act amended. I am, yours truly,

QUEBEC.

TARIFF REVISION.

To the Editor of the CANADIAN MANUFACTURER:

DEAR SIR,—In the course of a few weeks the members of the Dominion Government will have returned to their work refreshed from their summer vacation. Would it not be wise to arrange, at an early date, for an influential deputation to interview the Honorable Minister of Customs to see if the anomalies in the present tariff, that affect so seriously the textile trades, could not be altered.

Surely one manufacturer will help another upon such a matter. Take the broad principle that duties upon goods not produced in this country, and which could not be produced here successfully, but which are used by manufacturers in the course of their business, should be admitted duty free, as a basis for action; and that new discoveries and inventions of chemical science should not be called upon to pay duty when unenumerated.

New discoveries are coming out every day. We have to compete in Canada with England and America. In England these articles are duty free. Factories in Canada, furnished with English machinery, cost under the present tariff over 50 per cent. more than in England. English mercantile concerns of good standing are now getting money on loan at four per cent., whilst here it costs from six per cent. to eight per cent. The manufacturer in this country is hampered on all sides. Heavy duties on his plant that cannot be made here; heavy duties on his repairs, stores and dye stuffs that cannot be or are not made here; corporation taxes in the Province of Quebec, (one of the most iniquitous taxes ever levied, as it is a tax without any electoral rights), and Factory Acts that have been passed without any consultation with the manufacturers. Is it any wonder that manufacturers have to work short time and cannot pay dividends to their shareholders? The amount of unproductive capital in the country at this present time sunk in manufactures is simply appalling, and much of it is owing to the vagaries and inconsistencies of the tariff.

I take the liberty of naming a few articles the duties upon which require reducing or abolishing: Extract sumac, and extract hypernic, the duty upon which is 25 per cent., should be free; and sago flour, the duty upon which is two cents per pound or 100 per cent., should not be more than 25 per cent. *ad valorem*. Antimony salts, duty 25 per cent., should be free. Castor oil, used in textile manufactures, duty 25 per cent., should be free. Certain new preparations of alkali, which, because unenumerated, are now dutiable at 25 per cent., should be free.

Other manufacturers will doubtless suggest articles similar to the above which should, for the same reason, be on the free list. If they would take the matter up and make known their wants, something probably might be done. I am yours truly,

A MANUFACTURER.

F. E. DIXON & CO.

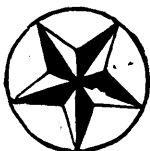
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READ THIS:

Shepherd Street,

Toronto, Nov. 16, 1888.

Messrs. F. E. DIXON & CO.

Gentlemen,

The eighteen-inch Driving Belt we had from you in July, 1879, has given us thorough satisfaction. It has done all the work in our factory ever since, and looks as if it were good for the next ten years.

Yours truly,

WM. BURKE

For Langley & Burke.

BELTS for Saw Mills,
for Electric Light Works,
for Hard Places.

Lace Leather, Belt Oil, etc., etc.

F. E. DIXON & CO.

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GEO. F. HAWORTH & Co.

MANUFACTURERS OF

LEATHER BELTING

BELTS MADE ANY WIDTH,
LENGTH OR STRENGTH REQUIRED
SEWED, RIVETED OR PEGGED.

ALSO AGENTS FOR

HOYT'S AMERICAN PURE
OAK-TANNED LEATHER BELTING

11 JORDAN STREET,

TORONTO.

The Industrial Exhibition.

WE continue the publication of notices of some of the more attractive displays of Canadian manufacturers shown at the recent Toronto Industrial Exhibition. These notices are the overflow from our last issue. They are interesting reading.

THE CANADA GLOVE WORKS.

MESSRS. W. H. STOREY & SON, proprietors of the Canada Glove Works, Acton, Ont., made a most attractive exhibit of their products in the west gallery of the Main Building of the Exhibition. This exhibit included an almost endless variety of styles of gloves, mitts and gauntlets, in all materials used for such purposes, viz., kid, goat, lamb, sheep, calf, buck, elk, moose, deer, antelope, etc.; also innocasins in every style.

This firm make a specialty of manufacturing the patent "Napa" tanned buck gloves, for which they hold the exclusive right to manufacture in Canada. They claim these gloves to be the best ever presented to the trade, either for walking or driving; that for toughness they have no equal, and that they will outwear any other glove of similar weight produced in the world. The stock from which these goods are made is California deer skin, and dressed in that country by the patent "Napa" process. Being grain-dressed instead of freized, every scratch or slight imperfection is visible; but this, however, though unavoidable, in no way detracts from the strength of the material, as the strongest tests to which they may be subjected will show. Messrs. Storey & Son guarantee every pair of their "Napa" buck gloves to be first-class in point of wear, no matter how they appear, and will cheerfully refund the price should the material fail to meet their representation. They do not, however, guarantee any pair to be absolutely perfect in grain, imperfections in the grain being proper signs by which the genuine patent "Napa" buck may be distinguished from imitations of the same.

Messrs. Storey & Son manufacture the celebrated Northrup's patent "Turtle" driving cuff with wristlet combined. This is a new invention, said to be the only one preventing cold air from circulating up the sleeve while driving. There is no buttoning to do, and no bother. They are drawn on in an instant, and can be worn with any style of glove or mitten; and one pair of these cuffs will outlast a dozen pair of gloves. Those who have suffered from cold arms and wrists when driving will appreciate this article. No matter how cold it may be, or how fiercely the wind may blow, the wrists and arms are kept perfectly warm and comfortable. This firm are also manufacturers of cuffs for railroad brakemen, for the protection of their arms and wrists from cold air, snow and cinders; also a waterproof cuff to be used for all purposes where the sleeves and cuffs need protection. They are the sole manufacturers of these patent cuffs in Canada, and hold the exclusive right for the Dominion from the patentee.

The Canada Glove Works were established by Mr. W. H. Storey in 1868. Previous to that time Mr. Storey was engaged in another line of business; but he observed that there was a demand for a line of strong and serviceable gloves for harvesting purposes, and it was on this he began in that year. Ever since then the business has increased, until it has assumed the proportions indicated in this article. The present factory building is a substantial brick structure four stories high, and covering an area 100x40 feet. It is equipped with a full complement of modern and most efficient machinery, is heated throughout by steam, and illuminated by gas made on the premises. Employment is given to about two hundred hands, and a staff of efficient salesmen are "on the road" in the interests of the concern. The materials consumed in this establishment are drawn not only from domestic sources, but also from the United States, England, France, Austria, Germany and South America.

Messrs. Storey & Son also displayed a large line of the patent Saskatchewan "Buffalo" goods, manufactured by Messrs. Newlands & Co., Galt, Ont., who are the patentees. Messrs. Storey & Son possess the sole control of the sale of these goods in Canada. They are a remarkable imitation of the skin of the now extinct buffalo, and an excellent substitute therefor. These robes are warm, durable and handsome, are water-proof and wind-proof, and will stand rough usage in all weather. They are made in both heavy and light weights, three sizes and three standard colors, viz., buffalo brown, dark brown and English grey. They are lined with

scarlet lambs-wool, and trimmed with a pinked edge in two colors. This line of goods also includes men's and ladies' jackets and ulsters, and the "Princess" baby carriage rug, an elegant article.

JOHN DOTY ENGINE COMPANY.

FOR years the John Doty Engine Company, of Toronto, have furnished the power driving the dynamos producing the electricity used in operating the electric railway that carries passengers from the foot of Strachan Avenue into the Fair Grounds. This power is obtained from Doty steam engines placed in Machinery Hall; and they are always objects of much interest to visitors. This company always exhibit several other engines besides, from which a fair idea is obtained of the styles, etc., and the effective manner of their work.

The Doty Company manufacture the celebrated Armington & Sims automatic cut-off steam engine for electric lighting; and regarding this engine we are told that the advantages of it, briefly stated, are as follows: Extreme simplicity, the entire absence of parts requiring frequent adjustment, great regularity of speed, small cost, small space required for engine and fly wheel, compact form, and consequent rigidity in stationary and moving parts, unattainable in engines of long stroke, the employment of short and nearly parallel belts in place of long and converging ones, the avoidance of intermediate gearing to produce the required speed, and the great saving in room, building and foundations. In the construction of this engine particular attention is invited to its simplicity, the large bearings, solidity of the bed, perfection of the workmanship, and the quality of the materials used. The automatic cut-off regulator in this engine is original in every respect. It is perfect in its operations, all its parts being readily reached and always in sight. It is attached directly to the valve-rod, and varies the point of cut-off as the resistance requires, from the commencement to seven-tenths of the stroke, without changing the lead—a feature peculiar to this regulator. It acts instantaneously, and whatever the change in the load or the pressure of steam, the speed remains constant. The variation in speed from an extreme light load to the capacity of the engine will not exceed two per cent. The valve, which is an important factor in this engine, is perfectly balanced, and at all times surrounded by live steam. By its unique construction it permits the full boiler pressure to be maintained in the cylinder up to the point of cut-off. The Armington & Sims engines which are to furnish the power at the Central Station, in this city, for the Toronto Incandescent Electric Light Company, who are to supply electric lighting for domestic and other purposes, and who are now laying their underground wires for the purpose, are being built by the John Doty Engine Company, at their works at the foot of Bathurst street. These engines will be of the finest of the sort ever built, and will no doubt attract much attention from those interested in such things.

The Doty Company also invite attention of any who may be in want of an economical and continuous-running steam engine to the improved Reynold's-Corliss engine as built by them. The long and successful career of the Corliss engine as a motor for stationary use, and the intimate acquaintance of the engineering public with it as a type, renders an elaborate description of it here unnecessary. Other steam engines and machinery manufactured by the John Doty Engine Company include the "Doty" vertical steam engine and boiler, intended for any duty requiring from three to fifteen horse power; the Meyer's variable cut-off engine; plain and slide valve engines; hoisting and pile driving engines; the Otto silent gas engine; marine engines; horizontal return tubular boilers; locomotive fire box boilers; horizontal flue boilers; upright boilers; hangers; shafting and pulleys; castings of every description; brass goods and pipe fittings, etc. The quantity of gas required in the gas engine made by this company average for the different sizes eighteen cubic feet of gas for each indicated horse power per hour, which, at gas from one to two dollars per thousand feet, means a cost of from two to four cents per hour.

