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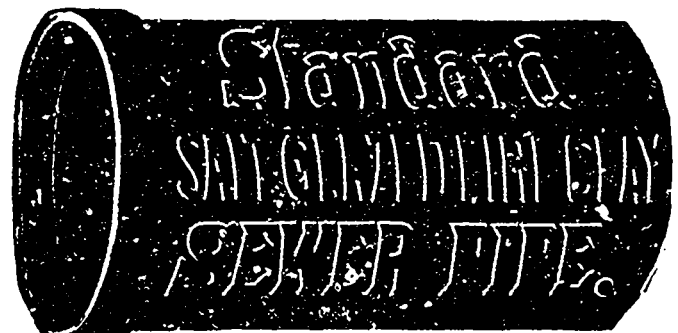
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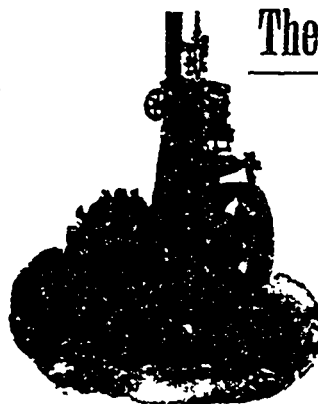
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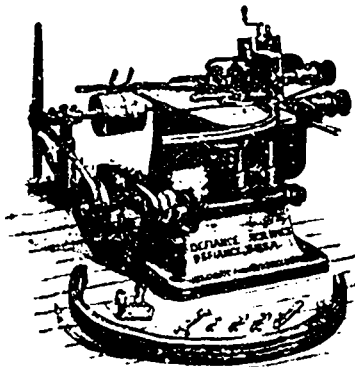
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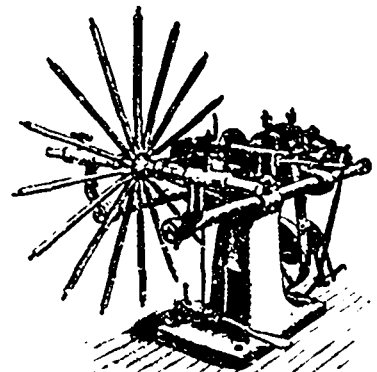
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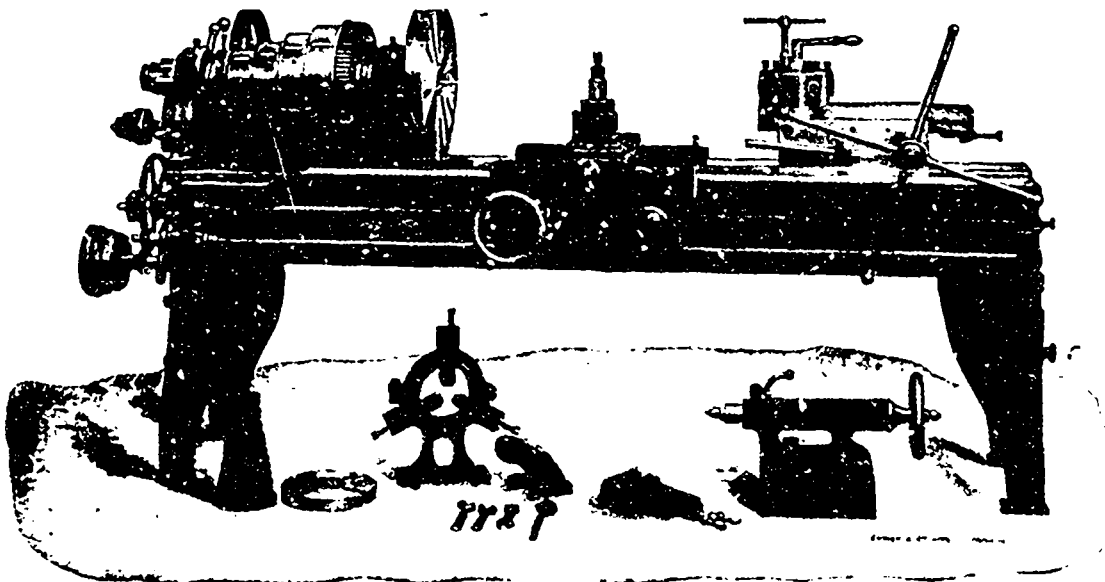
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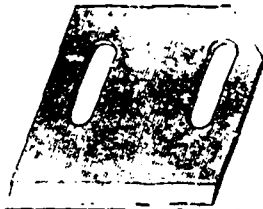
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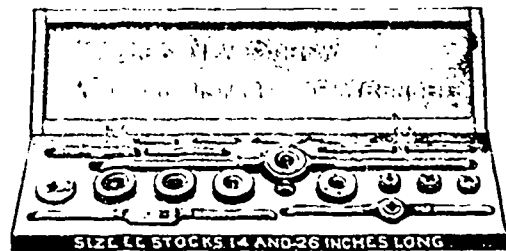
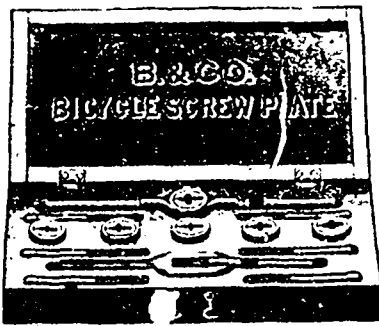
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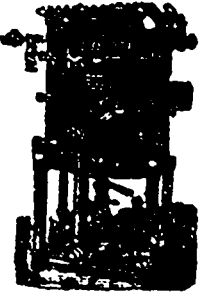
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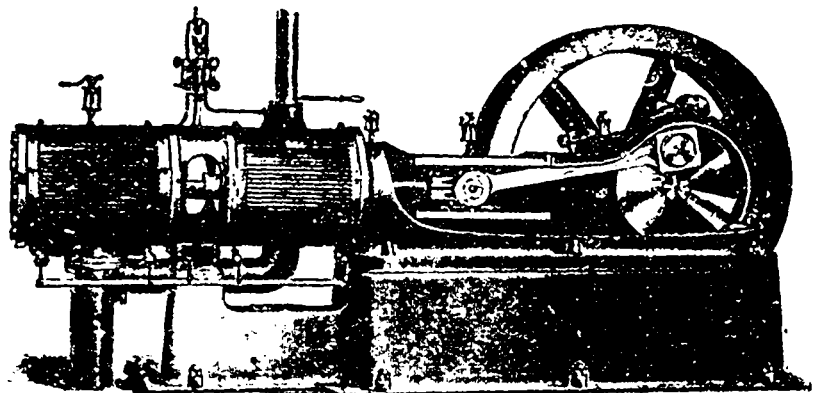
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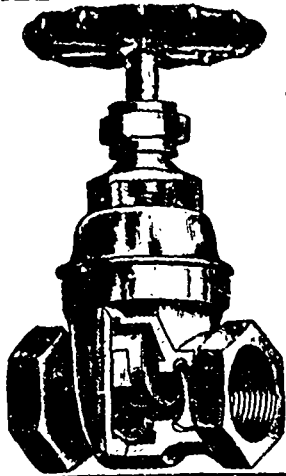
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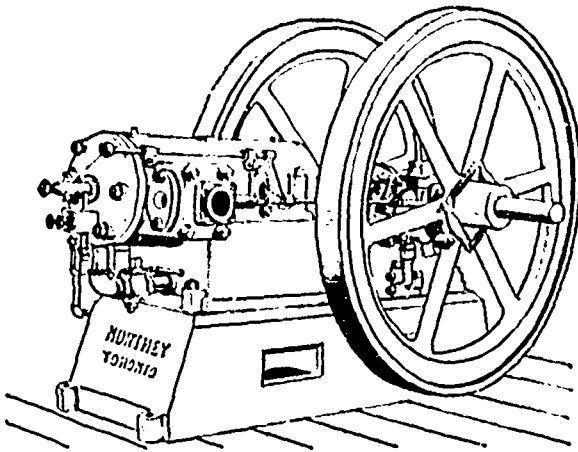
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**THE DOMINION PARLIAMENT.**

The Dominion Parliament was opened in due form this week, and a disposition seems to prevail on both sides of the House of Commons to expedite such business as may come before it. Never since Confederation was so little time given between the issuing of the proclamation calling both houses of the Dominion Legislature and the opening. The usual custom was to give about thirty days' time for the members to get ready to come to Ottawa to attend to their legislative duties. Not much more than half this time was given this year. The reason for this was that Parliament had to be called at this time or not until April 6th, as the Easter holidays came between the 23rd and the 6th, and it is customary to adjourn over Good Friday.

The Government programme for the session is not likely to be a very long one, although there will be a number of important measures introduced. An effort will once more be made to put through an insolvency bill. This will occupy considerable time in both houses.

It is also probable that a copyright bill will be introduced into this question. Canada is still working under its 1875 act, as the Imperial Government refused to sanction legislation of a few years ago in respect to this intricate question.

The applications for public and private bills are greater this session than has been the case for several years past. Altogether there are ninety-three applications. Of these, thirty-eight are for the incorporation of companies, forty-six are for amendments and acts already passed, six are for bills of divorce one is a winding-up act and two are for the extension of letters patent. There are 'we' e applications for railway charters and the incorpor. companies in connection with the Yukon.

The Government will meet Parliament with its voting strength increased. During the recess the Liberals captured Bagot, a strong Conservative constituency in the Province of Quebec. For the first time since Confederation, Bagot will be represented this session by a Conservative. Since the last general election there have been thirty-five bye-elections. Of these the Government carried thirty-three and the Opposition two. Two constituencies will be vacant when the House meets. Both were represented by Government candidates last session. Winnipeg, which becomes vacant by the death of R. W. Jameson, and Levis, by the death of Dr. Guay, cannot be represented at the opening, as the time is too short to hold elections there before that date. The writs, however, will be issued at once, and before the Easter holidays are over both ridings will be represented in Parliament.