ST. THOMAS IRON FENCE WORKS.

MR. JOSEPH LEA, proprietor of the St. Thomas Ornamental Iron Fence Works, St. Thomas, Ont., made a fine display of Iron Fencing, cresting, etc., on the grounds east of Machinery Hall. These goods are made in all the popular and desirable styles, and adapted to all purposes to which such work is usually put. These designs are exceedingly ornamental, and intended to add to the beauty and general appearance of parks, gardens, private grounds, cemetery lots, residences and outbuildings.

Mr. Lea informs us that when he commenced the manufacture of this line of goods several years ago, it was with the determination to avoid the defects then so generally observable in iron fences. A great objection to such fences was that their picket tops, posts, foundations and ornamentations were made of cast iron; that while a representation of them looked well on paper, after a short time it was to be observed that the ornaments became diverted into irregular and unsightly shapes; picket tops were broken off, and the whole affair sorrowful failures. Therefore his determination was to allow nothing but wrought iron to enter into the construction of his fences, and to this resolution he has steadfastly adhered; and it is to this he attributes in large part the success he has met with in his business. The posts of his fences are also made of wrought iron; and these are secured to a wrought iron foundation which is guaranteed the frost cannot lift.

Mr. Lea has removed his exhibit to the Permanent Exhibition of Manufactures, 63 Front street west, Toronto, where it is to be seen during business hours during every business day of the year, and where all information as to prices, etc., will be furnished. A great deal of wrought iron fencing manufactured at the St. Thomas Ornamental Fence Works, has been and is being placed in connection with many beautiful residences in this city.

Mr. Lea is also manufacturer of balcony fire escapes, wire signs, weather vanes, etc.

PETER HAY.

MR. PETER HAY, proprietor of the Galt Machine Knife Works, Galt, Ont., displayed a comprehensive line of knives manufactured by him in the Main Building of the Exhibition. Mr. Hay manufactures every variety of knives for planing, moulding and tenoning machines, stave cutters and jointers, shingle machines; also cheese box or veneer knives, morticing and matcher knives; leather splitting, paper cutting and straw knives, etc. The very superior and uniform quality of the knives sent out from the Galt Machine Knife Works is attested by the constantly increasing number of persons who use them, and who appreciate the aim of Mr. Hay to furnish only the best in this special line of manufacture, to the exclusion of everything else. With the best material and careful manipulation, combined with long experience in the manufacture of this line of goods, Mr. Hay is producing an article equal to any imported, and at prices which compare favorably with those of other manufacturers.

THE McCLARY MANUFACTURING COMPANY.

THERE was no more interesting and instructive display made at the Exhibition than that of the McClary Manufacturing Company, of London, Ont., shown in the Stove Building. Probably the most noticeable of the cooking apparatus shown was the "Quick Sterling" new four-hole range, for hard or soft coal, or wood. This is an entirely new cook; and in offering it to the trade the company do so with the assurance that it will meet with the careful consideration and approval of the consumer. They are certain that a close examination of it will carry the conviction that the merits of it are superior to those of any other ranges of the same class ever before offered. It is constructed upon the latest and most improved ideas, and is supplied with every desirable device known. Chief among these are the sheet flue, copper reservoir, tea shelves, patent oven door opener, and cemented oven, top and bottom. The ornamentation is very simple and very elegant. The oven door has a handsome nickel panel, which is set off by a tile of beautiful design. It is made in two sizes and two styles—square and with reservoir.

Another noticeable article was the "Early Breakfast" wood cook stove, with ornamental leg base. This stove is made to meet a demand for a medium priced wood cook of the same class as the "Model" stove constructed by this company, and which was received with great favor both by the trade and by consumers. In design, the "Early Breakfast" is handsome and attractive; the castings smooth and well-fitted, and possesses nearly, if not all, the selling features which have made the "Model" so popular, among which we enumerate: the patent interlocking long centre, outside oven shelf, pedal oven door opener (or kicker), rods on the outside of the stove, double fire bottom, extra heavy covers and centres, interchangeable reservoir system, low smooth hearth—in fact, a great many more points of advantage than usually found on higher priced stoves.

An exceedingly attractive parlor heater was the "Red Cross Signal." This stove is made in two sizes and two styles—with and without oven—the oven being built with only the larger size. This is one of the neatest of modern base burners ever offered. It is a small stove with extraordinary capacity, and is claimed to be the only stove of its kind embodying a circulating flue.

"Famous Oak" is a heater that is long and favorably known. In addition to its many excellent qualities, the manufacturers have this year added a double heater attachment, whereby the cold air is taken from the floor, and, passing through a large pipe, becomes heated, and can be carried from the top of the stove to a room above, or distributed through the room below as may be desired. This does double duty by taking the cold air from the floor, and also almost doubles the previous heating capacity of the stove. It is an immense heater, and will burn any kind of fuel. It is made in two sizes.

The "Famous Acme" is at once one of the most artistically designed and beautiful all cast surface-burner heaters that has ever been produced. It is a distinctive "specialty" with the company, and for style, beauty and general effectiveness they say there is nothing on the market to compete with it. In finish, it is the best, on account of the few joints and perfect fitting. It is provided with draw-out anti-clinker grate, which shakes at the side. Also with nickel-plated rails, and tile ornamentation in front door. All sizes are furnished with a magazine or feeder, if desired. In all sections where surface-burning stoves are used for soft or hard coal, the "Acme" will, no doubt, take the lead. When ordered with return flue, the additional hot air flue can be connected with cold air box for bringing in outside air, making it the best and most efficient ventilating and heating stove for bed rooms and students' rooms ever made. It is made in two sizes.

The "Sterling Cottage" is a new wood-burning parlor cottage heater, made in two sizes. In its construction it is unsurpassable; its ornamentation is elaborate; is well fitted and mounted, has a fancy base, nickel rails, large nickel and tile name plate, and urn of original design. Also automatic smoke arrester, extra double back and false bottom, large feed door and under cover provided with griddle hole.

The stoves here alluded to are only a few of the very latest productions of the McClary Manufacturing Company. An enumeration of even the names of all the stoves and heating apparatus manufactured by this concern would occupy more space than can be given to it at this time, to say nothing of all the other lines of goods made by them, specimens of some of which were shown at the Fair. They have one of the largest manufacturing establishments in Canada, in which they make every variety of stamped and pieced tinware, japanned ware, lamps, lanterns, stove boards, and kitchen and household goods and notions generally. They have branch offices at Toronto, Montreal and Winnipeg.

THE RELIANCE ELECTRIC MFG. CO. (LTD)

THE Reliance Electric Mfg. Co., of Watford, Ont., furnished some fifty arc lights to the Industrial Exhibition for lighting the Annex, Natural History and other buildings. The lights of the Reliance system are perfectly steady and noiseless, and are remarkably pure and white.

The Reliance Company are overcrowded with work in their factory, and did not attempt to make any display beyond supplying the lights to the Association which they had contracted for. Their real display is to be found in the thirty odd towns where the Reliance system has been introduced during the past year. The company now have orders ahead sufficient to keep their factory working at its present capacity for the next four months. To overtake their large and growing business they are increasing their manufacturing facilities, and will shortly be in a position to fill all orders promptly.

To give some idea of the business this company are doing, we have only to say that they claim to have introduced their system into more towns and villages in Canada during the past year than all the other arc systems combined. Their aggregate sales since the last Industrial Exhibition were 1,325 arc lights. During that time the Reliance system, the company inform us, has replaced the "Royal," the "Ball," and the "American" systems, and today stands unrivalled for the following points, viz., economy of operation, economy of maintenance, simplicity of construction, purity and steadiness of light.

The Reliance Company have the honor of having introduced 1,000 candle power arc lights into Canada for street lighting purposes, while the town of Watford, Ont., has the distinction of being the first town in Canada whose streets were lit with 1,000 candle power arc lights.

In addition to their arc light system, the Reliance Electric Mfg. Co. have commenced the manufacture of an incandescent system of lighting and of storage batteries, which they claim are as far superior to others as is their arc system.

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.

MESSE^S. WADSWORTH & SONS, Montreal, will construct a \$3,400 organ for Knox church, Galt, Ont.

MR. JOHN McDONALD's tannery, at Tiverton, Ont., was destroyed by fire Sept. 5th, loss about \$20,000.

THE Cornwall Spinning Company, Cornwall, Ont., contemplate moving their works to Morrisburg, Ont.

THE Niagara Falls Natural Gas, Fuel and Light Company has been incorporated, with a capital stock of \$40,000.

THE shingle mill of Messrs. Gilmour & Co., at Trenton, Ont., was destroyed by fire Sept. 4th, loss about \$20,000.

THE Niagara Casket and Coffin Company, Niagara Falls, Ont., has been incorporated, with a capital stock of \$100,000.

THE shipbuilders at Maitland, N.S., will build five new ships the coming season, the smallest of which will register 1,000 tons.

MESSE^S. GOLDIE & McCULLOCH, Galt, Ont., a few days ago successfully cast a ten-ton fly-wheel for a Wheelock engine being built by them.

MR. W. WILSON, of Petrolea, Ont., will start a factory in Hamilton, Ont., for the manufacture of paint from the refuse of the oil refineries.

THE Hantsport Foundry and Machine Company, Hantsport, N.S., are erecting a new building for the accommodation of their business, 120 x 55 feet.

MESSE^S. NILES, HUNTING & Co., Hamilton, Ont., have been awarded a \$19,500 contract for constructing waterworks at Campbellford, Ont.

HILLMAN's lumber mill at Ottawa, owned by the Rathbun Company, of Deseronto, Ont., was destroyed by fire Sept. 11th. Loss, about \$22,000.

THE Canadian Hosiery Company, Beeton, Ont., are having a gratifying demand for their Arctic socks, and are turning out 100 pairs of them a day.