No doubt Sir Wilfrid Laurier and the other Commissioners to the International Convention are very much disappointed that a treaty was not negotiated, the general opinion is that they have done the right thing, but they have not yet lost hope of an agreement, and it is evident that the American commissioners share this view or they would not have consented to an adjournment to meet in Quebec on August 2nd next. As matters now stand it will be impossible to discuss the question in Parliament with any degree of satisfaction because no report can be given by the Government, but it will be impossible to prevent members referring to the negotiations in debating the address in reply to the speech from the throne, as reference will no doubt be made in the speech to the commission.

The Government have had an excellent opportunity to learn the temper of the country regarding reciprocity, and it is to be hoped that that question will be laid away, not to be again resurrected for many long years.

**PROTECTION WOULD BRING THE INDUSTRIES.**

Our esteemed contemporary, The Mail and Empire, prints an editorial as follows:—

A Scottish firm, one of the largest textile manufacturing concerns in the world, is about to build on the American side of the Niagara a branch factory to be run with electric power supplied from the Falls.

If the power on our side of the river had not been tied up by the unwise and unpatriotic deal of the Ontario Government, we should doubtless now have been in a position to compete for these great works, and would likely have got the preference.

Some time ago we had to forego the chance of getting a big establishment for manufacturing seamless tubes, because we were unable to furnish power on our bank.

The only obstruction to the development of the Canadian side of the Falls into a great industrial centre is the Ontario Government.

From which it is to be inferred that if the power of Niagara Falls had been developed on the Canadian side the two industrial concerns alluded to would have located in Canada. But The Mail and Empire should know that the Scottish textile manufacturing concern did not cross the ocean to make goods for consumption in Canada, but in the United States, and that it could not manufacture goods to any better advantage in Canada than in Scotland for consumption in the United States. Being desirous of manufacturing for the American market, and to avoid the payment of high duties, the company very logically concluded to build a factory in the

country where the goods were to be sold. If that concern sells any of its products in Canada they will undoubtedly be made in Scotland, but the goods for the American market will be made in the United States. So much for the protection that protects.

It is ridiculous, too, to suppose that "a big establishment for manufacturing seamless tubes" declined to start works in Canada because electric power was not available on the Ontario side of the Niagara river. There are hundreds of available places in Canada where electric and water power could be had for such a purpose and the company was not kept away by its inability to obtain electric power at Niagara Falls, Ontario.

Neither is it true that the only obstruction to the development of the Canadian side of the Falls into a great industrial centre is the Ontario Government. It will not be long before that development will have been effected, but the full benefit to be derived from it will not be apparent until the Dominion Government give proper and necessary tariff protection to the industries that should naturally be inaugurated there.

THE GASOLINE ENGINE.

As will be observed in our advertising pages, quite a number of most reliable manufacturers are building gasoline engines, which, they say, are excellently adapted to all classes of work up to the requirement of thirty-five or forty horse power. The reputations of these manufacturers are sufficient guarantee that the construction of the engines is up-to-date and first-class in every particular; and the vouchers that they show from the users of them are to be accepted as good evidence of their ability to perform all that is promised for them. In many cases the gasoline engine is to be preferred to the steam engine, and this for obvious reasons; and as they are virtually self-contained, cost less money than steam plants, are more easily handled, they are rapidly winning their way to popular favor.

One of the chief claims of the gasoline engine to the consideration of power users is its compactness. Unlike the steam engine, which requires in addition to a more or less expensive foundation for itself, another one for its boiler and furnace with connecting piping, the gas engine is a self-contained machine and can be set in position anywhere with a minimum of expense. From this fact it would seem specially to commend itself to those who have water power for a part of the year, but desire an auxiliary during times of low water or a substitute in times of no water. Comparatively little room being required, it will be found much more convenient to install than a steam plant, and, not needing an open fire or a smokestack, the fire hazard is appreciably lessened. The fact is not overlooked, of course, that storage will be required for gasoline to be used as fuel, especially by isolated plants. But with the modern appliances for safety there is no occasion for special danger from that source.

The economy of the gas engine as a heat engine, while a secondary consideration to that of its commercial economy to most people, is yet a point of considerable interest. While the steam engine is credited with an efficiency of only seven to ten per cent., the gas engine gives from twelve to fifteen per cent., and some of the newer engines claim even greater economy than this. As the cost of attendance is also con-

siderably less for the gas engine, the commercial economy is increased to a greater extent. An English mechanical paper states that in some experiments made in Scotland, while it required 600 to 700 cubic feet of gas to produce one horse power by evaporating water in a boiler and then using the steam in a steam engine, 100 to 150 cubic feet gave a horse power when burnt in a gas engine. The same paper claims that experiment has shown that the cost of attendance on a gas engine plant is as three to eight for a steam plant. The advantage over the latter in interest and depreciation was as 7.5 to ten.

The drawback to the use of the gas engine is that one kind of fuel only can be used, it must have either gas or gasoline. It is understood, of course, that there is virtually no difference between the gas and gasoline engine; some minor differences of detail about the igniter in some of them being all. There can be no using of waste products for fuel, such as a steam plant can often utilize and so change what would frequently cause considerable expense to get rid of, into a source of profit.

A correspondent of The American Miller, who is a flour miller and who includes a gas engine in his power plant, states that owing to scarcity of water he was compelled to abandon steam and adopt gasoline. He says:—

Our mill is a thirty-five barrel one, having also corn mill, feed crusher and hominy mill. We had never seen a gasoline engine at work, so were doubtful as to its action in driving mill, but were offered one on thirty days' trial, so we took out the steam engine (leaving it conveniently near) and had a thirty-five horse power gasoline engine attached to mill to see what it would do. That engine is still there, and we could not be induced to have it displaced by a steam engine. Its motion is as steady as a clock, and there is no perceptible variation in speed, whether the engine is running with loose clutch pulleys, or carrying the whole load. We can put on any or all the machines in mill, and the engine will apply the needed power itself, as the governor controls the supply of gasoline. This economy of speed will be appreciated by any miller who may use this power. It is easily started, five minutes being sufficient to oil up and start in.

It is more economical than a steam engine (unless fuel is handy and cheap). Steam costs us \$3.50 per day, gasoline costs from \$2.10 to \$2.25. We use from thirty to thirty-three gallons in twelve hours. We do not require the services of an engineer. While this engine, like any other machine in mill, requires attention, it does not need a special attendant, so we save the wages of one man. After it is started and the gasoline supply turned on, all it requires is lubrication. We believe the time is coming when gasoline will supersede steam as the motive power in small mills.

It is evident that the gasoline engine is here to abide with us.

CANADIAN REQUIREMENTS FOR PIG IRON.

The total quantity of pig iron imported into Canada during the past two years was as follows:—

Fiscal year ending June 30.	1897.	1898.
Charcoal pig .....	2,936	2,250
All others.....	25,792	37,850
Total .....	28,728	40,110

The production of pig iron in Canada for the past two years was as follows:—

For the calendar year.	1897.	1898.
	tons 58,007	*77,015

\*Estimated.

Total requirement, 1897, tons, 86,735; 1898, tons, 117,125

Consumption in 1898 over 1897—30,390 tons, an increase of nearly forty per cent.

IS THIS FAIR TRADING?

A summary recently issued by the United States Government of the commerce of that country gives a statement showing the values of merchandise imported into and exported from the United States in each of the last ten calendar years, together with the names of the countries from or to which imported or exported. For the purpose of comparison the following figures are taken for the calendar year 1889 (prior to the McKinley tariff), and for the calendar year 1898.

Countries from which imported :

	1889.	1898.
United Kingdom .....	\$179,566,373	\$111,361,617
Germany .....	84,647,712	77,679,016
France .....	74,562,421	55,714,489
Netherlands .....	13,362,956	13,306,087
Belgium .....	8,912,681	9,253,185
Dominion of Canada.....	39,322,578	30,450,208

Countries to which exported:

	1889.	1898.
United Kingdom ... ..	\$650,616,283	\$981,134,110
Germany .....	79,999,246	163,776,623
France .....	50,180,619	80,154,266
Netherlands .....	16,897,777	23,771,855
Belgium .....	23,425,982	46,517,745
Dominion of Canada.....	49,973,317	90,454,866

Taking imports and exports together, Canada, in 1889, ranked fourth in commercial importance and also fourth in respect of exports alone. In 1898 she still ranks fourth in respect of imports and exports combined, but in exports alone holds the third place, having largely outstripped France as a purchaser of United States merchandise. The exports to Canada in 1898 form eight per cent. of the whole exports of the United States. While Canada during the last ten years has increased its purchases from the United States threefold, the latter's purchases from Canada have barely maintained their own. The figures for exports and imports in 1889 show that under a fair tariff the resources of Canada enabled it to balance its imports from the United States by exports to the same amount.

Mr. R. H. Lawder, who gives much attention to the movements of trade between the two countries, sums up the situation as follows:—

The McKinley and Dingley tariffs were evidently framed to exclude Canadian products. If this had not been the design, why was Canada excluded from the operation of the Blaine reciprocity policy? Reciprocity was offered to all South America, whose purchases from the United States were hardly equal to those of Canada, while their sales to the United States amounted to ninety-three million dollars, as compared with thirty-nine millions by Canada. Why was reciprocity offered to Cuba, whose purchases from the United States were only twelve million dollars, as compared with sales to that country of fifty-six million dollars? It is not difficult to find the answer. United States politicians saw what an influential party in Canada was preaching with some effect the doctrine of dependence on the former country for prosperity, and that the party in power in Canada had not nerve enough to adopt vigorous reprisals.