THE Alpha Iron Works, Montreal, has been incorporated with a capital stock of \$50,000 for the general manufacture of articles of iron, steel and brass.

THE Corticelli Silk Company, St. Johns, Que., who recently erected an extensive factory at that place, will considerably enlarge the capacity of the same.

MESSE^S. BOLT & Co., manufacturing jewelers, Montreal, have commenced the manufacture of rolled plate chains. This is practically a new industry in Canada.

THE British American Dyeing Company, Montreal, have erected extensive dye works in that city, modelled on the plan of the famous works at Perth, Scotland.

THE town of Campbellford, Ont., has contracted with the Western Electric Light Company, of Chicago, Ill., for placing an electric light plant there at a cost of \$6,025.

MR. JOHN CAMELFORD, carpet manufacturer, Paris, Ont., has moved into a new factory at that place. His plant includes twenty looms, and he employs about thirty hands.

MESSE^S. DEMERS & RIVERIN, manufacturers of stoves, hollow-ware, etc., city of Quebec, are operating their works to the fullest extent, giving employment to over 75 hands.

MESSE^S. JOHN INGLIS & SON, Toronto, have recently furnished a forty-five horse-power Corliss steam engine to the new carriage works of Mr. R. McLaughlin, at Oshawa, Ont.

THE town of Uxbridge, Ont., has passed a by-law appropriating a bonus of \$6,000 to aid the Uxbridge Cabinet and Organ Company in the erection of a piano factory in that town.

THE Toledo Boat, Oar and Butter Tub Works, Toledo, Ohio, have recently purchased some 400,000 feet of ash logs at Wallaceburg, Ont., which will be shipped to their factory.

ONE of the most interesting exhibits shown at the recent Toronto Fair was a display of cedar and maple doors, etc., sent by the Royal City Planing Mills Company, of Westminster, B.C.

A COMPANY is being formed in Kingston, Ont., for the manufacture of oilcloths. The location of the factory has not yet been determined. The capital stock will probably be \$100,000.

MESSE^S. ROBIN & SADLER, leather belting manufacturers, Montreal and Toronto, made a fine exhibit of their goods at the recent Ottawa exhibition, and were awarded first prize for the same.

THE Brunette Sawmill Company, Westminster, B.C., are about to commence the erection of a large new sawmill which will be second in size only to the Ross-McLaren mill, the largest in the Province.

THE Windsor Electric Stroke Bell Company has been incorporated with a capital stock of \$10,000, with headquarters at Windsor, Ont., for the purpose of manufacturing door bells, call bells, alarm bells, etc.

THE Peterboro' Lock Manufacturing Company, Peterboro', Ont., who find their business in a very flourishing condition, will increase their capacity by considerable additions to their factory and plant.

THE deposit vault of the Bankers' Safe Deposit Company, of this city, now being placed in the new Bank of Commerce building, will require eighty-five tons of five-ply welded iron and chrome steel in its construction.

THE LILLOOET HYDRAULIC MINING COMPANY, Victoria, B.C., which was recently incorporated with \$100,000 capital stock, will expand their business so as to include the tanning of leather and the manufacture of boots and shoes.

MR. CARL W. CONNER, Toronto representative of the Stiles & Parker Press Company, Middletown, Conn., has just sold a number 3 geared punch and press to the Forbes Manufacturing Company a new concern recently embarked in business at Halifax, N.S.

THE Anglo-American Manufacturing Company, late Messrs. E. T. Sibley & Co., Lower Stewiack, N.S., manufacturers of sash, doors, blinds, etc., are including the manufacture of children's toys, for which they are working up a large trade in the Lower Provinces.

THE Norwood Woolen Mill, Norwood, Ont., of which Mr. James Cumming is proprietor, includes one set of manufacturing and one set of customs cards, and two broad and two narrow looms; the products being tweeds, fulled cloths, blankets, yarns and flannels.

MESSE^S. J. & W. REID, proprietors of the Lorette Paper Mills, city of Quebec have recently been making large shipments of news paper to western consumers. Messrs. Reid have contracted to manufacture about forty carloads of print paper for three large newspaper concerns.

MR. J. R. ARMSTRONG, proprietor of the "City Foundry," late at 161 Yonge street, has moved into spacious accommodation at 219 Queen street east. The new building is 142 x 62 feet, three stories high. The average output of the works is sixty stoves and ranges per week.

MESSE^S. MCGREGOR, GOURLAY & Co., Galt, Ont., announce that they are manufacturers of all kinds of wood-working machinery, and dealers in second hand tools. Their head office and works are at Galt. They have recently established ware-rooms in Toronto at 32 Front street west.

MR. W. J. MINORE, proprietor of the Peterboro' Biscuit Works, will abandon his factory building to the Peterboro' Lock Manufacturing Company, to whom it belongs. A new building will be erected for Mr. Minore, in which he will carry on his business of manufacturing biscuit.

MESSRS. SINCLAIR & GAMBLE, Westminster, B.C., have taken over the slate quarry recently discovered near Golden, that Province, on the C.P.R., and will immediately engage in the manufacture of roofing slate for the Pacific coast trade. This slate is said to be fully equal to any found in Pennsylvania.

THE ONTARIO LEAD and BARB WIRE COMPANY, Toronto, have purchased the plant of the Hamilton Steel Wire Nail Company, Hamilton, Ont., which they have removed to their works at 56 Lombard Street. Mr. I. M. Phillips will continue in charge of the works, the capacity of which will be considerably enlarged.

MESSRS. WILLIAMS & POTTER, 15 Cortland street, New York city, announce that they are general agents for "The Straight Line Engine," specially adapted for driving dynamos, etc. These engines are made to develop from thirty to two hundred and fifty horse power, and are constructed single, double and compound.

MR. JAS. R. ANNETT, 372 Sackville street, Toronto, announces that he is Canadian licensee for Webster's vacuum exhaust steam economizer, regarding which it is said that it is the most improved modern appliance for the economical use of exhaust steam. It saves the heat in exhaust steam, which would otherwise go to waste.

THE steam tug, Lorne, recently built by the Albion Iron Works Company, Victoria, B.C., for Messrs. Dunsnuir, allusion to which has already been made in these pages, developed a speed of 14 knots per hour in her trial trip. Her engines are of the triple expansion type, said to be the first of the sort ever built in Canada, and the largest marine engine ever built in the Dominion.

THE Royal City Planing Mills Company, Westminster, B.C., have purchased and will operate the Hastings saw mill at Vancouver, B.C. The manufacturing and cutting capacity of the mill is to be largely increased. New machinery and motive power of the latest and most approved pattern are to be introduced, and the entire establishment made second to none in the Province.

THE CANADA ART TILE COMPANY, Hamilton, Ontario, of which Messrs. Stewart & Wild are proprietors, are preparing to manufacture art tiles in that city. They have already erected a two story brick factory building and two kilns; and new machinery and plant and a number of expert workmen are now en route from England for the new concern. The products will include grates, hearth and floor tiles, etc.

THE DOMINION DYEWOOD and CHEMICAL COMPANY, Toronto, of which Messrs. John Taylor & Co., are proprietors, call attention to the indigo extract powder for which they are Canadian agents, manufactured only by Messrs. Read, Holliday & Co., Huddersfield, England. The advantages claimed for this extract are—better shades; cheapness; no waste from evaporation, and greater convenience in use.

THE premises occupied by the tannery of Messrs. P. Cress & Co., Port Elgin, Ont., includes a main building 70x40 feet, three and a half stories high; another building 66x40 feet; another 70x30 feet; another 62x30 feet; another 40x26 feet; and still another 50x20 feet, these latter being one and two stories high. Twenty-five thousand hides a year are tanned here, the product being Spanish sole leather.

MR. COCKERLINE'S new roller mill at Crystal City, Man., is nearly completed, the expectation being to have it in operation about the middle of this month. The building is frame, four stories high, on heavy stone foundation. The capacity will be 150 barrels a day, if required. In addition to the roller machinery there are two runs of stones. In connection with the mill an elevator will also be erected.

THE Windsor Rattan Company, Windsor, N.S., of which Messrs. Lawrence & Smith are proprietors, is a new concern established for the manufacture of rattan goods. Samples of these goods are being distributed throughout the Lower Provinces, with a view to working up a good trade for the Christmas holidays. The business is managed by a Mr. J. E. Smith, who is fully competent and thoroughly acquainted with the business.

MESSRS. R. H. BUCHANAN & Co., Montreal, have recently been placing some heavy machinery, included in which were a steam pump for the passenger elevator to the terrace at the city of Quebec, by which the water is forced into a tank 220 feet above the source; a steam pump into the new cotton mill at Montmorenci Falls, and an entire fire protection plant into the mills of the Magog Textile and Print Company, at Magog, Que.

THE Canada Iron Furnace Company, Montreal, has been incorporated with a capital stock of \$200,000. The purposes of the com-

pany are the manufacture of iron and steel, and dealing in them; to operate coal and iron mines, timber limits, furnaces, foundries, rolling mills and steel converters; the manufacture of charcoal and its products; the dealing in wood and the products thereof, as well as all matters arising out of the aforesaid industries.

IMPROVEMENTS now being made at the works of the Moncton Sugar Refinery, Moncton, N.B., include doubling the capacity of the filter house and additions to the barrel factory, into which machinery is to be introduced for making hoops. It is claimed that when this barrel factory is completely equipped it will be the most complete in the Dominion. At the recent annual meeting of the company a semi-annual dividend of ten per cent. was declared.

MESSRS. RHODES, CURRY & Co., Amherst, N.S., have begun work upon a contract for the construction of an immense building at Fort Lawrence dock, a terminus of the Chignecto Ship Railway, which will contain the engine, boilers and machinery for the hydraulic lifts for that railway, by which the vessels to be transported are lifted out of and returned to the water. The building will cover an area 96x56 feet, and will be of brick, on a substantial concrete foundation.

THE factory of the Port Elgin Button Company, at Port Elgin, Ont., is a handsome white brick building, 80x40 feet, two and a half stories high. The company was organized about two and a half years ago, with a capital stock of \$15,000, and the works are under the management of Mr. W. S. Johnston. The business is confined exclusively to the manufacture of vegetable ivory buttons, and gives employment to over forty hands, although the capacity is for 150 hands.