Recriminations are useless. The question is as to what should be done. It is impossible to continue the practice of procrastination, and, as the result of the International Commission shows, it is useless to attempt the policy of conciliation. Canada has an immense volume of resources and products of kinds that will not admit of profitable export to Europe. If United States manufacturers and its population generally are to be prohibited by hostile tariffs from the use of these products, then Canada must shut out United States manufactures

and by the multiplication of its manufacturing population create perhaps even a better home market for its resources than could be found in the United States, even under a liberal tariff.

WORKMEN'S COMPENSATION FOR INJURIES.

Soon after the opening of the Ontario Legislature last month, Mr. Thomas Crawford introduced a bill intended to take the place in some particulars of the present Workmen's Compensation for Injuries Act, which does not merely shift the onus of proof from the plaintiff to the defendant—that is—from the employe to the employer, but provides that in every case of accident, no matter whether the employer is to blame or not, except where the accident is wilfully caused by the employe, the employer is liable—that is—he is liable for all accidents and not merely for his own negligence.

The fact that such a bill was liable to become law excited considerable uneasiness on the part of manufacturers in this province, and the Executive Committee of the Canadian Manufacturers' Association, considering that the members of the Association and manufacturers generally ought to be put in possession of all the facts, and given an opportunity to take such action regarding it as they might see proper, caused the entire bill to be reproduced in a Bulletin of the Association and sent to all the members and others, at the same time calling a general meeting of the Association, to assemble on March 2nd instant to consider the matter.

That meeting was held at the appointed time, and was largely attended by manufacturers from different parts of Ontario. The bill and the situation were very thoroughly discussed and a memorial was drawn up to be presented to the Attorney General by a deputation who were then appointed.

The memorial of the Association was as follows:—

From the speech uttered from the throne at the opening of the present session of the Ontario Legislature, it is known that your honorable Government intend introducing legislation respecting Compensation for Injuries to Employes, and as Bill No. 91, already introduced by Mr. Thomas Crawford, member for West Toronto, intended to amend the law with respect to compensation for accidental injuries to workmen suffered in the course of their employment bears directly on this subject, the Canadian Manufacturers' Association, which includes a large number of manufacturers doing business in Ontario, and who are employers of large numbers of employes, pray that they be heard in the matter.

We recognize the fact that the Act now in force should be amended in some particulars, but we hope that in making any amendments thereto, or in effecting any legislation bearing on the subject, no hardship will result to our manufacturers as employers of labor.

Referring to Mr. Crawford's bill, section 2, sub-section 2 (b), reads: "If it is proved that the injury to a workman is attributable to the wilful misconduct of that workman, any compensation claimed in that respect of that injury shall be disallowed." We beg to suggest that the words "wilful misconduct" be stricken out and the words "personal negligence or wilful act" be substituted therefor, the same as applies to the employer in the preceding clause.

We have compared this section 2 of Mr. Crawford's bill with the Act of the British Parliament of Aug. 6, 1897, to amend the law with respect to compensation to workmen for accidental injuries suffered in the course of their employment, and we find that section 2, sub-section (a) reads as follows.—

The employer shall not be liable under this act in respect of any injury which does not disable the workman for a period of at least two weeks from earning full wages at the

work at which he was employed; and we suggest that this proviso be inserted in Mr. Crawford's bill.

Section 3 of Mr. Crawford's bill, which has reference to limitation of proceedings, provides that the want of notice to the employer shall not be a bar to an action. We respectfully suggest that a proviso be added thereto to the effect that want of such notice shall not work to the prejudice of the defendant, while giving equitable compensation to employes.

Section 6 of Mr. Crawford's bill requiring that reports of accidents must be filed with the Provincial Secretary within ten days from date of accident would, in our opinion, work a manifest injustice to employers, and should be amended by requiring that the injured employe should, as soon as practicable after the occurrence of the accident, notify his employer thereof, after which, and within the ten days, the employer should report to the Provincial Secretary.

Schedule A, section 1, sub-section 3, paragraph (b) of Mr. Crawford's bill should be amended so as to require that the injured employe seeking redress should from time to time submit himself for examination by a competent physician or surgeon at a place to be agreed upon between the employe and the employer; and in the event that no such agreement could be arrived at, then the place should be named by the county court judge.

In some particulars we consider Mr. Crawford's bill to be an improvement on the British act, particularly where it provides that disputes are to be settled by the county court judge instead of by arbitration, and that the limit for compensation for injury is fixed. These features of the bill enable both the employe and the employer to more easily understand what their respective rights are; more speedily adjust their differences and to avoid what would otherwise be unnecessary expense.

The following gentlemen composed the deputation:— Messrs. John F. Ellis, president; J. J. Cassidey, secretary; W. K. McNaught, American Watch Case Co.; P. W. Ellis; Col. Gartshore, McClary Mfg. Co., London; J. R. Barber; John Milne, Burrow, Stewart & Milne, Hamilton; P. Hobson, Hamilton Blast Furnace Co.; A. W. Thomas, Copp, Clark & Co.; and M. Langmuir, Langmuir Mfg. Co.

The deputation were well received by the Attorney General who seemed very much interested in the statements and explanations that were made by several of the gentlemen, Mr. Hardy stating that it was the intention of the Government to introduce a bill on lines somewhat similar to that recently passed by the British Parliament, but not so far reaching in its effects, and that the representations of the speakers on behalf of the Association and the manufacturers generally would receive due consideration.

Mr. Crawford's bill has been given the six months' hoist.

The Attorney General has, according to his promise, (on March 8th) introduced his bill, the most important features of which are as follows:—

Section 2 provides that where the machinery of a factory through or by reason of which the injury complained of was inflicted or occasioned is, by the Ontario Factories Act, or any other Act of the Provincial Legislature, or of the Parliament of Canada, required to be covered, guarded, protected or suitably enclosed, in whole or in part, then upon any trial or arbitration under The Workman's Compensation for Injuries Act, or this Act for the recovery of damages for injury to a workman arising out of the neglect on the part of those required to keep the said machinery properly guarded, and it is material to the issue on the trial or arbitration, the onus of proving that the same was so kept shall be upon the party to the action whose duty it was to so keep the machinery.

Section 3 provides that notwithstanding anything in The Workman's Compensation for Injuries Act, except where the claim is in respect of an injury resulting in death, all claims for damages may be disposed of by arbitration.

Section 4 provides that where a workman claims compen-

sation for an injury and desires to proceed by arbitration, he shall within four months from the date of the injury serve a notice upon the employer to that effect. If the employer objects to an arbitration he shall within eight days serve notice on the claimant that he will apply to a High Court judge for an order that the proceedings shall be by action as heretofore, and not by arbitration. The judge on hearing the application shall direct how the proceedings are to be carried on, unless notice of objection as aforesaid is given, within ten days after the service of notice of arbitration, the employer shall be deemed to consent to arbitration.

Section 5 provides that in case the proceedings are to be by arbitration the claimant shall obtain an appointment from the judge of the County Court of the county in which he resides, or in which the injury was received, and shall serve a copy of such appointment upon the respondent with a notice of the time so appointed. The judge shall name the day, hour and place for the hearing of the case.

Section 15 provides that where the amount of compensation payable under The Workmen's Compensation for Injuries Act has been ascertained by agreement between the parties a memorandum thereof shall be delivered to the clerk of the County Court, which shall become and be a judgment of that court and enforceable as such.

Section 16 provides that the duties by this Act imposed upon the judge of the County Court, and upon the clerk and other officers of the court shall be part of their duties as officers of the County Court, and no fee shall be payable to the judge except a fee of \$10 in connection with any arbitration, or to any officer other than the ordinary fees for similar work. Any sum awarded or agreed upon as compensation shall be paid on receipt of the person to whom it is payable under any agreement or award, and his solicitor or agent shall not be entitled to recover from him, or to claim a lien on, or to deduct any amount for costs from the said sum awarded except such sum as may be awarded by the judge.

Section 17 provides that any party to an arbitration may appeal to a Divisional Court of the High Court of Justice.

In any arbitration under this proposed Act, the claimant shall not be limited to the amount recoverable in a County Court action, but may recover the same amount as is provided in case of actions under The Workman's Compensation for Injuries Act.

Nothing contained in the proposed Act shall oblige a claimant to proceed by way of arbitration, and he may bring an action if he so desires. The Arbitration Act shall not apply to arbitration under this proposed Act.

## FUEL OIL AND THE TARIFF.

In our last issue mention was made of the fact that a number of Canadian manufacturers who use large quantities of fuel oil in their business, and who feel outraged at the operation of the combination between the Standard Oil Company and the Grand Trunk and Canadian Pacific Railway Companies, had held a meeting in Toronto at which they resolved to request the Dominion Government to remove the duty on fuel oil imported into Canada. Their reasons were quite fully set forth in our article.

A large and influential deputation of these manufacturers waited upon the Government at Ottawa on March 3rd, stating in brief that the price charged for fuel oil, a necessary raw material in their business, is exorbitant, that the Canadian supply is unequal to the demand, that the import duty is prohibitive, and that nothing would relieve the situation but the immediate transfer by Order in Council of fuel oil to the free list. Sir Wilfrid Laurier confessed that the removal of duties was never a heart-breaking operation to him, but he added that there are usually two sides to a question and that both

must receive consideration by the Government. The members of the Government present were:— Sir Wilfrid Laurier, Sir Richard Cartwright, Sir Henri Joly, Messrs. Mills, Patterson, Tarte and Blair.