MR. JAMES GOOD, who died in this city on September 12th last, at the age of seventy-five years, was the owner of the well known "Good Foundry" which is near the intersection of Queen and Yonge Streets, Toronto. Mr. Good came to Toronto in 1832, and in 1835 started this foundry, of which he was continuous owner till the day of his death, and in which he built the first locomotive ever constructed in Canada, and which is now in active use running on the Northern Railway out of this city, and known as "Toronto No. 2."

THE Merchants' and Manufacturers' Security Company of Canada, has been incorporated with a capital stock of \$50,000, with headquarters at Hamilton, Ont. The objects of the company are to distribute mercantile information and reports amongst members and subscribers of the said company, and to protect and guarantee to wholesale merchants and manufacturers their accounts and credits, and to take assignments of and collect all accounts or debts thus protected or guaranteed, which the said company shall be compelled to pay.

THE business carried on by the Masseys, of Toronto, in the North-West, and by VanAllen and Agur, have been amalgamated, and will be carried on by a firm under the name of Massey & Co., Winnipeg. The officers of the new company are H. A. Massey, President; L. J. McBride, Vice-President; R. H. Rogers, Treasurer; C. W. H. VanAllen, Secretary; T. J. McBride and E. W. H. VanAllen will be joint Managing Directors. The change goes into effect on the first of next January, when the offices will be erected.

THE work on the Chignecto Ship Railway, connecting Baie Verte and Bay of Fundy, is being pushed with great vigor. At the Tinish end the coffer dam is nearly completed. Two hundred car loads of immensely heavy steel rails, weighing 110 pounds per yard, made in Britain, have been delivered; also eight steam engines of 190 h.p. each, and six steam boilers, each 27 feet long by 9 feet diameter. There is telephone communication over 17 miles of the route, and an electric light service, furnished by the Canada Electric Company.

MENTION was recently made in these pages concerning a valuable deposit of terra cotta clay, just discovered near Campbellville, Ont., about thirty-six miles from Toronto. A company has been formed in this city, of which Mr. L. M. Livingstone is president, who have acquired the land in which this clay is found, and they are now fairly at work manufacturing a first-class article of pressed brick, which are equal to such as is imported from the United States at a cost of about \$40 per thousand. A Eureka brick machine is in operation, which has a capacity of turning out 15,000 brick per day.

THE Ontario Leather Matting Company, Toronto, which was organized in August last, and whose factory is at Mount Forest, near this city, have been awarded a patent for a leather foot mat

which they are now making in large quantities, and for which they have considerable demand. The excellence claimed for this mat is its durability and the ease with which it is cleaned and handled. The small pieces of leather of which it is constructed are connected together by wire rods. The company also manufacture leather link belting, leather board, etc. Mr. Thomas Coolican, 27 Toronto street, this city, is the general agent of the company.

MESSRS. A. ROBB & SONS, Amherst, N.S., a few days ago sent out a portable engine and boiler, on wheels, and a planer to Springhill, N.S., a rotary mill to Albert Co., N.B., portable engine and boiler to Parrsboro, N.S., rotary mill to Maitland, N.S., and engine and boiler to Halifax. This enterprising firm are now employing about 100 hands, manufacturing not only for the local demand, but extending their trade all over the Maritime Provinces and west in Quebec and Ontario. They have also recently built an oil tank of 25,000 gallons capacity for the St. John branch of the Imperial Oil Company, of boiler plate 30 feet long and 12 feet diameter.

MR. McLEOD STEWART, president of the Canadian Anthracite Coal Company, was in Victoria, B.C., a few days ago, on his way home from a visit to San Francisco and other cities on the Pacific coast, in connection with seeking a market for the shipment of coal. Mr. Stewart, while in Victoria, presented a letter of introduction from the Lords of the Admiralty to Admiral Heneage, and the result of the interview is that an immediate trial of the capabilities of the coal will be made on the men-of-war with a view to its being adopted on the Pacific naval station. The merit of this coal is that it is a smokeless fuel, and can be sold cheaper than Welsh coal, which is now used by the navy.

THE hub factory of Messrs. John Finlay & Son, Norwood, Ont., includes a main building 220x35 feet; another building 130x90 feet, and yet another 100x90 feet, the aggregate floor space being 50,000 square feet. These buildings are all heated by steam, and thoroughly equipped with most approved machinery, driven by an 80 horse power engine. The products are hubs and carriage makers' bent goods, and the timber used is oak and rock elm and second growth elm. 350,000 hubs are manufactured during the season, 9,000 sets being furnished and the balance for patent wheels. This is independent of the bent stuff. At the present time they are putting out 2,500 hubs a day for patent wheels.

THE new cotton mill at Montmorenci, Que., which is now about ready for operation, including machinery, cost about \$150,000. The building, which is three stories high, is built upon the solid rock. The machinery is all English and of the latest design. Two hundred hands will be employed. White and grey cottons will be manufactured, intended for the China market. The new Quebec, Montmorenci and Charlevoix Railway will construct a siding into the factory, so that the cars can be run into Quebec, transferred to the C.P.R. there, and thence conveyed direct to Vancouver, where the cotton will be transferred to the steamers for its final destination. The water wheel is of phosphor bronze, 400 horse power.

It was stated in a recent issue of this journal that a company had been formed at Amherst, N.S., to take the moss from a bog at Musquash, near that place, and ship for commercial purposes. Regarding this item, Messrs. A. Robb & Sons, of Amherst, inform us that this Musquash spoken of is near St. John, the nearest approach of the bog to Amherst being that the bog excavating company bought their machinery in Amherst. Messrs. Robb desire us to inform such of our readers as may go hunting for the Musquash bog at Amherst that no such place can be found there, but that they may find what may prove even more valuable to them if they will purchase one of the Robb & Sons' celebrated portable saw mills manufactured by them in that place.

THE Canadian Pacific Railway Company have signed contracts for the erection of large workshops at Hochelaga, near Montreal, for manufacturing the company's own rolling stock. The shops will consist of wood-working shops iron working, blacksmith and erecting shops. The company have also put under contract an extensive foundry to be erected at Hochelaga, with a view to making their own castings and car wheels, which hitherto they have had to purchase elsewhere. The works are expected to be in operation by the end of the present year, and will give employment to a large number of mechanics of the highest class. The company have for some time been building their own locomotives at their Montreal shops, where there are facilities for turning out a locomotive every five days.

THE personnel of the firm of Miller Bros. & Mitchell, Montreal, has been changed by the admission of Mr. Lewis W. Toms; and the firm name has been changed to Miller Bros. & Toms. The

specialties manufactured by this concern include hand, steam and hydraulic safety elevators for passenger and freight service; dumb waiters, for offices and private houses; hand and steam derricks for quarries and builders' use; hoisting engines; winches; Beaudry patent upright cushioned power hammers, which are simple, cheap and efficient; Hill's patent friction pulleys and cut off couplings, of from five to 1,000 horse power; Newton's patent steam trap, for high or low pressure; steam pumps; cordage machinery; shafting; hangers; pulleys; gearing, etc. This concern has been in existence over twenty years.

MESSRS. JAMES HARRIS & Co., St. John, N.B., are building six passenger cars for the Intercolonial Railway, which, when completed, will probably be the finest and best equipped passenger cars yet secured by the company. These cars will run on the celebrated Krupp wheels, which are 47 inches high, or 14 inches higher than the ordinary car wheel. The Krupp wheels are in four parts. The inside or centre of the wheel is of wrought iron, and around it is the steel tire about 2½ inches in thickness, held in place by two rims, over which it laps down about half an inch, the rims being set tight to the wrought iron centre piece by bolts and nuts. Wheels of this make have hitherto been used almost altogether on Pullman cars. This is the first time this firm has ever equipped passenger cars with them.

The manufacture of oatmeal from oats is very different from the making of flour from wheat. The cleaning processes in the first place involve much more labor and require more time and machinery, the oat kernel being encumbered with its hull and more bulky and difficult to separate from foreign substances. After cleaning and before hulling, the oats are dried by heat, an operation demanding still more special machinery, and requiring time and careful attention. After drying they are cooled and sent to the hullers. These are stones with a sharp grit, and the hulling process must be carefully managed, as it is important to avoid breaking the kernel. Good machinery is required for all these operations. In preparing the meal from the kernels the rolling process has almost entirely superseded the former method of steel cutting, as the rolled meal may be cooked much quicker, requiring less than one-quarter of the time needed for the cut meal.—*Good Housekeeping*.

MESSRS. EDWARD HUGHES & SONS, whose factories are at Kidderminster, England, are among the largest carpet manufacturers in the world. A member of this firm was recently in Toronto investigating the outlook for establishing a branch carpet factory in this city. Mr. Hughes thinks that the time is fast approaching, if not already arrived, for his firm to take this step, and his opinion is that it would pay. If it should be decided to start a factory in Toronto, at the first employment would be given to about two hundred hands. Messrs. Hughes & Sons have immense warehouses for the sale of their goods established in Paris, in Berlin, in St. Petersburg, in Vienna, in Dublin, in London and in Manchester. Their factory gives employment to about 3,000 hands, and produces about 1,000 rolls of carpet a week. Last year the total product was 56,000 rolls, or about 2,340,000 yards. The grades produced are of the highest quality—Brussels, Wiltons, velvets, tapestries and rugs.

ONE of the most peculiar branches of industry in this country is the manufacture of slate pencils. There is only one slate pencil factory in the United States. It is located at Castleton, Vt., and employs twenty-five hands, who turn out 30,000 slate pencils every day. The method of manufacture is a good deal in advance of the primitive means employed some years back. Not long since the blocks of soft slate from which they are cut were sawed in lengths and distributed among the neighboring laborers' families to be whittled down to pencil shape. Those working at them could earn about fifty cents per thousand. By the present system the blocks which are as wide as a pencil is long, are put into the mouth of a machine called the crocodile. This contains six rows of revolving curved knives. As the slab passes between these knives paralleled grooves are cut in the slabs, then they are turned and cut through. The square pencils are then rounded and polished by holding them against the emery belt. One man can cut out and finish about 8,000 pencils per day.—*New York Journal*.

A CORRESPONDENT of the St. John, N.B., *Gazette* says the people of the upper provinces are just waking up to an appreciation of the extent to which manufactures are being carried on in the Maritime Provinces. He says: "They find down below, a peg factory, the only one in Canada, a condensed milk factory, tobacco and cigar factories, boot and shoe factories, clothing factories, breweries, sending out as good ales as any in Canada, mills for making merchant

iron, nail plate, nuts and bolts, tacks, etc., great works in London-derry and New Glasgow which produce the only pig iron and steel that are turned out in Canada, skate factories (the only ones in Canada), and biscuit and confectionery factories brass goods, mining and mill machinery, stoves, mantles, grates, and a host of other articles, more particularly those entering into the construction of ships, are all manufactured to the point of perfection in the Maritime Provinces; and it is only now—twenty-two years after Confederation—that the Upper Provinces are beginning to learn how thoroughly equipped for business the Lower Provinces are.

THE use of gas motors for operating dynamos is making good headway, and, better still, such use is attended with satisfactory results where the method of operating receives the proper attention. To show the truth of our remark that the system makes headway, we cite the following instances: A 20 horse-power Otto engine is employed at Iowa City, Iowa, to drive a 40-light Western electric dynamo from which sixteen lamps are now being operated for street lights on a three mile circuit. As soon as the number of lights is increased an additional engine will be installed. The Racine (Wis.) Gas Company is now employing two Otto gas engines—one of 15 horse-power and the other of 50 horse-power—to drive a specially-wound No. 8 Brush dynamo, operating sixty-two 2000-candle power lights on an 11-mile circuit, on a total run of 955 lamp hours. The expenditure of gas was at the rate of 23½ cubic feet per lamp hour. The Grand Forks (Dak.) Gas Company is now installing a 20 horse and a 50 horse-power Otto engine to drive a mixed arc and incandescent plant.—*American Gas Light Journal*. The Otto gas engine is built in Toronto by the John Doty Engine Company, whose card appears on page 246 of this issue.

ONE of the most interesting and attractive features of the recent Industrial Exhibition was the manufacture of billiard balls, which was carried on in the Main Building by Messrs. Samuel May & Co., manufacturers of billiard tables, balls, cues, etc., Toronto. The three cornered tables, with their noisy wooden beds and hard unyielding cushions, large uncouth pockets and poorly made cue sticks without leather tips, of bygone days, were such as would make the player of to-day weep with vexation. Contrast these with the elegantly fashioned and finely finished billiard tables and appurtenances now manufactured by this firm, the beds of which are perfectly level and solid slate; the surface so deadened that the motion of the ball across the table produces no perceptible noise; the nicely adjusted and delightfully elastic cushions, whose reaction, both in the direction and force, one may calculate to a fraction, and which alone of all surfaces may be said to have realized in practice the truth of the theory that action and reaction are equal, or that the angle of incidence is equal to the angle of reflection. Cues of rosewood, tulipwood, ebony, mahogany and other rare woods most artistically made in assorted weights and beautifully polished and carefully tipped with the finest French leather especially tanned for the purpose; balls of the finest ivory accurately turned and highly polished, which are as fair in surface as they are true in equipose; in fact, everything appertaining to the game turned out by this firm is made and finished in the very best manner.

THE new dry dock at Halifax, N.S., was formally opened Sept. 19th, with the successful docking of the warship *Canada*. This is the largest dock in America, one of the finest in the world, and will dock the largest vessel afloat, or that is ever likely to be built. It was constructed by Samuel M. Brookfield, of Halifax, for an English company, at a cost of nearly one million dollars. It is built of granite and concrete, is 601 feet in length, 72 feet wide at the bottom and 102 feet at the top, and has 30 feet of water over the sills. The dock is subsidized to the extent of \$600,000 by the city of Halifax, the Canadian and British Governments, in equal proportion. It was blasted out of solid rock, and its site adjoins the Imperial dock yard. The Intercolonial main line runs alongside the dock. A vessel of the size of the *City of Rome*, the longest in the world, or the largest warship afloat, can be docked without the removal of cargo or armaments. There is ample room on the 90,000 feet of cofferdam to discharge and store cargo if required, or ship it on board the cars for immediate transportation. The caisson is 100 feet long and 36 feet high. It resists a pressure of 1,200 tons of water. Over 200 tons of steel was used in its construction, and it is ballasted with 250 tons of concrete. The floor is laid in two feet six inches of concrete, deposited on solid rock. The granite walls are from three to five feet in thickness. The dock holds eight million gallons of water, which is emptied by the pump in three and a half hours.

THE new McLaren-Ross saw mill at Westminster, B.C., is 450 feet long, 72 feet wide, and two stories high. The lower story is sixteen feet from floor to ceiling, and the posts which support the upper floor are fifteen inches square. Of these posts there are five

rows in the length of the building, and thirty-six rows in the cross section. The upper floor is one large room unbroken by a post from one end to the other, the roof being supported entirely by truss work. A clear space is thus provided for the machines, and there is nothing in the slightest degree to impede the men in their work. The machinery which will be put in will be of the most improved and perfect kind. There will be one double circular saw, one band saw and one iron frame gang. There will be three engines 24 x 30. The foundation of these will be of the most solid and enduring character. Piles have been sunk into the ground from eight to thirteen feet, and on these will be built a solid stone flooring several feet in height. On this in turn will be built a heavy flooring of wood, and on it will be placed the machines. The machines will be held to the foundations with anchor bolts from one and a half to two and a half inches in diameter. The boiler house, which is separated from the mill proper, is a very substantial structure. The walls, which are of stone, are sixteen feet in height and two feet in thickness. The covering will be of iron. In this building there will be ten boilers, each five by fourteen feet, and with fifty-four four-inch tubes. Just north of this is the refuse burner, probably the largest in the world, twenty-six feet in diameter and one hundred and forty feet high. The boilers, refuse burner and engines will be supplied by the William Hamilton Manufacturing Company, of Peterboro', Ont. When the mill has begun operations it will be a novel and interesting sight to stand on the second floor of the building and see a huge stick of timber pass through all the transformations which it will undergo from the time it enters at one end in its natural state till it comes out at the other in the shape of lumber for shipment. The log will come in at the eastern end of the mill and pass lengthwise through the different machines till it reaches the west end. Here it is, by automatic machinery, transferred sideways and passed out of the mill over trimmer tables. One board of sixty feet long could be cut into twenty-six different lengths. All the dimension timber passes lengthwise on to a platform at the west end of the mill, and can from thence be transferred to either ship or car. The capacity of the mill will be about one hundred and fifty thousand feet per day of ten hours, equal to about fifty million feet a year.