Mr. A. E. Kemp, of the Kemp Manufacturing Co., Toronto, as chief spokesman for the deputation, in presenting the case said that he and his fellow-manufacturers were in trouble and had come to the Government for assistance. The price of fuel oil, he said, had been increasing very much of late. Its use became general about ten years ago and for a long time the price had been as low as eighty cents a barrel at Petrolia and Sarnia. Lately \$1.15 and \$1.25 had been charged, and since the Standard Oil Company has got control of the Canadian output a determination had been manifested to advance the price thirty per cent. Not only had this advance taken place, but manufacturers had been unable to get a supply of oil. There was not sufficient of it to meet the requirements of the manufacturers, and it could not be brought from the United States because the duty was prohibitive. The duty was two and one-half cents per imperial gallon, equal to 100 per cent. ad valorem, and by the addition of the freight from Ohio the protection enjoyed by the Canadian product was equal to 150 per cent. Mr. Kemp was particular to state that the manufacturers did not want to place themselves in an anomalous position in regard to the duty on this commodity. They felt that they were justified in asking the Government to remove the duty by Order in Council, that those industries which were closed up at the present time for lack of fuel oil might continue in operation, and that those that were threatened with an oil famine, but which had not been forced to close down, might suffer no interruption. They felt that they were not interfering with the producer in any sense because the commodity did not exist in Canada in a sufficiently large quantity to be protected. In short, the supply did not meet the demand. Fuel oil, he explained, was the product of the crude article. It is that which is left after everything that can be extracted has been taken out. The reason of the scarcity is that new uses for by products have been found, and more of these can be taken out of the crude than formerly. The oil producers offer another product in substitution for the grade of fuel oil that has been used up to the present time, but that was of such a low specific gravity that it could not be used advantageously with the present facilities. Mr. Kemp said that the manufacturers would not be before the Government if it could be shown that what they were asking would interfere in any way with the owners of the oil wells. They would be willing that the owners should have a fair average ad valorem rate of protection. If oil were put on the free list, the Canadian producer would have a protection of forty per cent. by reason of the freight rate from Ohio. It was a well-known fact, he said, that the Canadian oil fields could supply only about two-thirds of the crude oil required in Canada, and that the other one-third had to be brought from the United States. The manufacturers would not have appeared before the Government if they had been able to get plenty of oil, but the supply had been cut off. We are asking what the Government, I think, will concede as fair. We ask that the product which is our raw material shall be obtainable, provided it does not interfere in any sense with the producer in Canada.

Mr. J. K. Osborne, speaking for the Massey-Harris Company, introduced his remarks by saying that personally he was a protectionist, and he thought he voiced the sentiments of the deputation generally when he said that they did not desire to do anything that would in any way hurt any other industry in Canada. He placed the consumption of fuel oil in Canada at about 1,500,000 gallons, representing a value of about \$60,000, which, he said, was a mere bagatelle to the Standard Oil Company. They would not, he believed, object to a removal of the duty, excepting, perhaps, that it might involve a loss of prestige.

Sir Richard Cartwright—You stated a moment ago that

you were a protectionist. Is there any class of protectionists who would object to the removal of the duty or who would suffer by it?

Mr. Osborne—I do not think anybody would suffer. I am quite willing that proper protection should be placed on this article. In the meantime, the protection is 150 per cent. as compared with the twenty per cent. which we enjoy on our finished product. Mr. Osborne, continuing, said that his firm was extremely busy as they were filled up with foreign orders. They gave employment to 2,000 men. They had advanced the wages all around ten per cent., but if they could not get a supply of fuel oil it would be necessary to close their factory. If the relief were to be effective it must be immediate.

Mr. Evans, representing the Dominion Bridge Company, read a letter from his office, saying that they had been unable for a week to get enough fuel oil, and that they had been obliged to order a carload from Buffalo at eight cents. They added that unless relief were afforded they would have to close their works.

Mr. E. R. Thomas, speaking for the H. A. Lozier Company, said that coal could not be made a substitute for fuel oil in the process of brazing bicycle joints. "If any industry in Canada," he said, "is hurt let us have an average protection, but if sufficient of the product cannot be procured in this country, then let us get it at the prices our competitors in the United States pay. In addition to the price to our competitors in the United States we have to pay the freight from Ohio. The oil is piped from Lima to Toledo at a rate which is hardly worth considering, while we are charged a heavy freight rate."

Col. Gartshore, speaking for the McClary Manufacturing Company, of London, explained how impossible it was to substitute coal for fuel oil in the process of manufacturing enamel ware, because it was necessary to have combustion without smoke. The oil at present supplied is from 32 to 35 degrees gravity, but the Standard Oil Company seeks to substitute a baser product, which is almost of the consistency of tar, and which cannot be run through the pipes provided for fuel oil now supplied.

Mr. Williamson, representing the Diamond Glass Company of Montreal and Toronto, said that the factories of his company had to be occasionally shut down for want of fuel oil, so scarce had the article become.