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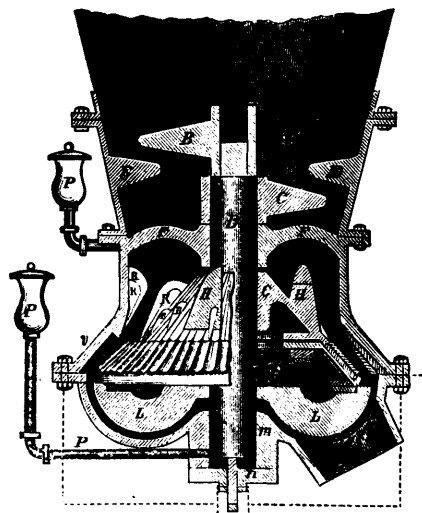
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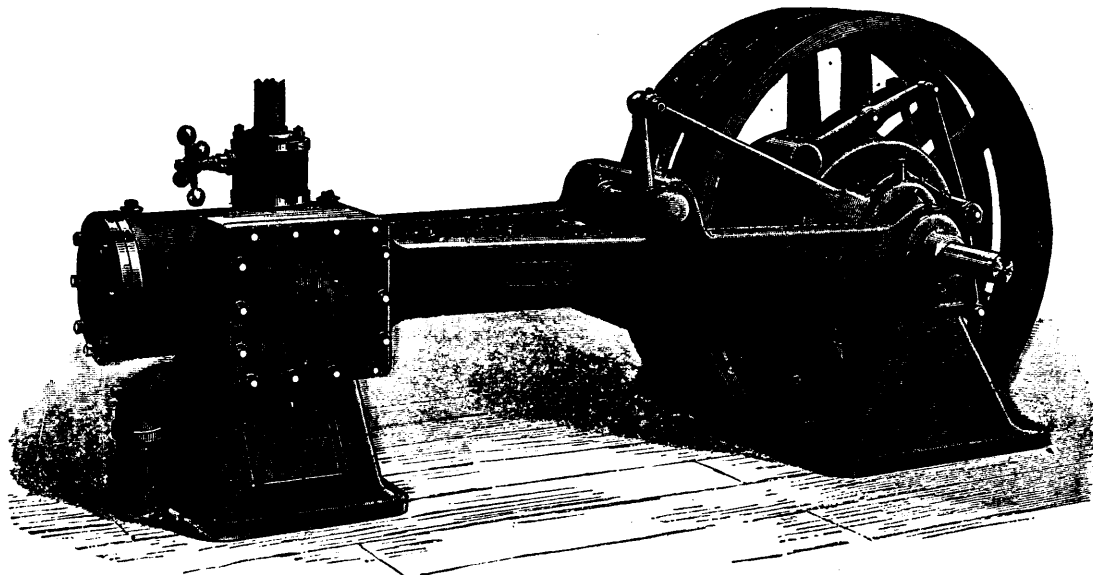
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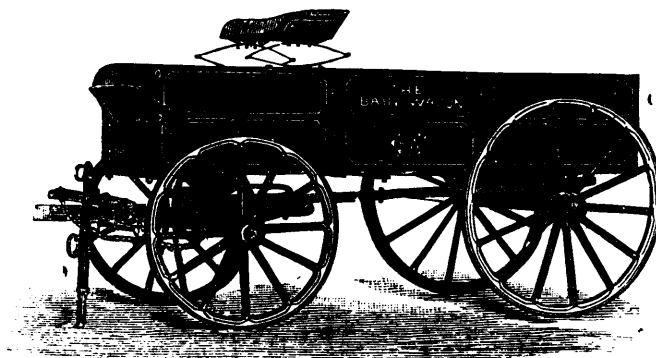
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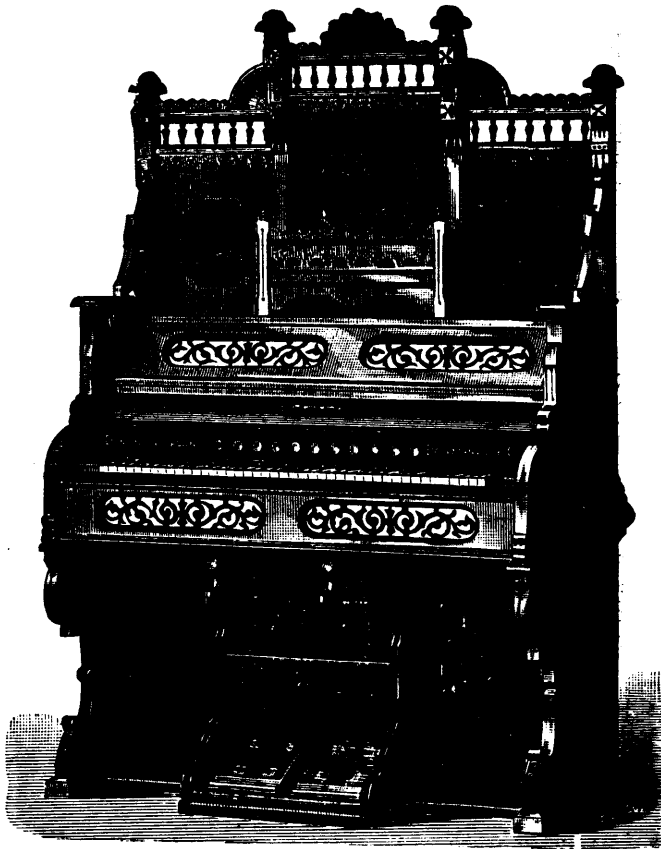
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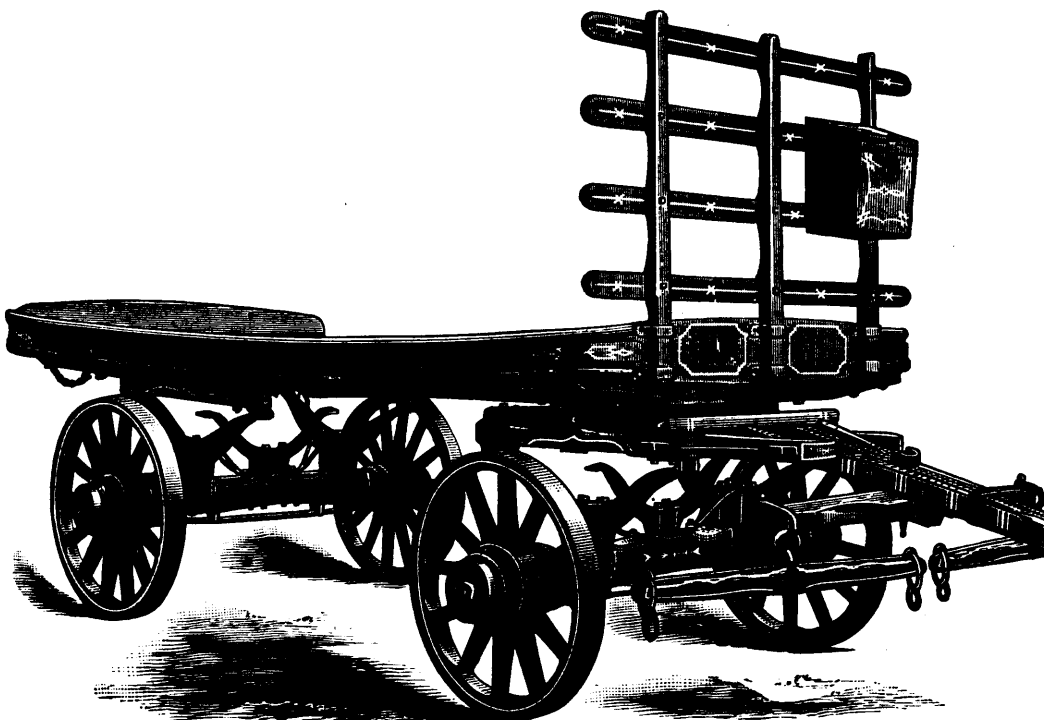
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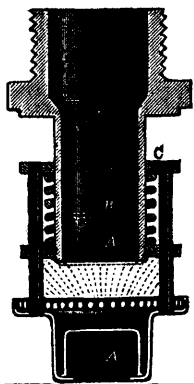
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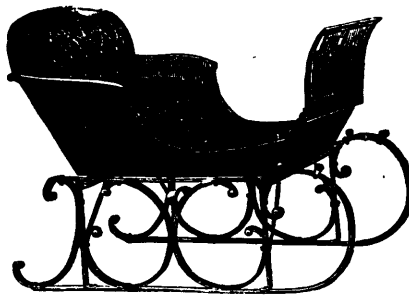
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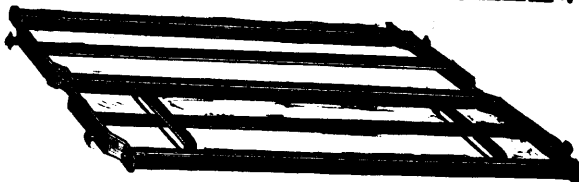
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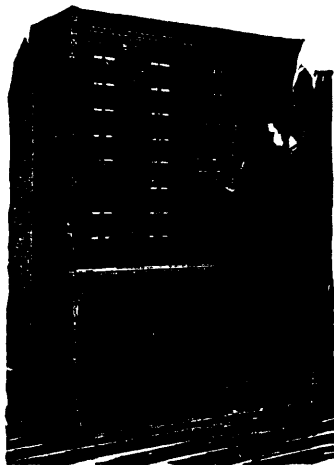


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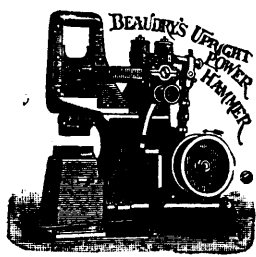
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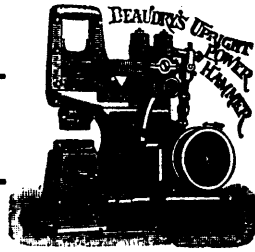
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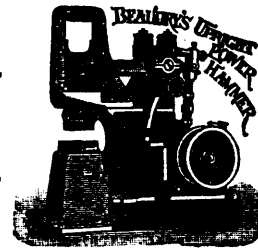
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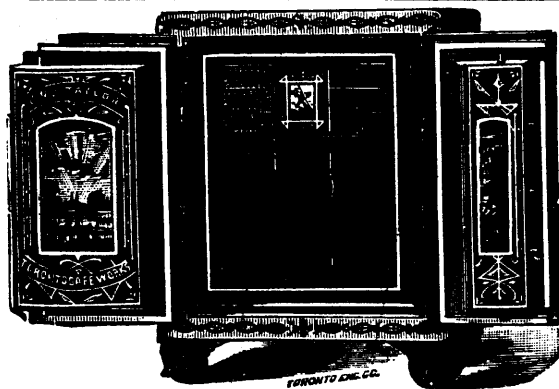


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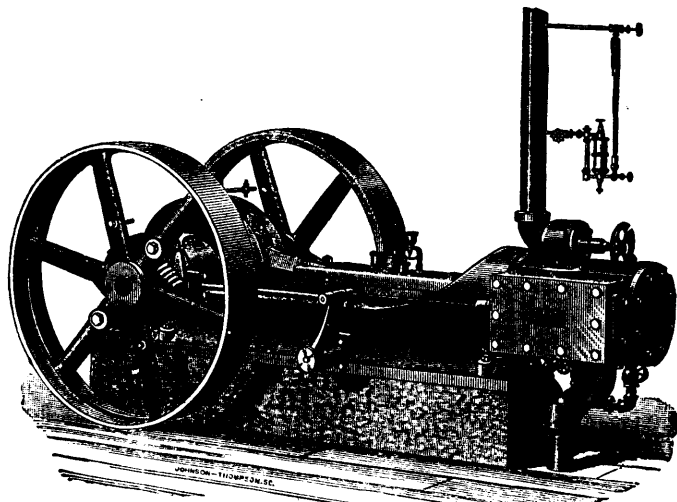
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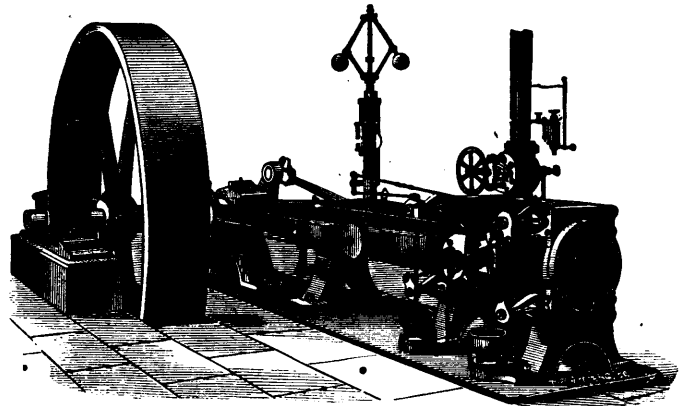
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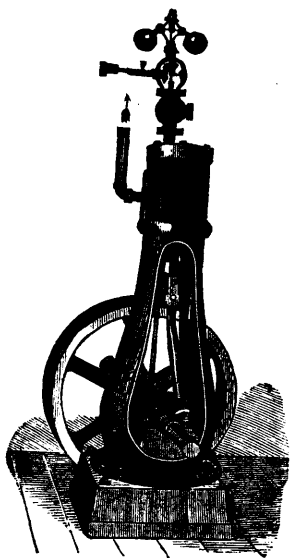
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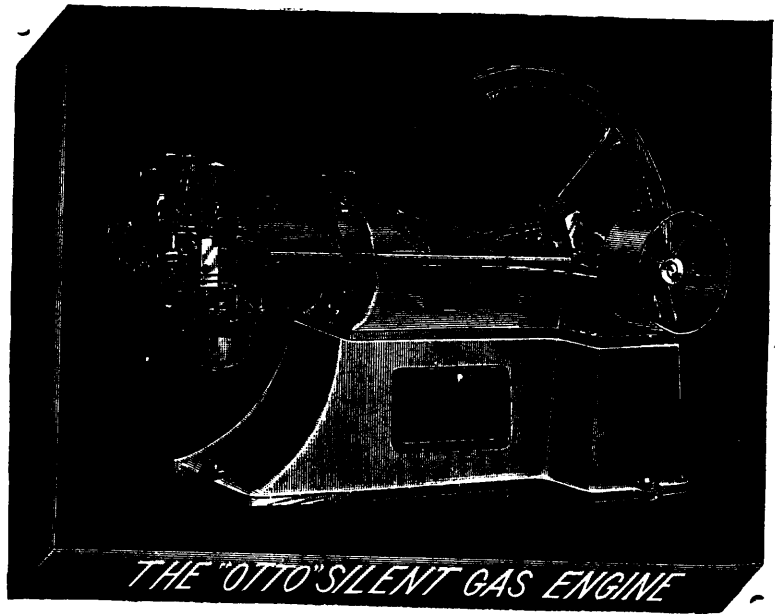
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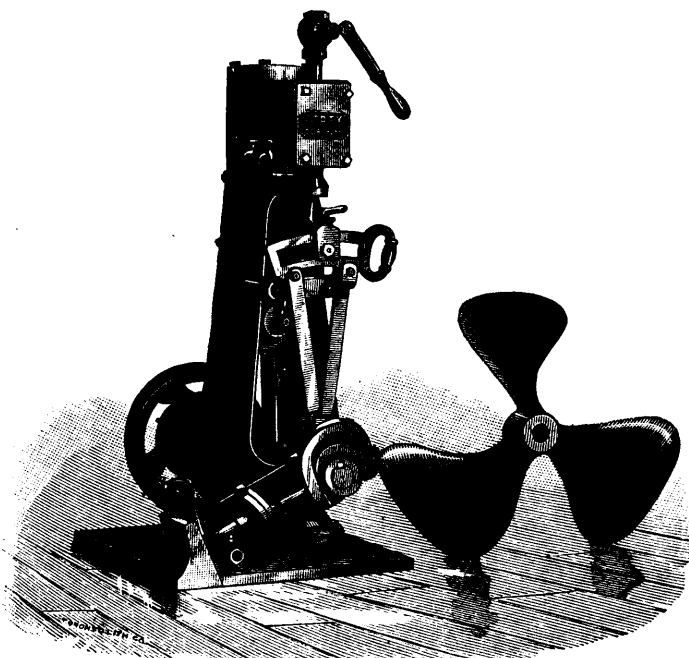
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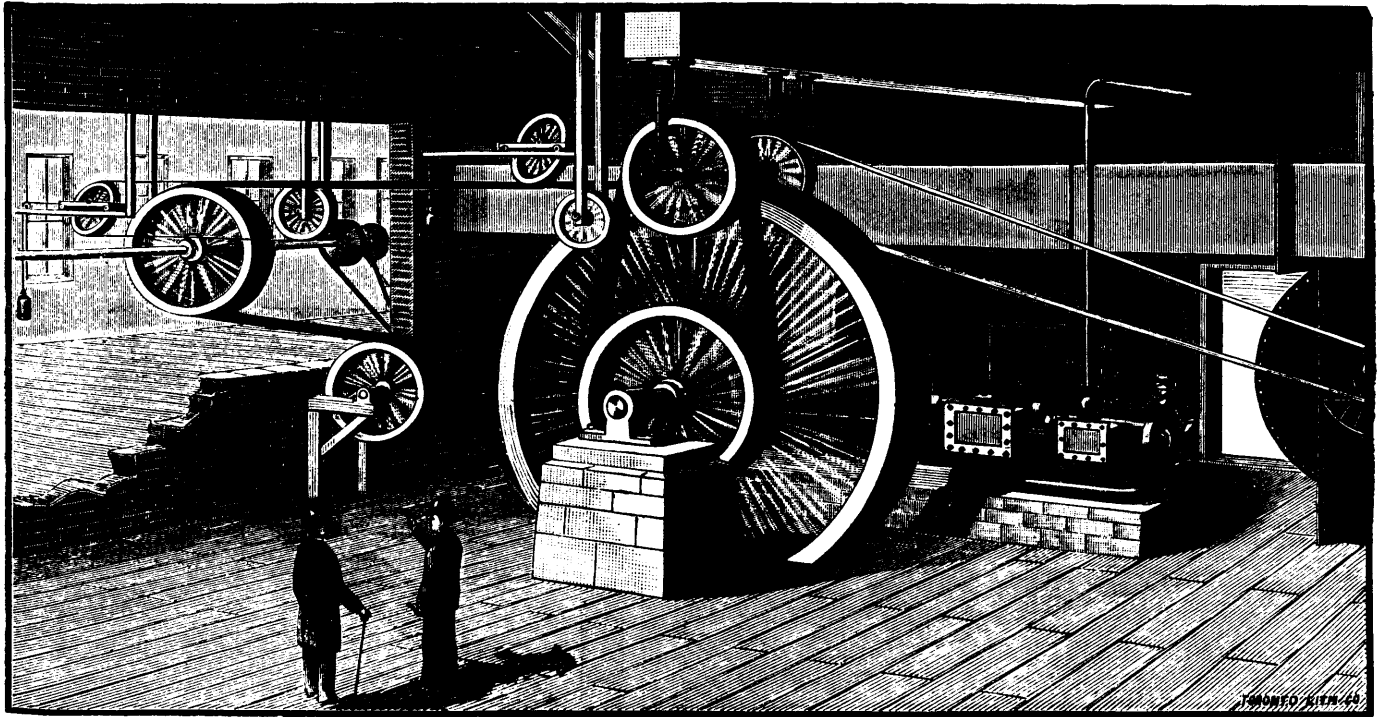
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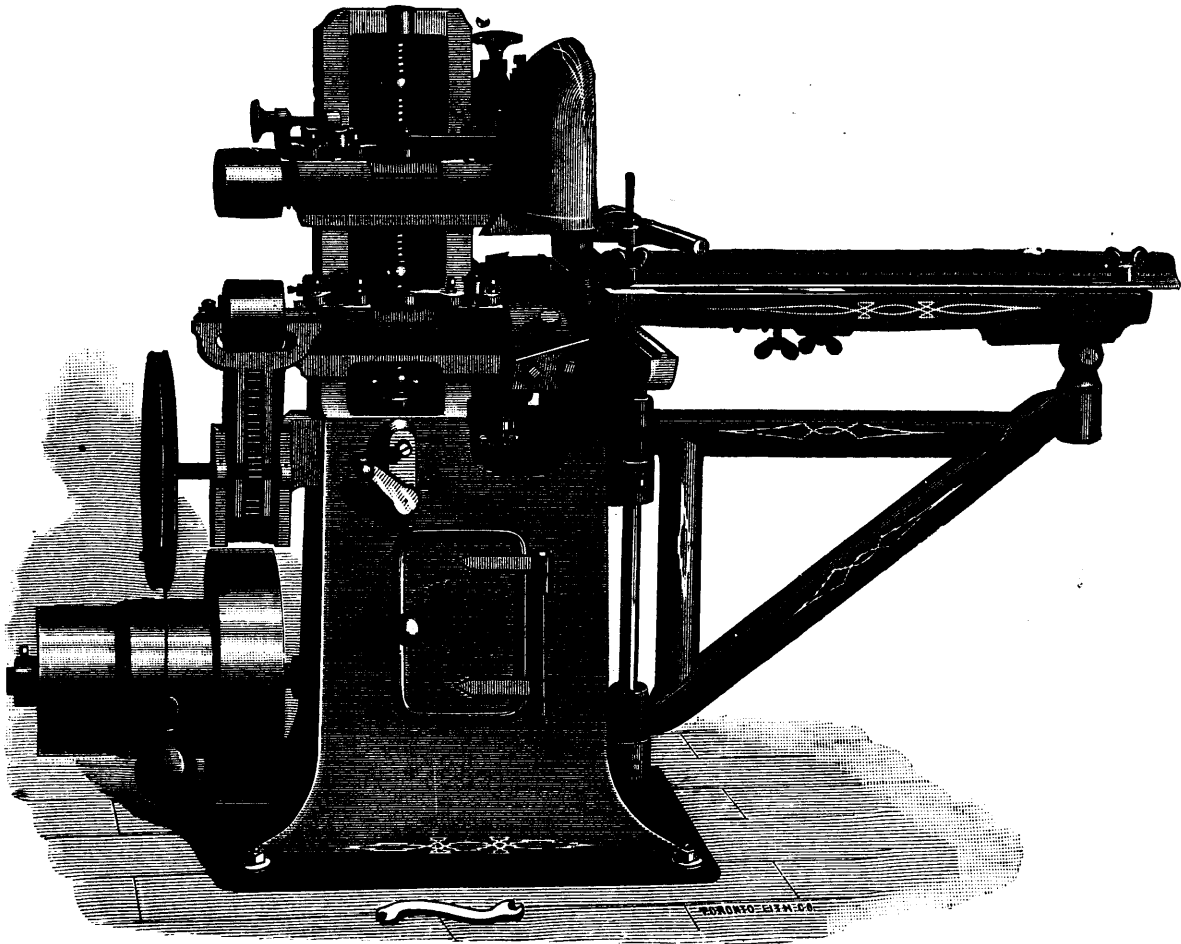
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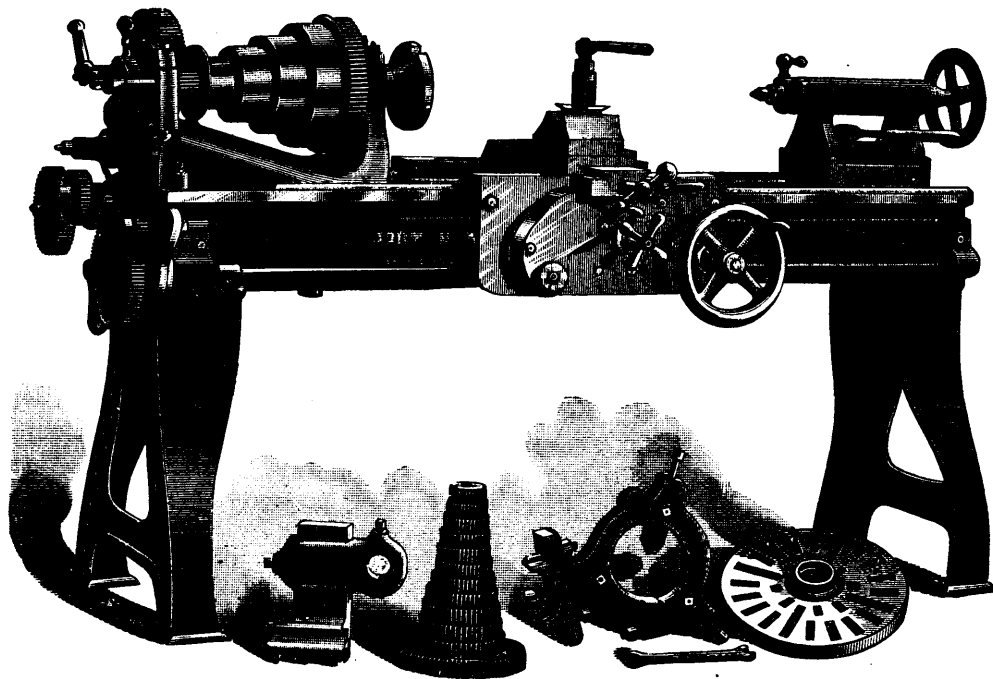
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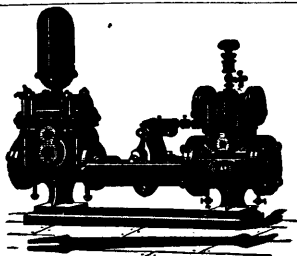
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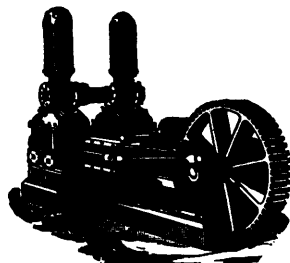
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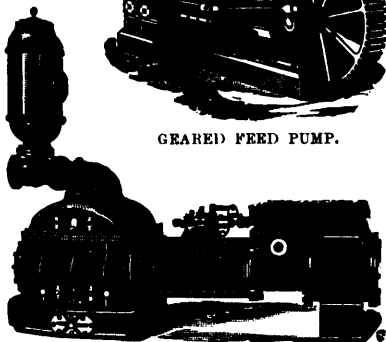
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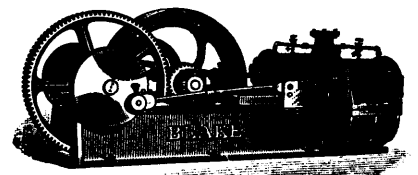
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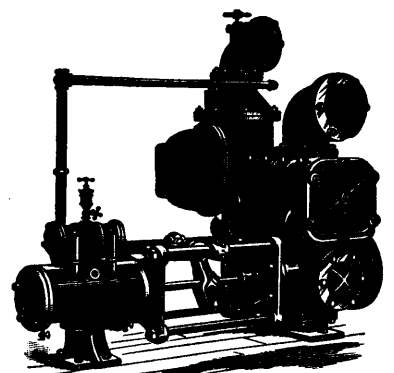
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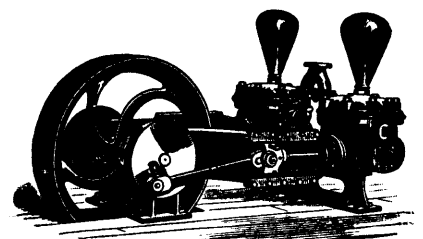
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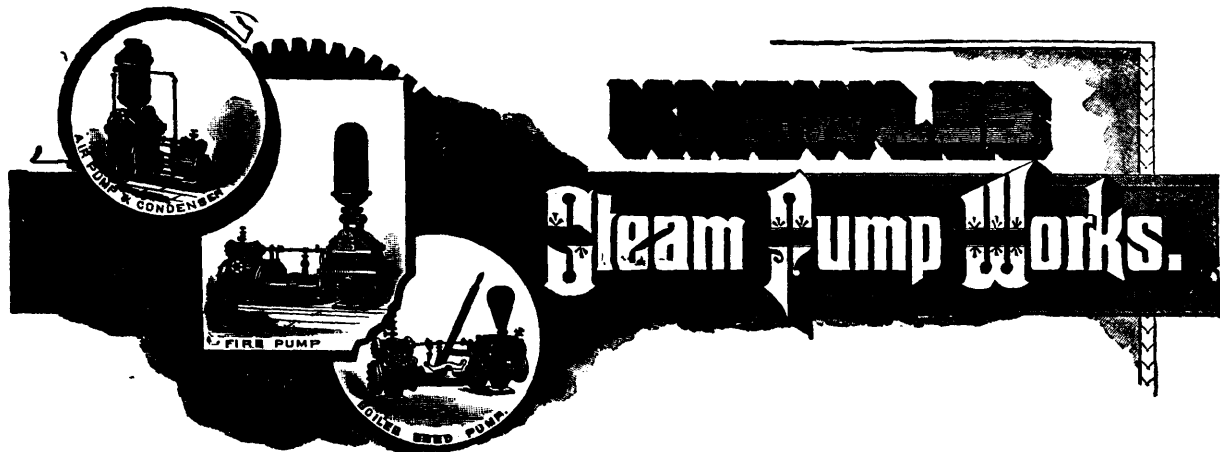
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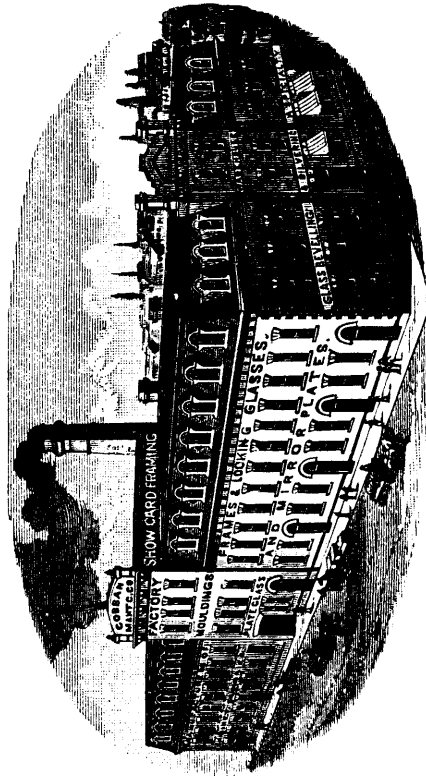
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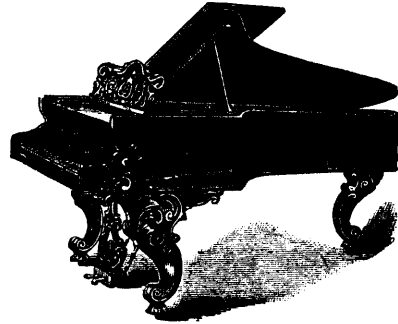
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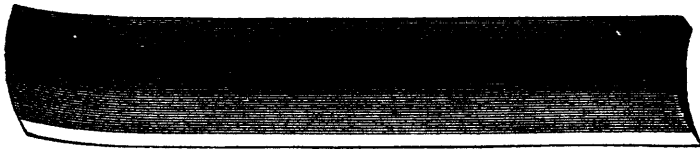
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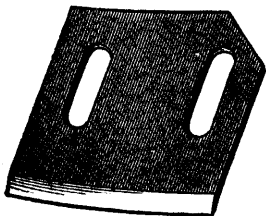
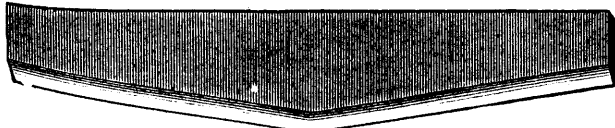
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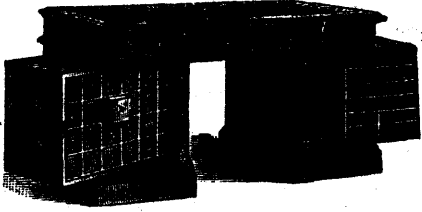
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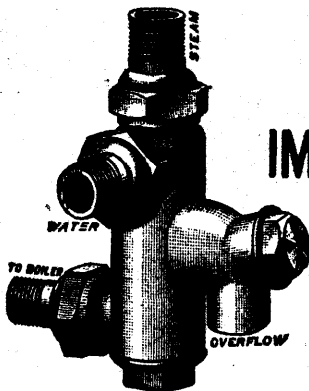
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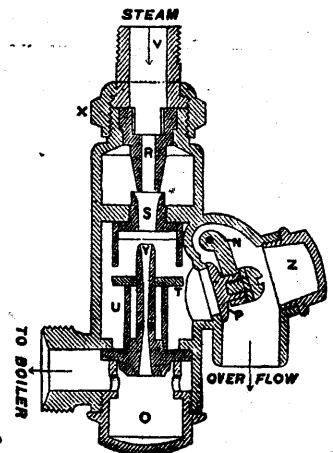
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