Sir Richard Cartwright asked Mr. Kemp if he had had any communication with any of the oil producers in Lambton or Middlesex.

Col. Gartshore, answering the question, said that he did not know that the producers were an independent body, free from the influence of the Standard Oil Company.

Sir Richard Cartwright—Were these parties aware of your intention to apply for the removal of the duty?

Col. Gartshore—No, we have not consulted them.

Sir Wilfrid Laurier replying to the deputation, acknowledged the importance of the interests represented, and summarized their request by saying that they asked first that the duty should be removed, and second that it should be removed by Order in Council without waiting for the meeting of Parliament. He said that he was not certain at the moment whether the Government had the power to remove the duty by Order in Council, but the Minister of Justice would have to enquire into that. As for the more important question, whether or not they should remove the duty, he said that it had never broken his heart when duties were to be removed, but there were always two sides to every question, and they would take the matter into their serious consideration. They would endeavor to give the deputation an answer at as early a date as possible.

The following concerns were represented at the interview:— F. W. Fearman & Co., Hamilton; Ingersoll Packing Co., Ingersoll; Gould Bicycle Co., Brantford; Verity Plow Co., Brantford; Sydenham Glass Co., Wallaceburg; McClary Mfg. Co., London; Canadian Packing Co., London; Gananoque Spring & Axle Co., Gananoque; D. F. Jones Mfg. Co., Gan-



anoque; Geo. Gillies Co., Gananoque; Diamond Glass Co., Hamilton and Montreal; Canada Switch Co., Montreal; Wilkinson Plough Co., Toronto; Kemp Mfg. Co., Toronto; Massey-Harris Co., Toronto; H. A. Lozier Co., Toronto; Northey Mfg. Co., Toronto; Dominion Bridge Co., Montreal; Canadian General Electric Co., Toronto; the Laing Mfg. Co., Montreal.

The question has been raised whether the Governor in Council has the power to accede to the request of the manufacturers to remove the duty on fuel oil. The Customs Act of 1898, section 245 (1), gives authority as follows:—"For transferring to the list of goods which may be imported into Canada free of duty, any or all articles (whether natural products or products of manufactures) used as materials in Canadian manufactures; and any such materials transferred to the free list by such Order in Council shall be free of duty of Customs for the time therein appointed for that purpose." This provision has been interpreted by the Department of Justice in another case as meaning that the article to be placed on the free list by Order in Council must be a component part of a manufactured product, and that it is not sufficient to claim that it is used in the process of manufacture. Fuel oil when used in various processes of manufacture is not a component part of the product, and it may be held that the power to transfer it to the free list rests only with Parliament.

The situation seems to be as follows:—The supply of Canadian fuel oil is not equal to the demand. The supply ten years ago was more than equal to the demand. A shortage now exists that can only be made good by imports from the United States. The quality of fuel oil now offered to consumers, either Canadian or American, is not as good as it was ten years ago. The deterioration of quality is due to the fact that a larger number of products are now obtained during the processes of manufacture than ten years ago. The fuel oil now produced is of a character that requires different appliances for its combustion than what were used ten years ago. The change of appliances involves more or less expense, which, together with the increased cost of the fuel, increases very largely the cost of manufacturing. There seems to be no immediate remedy visible for the increased cost.

#### EDITORIAL NOTES.

Mr. George Johnson, Dominion statistician, says that the first international electric railway operating between Canada and the United States was the Calais and St. Stephen Electric railway, the first car of which crossed the bridge over the St. Croix river from Calais, Maine, to Mill town, New Brunswick, in July, 1891; and the first car over the bridge between Calais and St. Stephen, New Brunswick, crossed in June, 1895. On July 1, 1898, the Niagara Falls Park and River railway sent its first car over the bridge spanning the Niagara river from the town of Niagara Falls, Ontario, to the town of Niagara Falls, New York.

A few days ago when a large and influential deputation of Canadian manufacturers waited upon Sir Wilfrid Laurier, Premier of Canada, with reference to a tariff matter, he stated that the removal of duties was never a heart-breaking operation to him. Sir Wilfrid is not a believer in tariff protection. As a contrast to this episode; in a speech which President McKinley delivered before the Commercial Club, of Boston, Mass., on February 17th, he said:—

We have quit discussing the tariff and have turned our attention to getting trade wherever it can be found. It will be a long time before any change can be had or any change desired in our fiscal policy, except to strengthen it. The differences on this question which existed have disappeared. We have turned from academic theories to trade conditions, and are seeking our share of the world's markets.

Our esteemed contemporary, *Fibre and Fabric* does not approve to the fiat of the people of Boston that the house sparrow must go. It says:

Mayor Quincy ordered the sparrows killed, but the sparrows will be here when Mayor Quincy has gone out of office, and the sparrows will be here and will chirp over his grave just as though he had been a humane man. God made the sparrow and man made buildings. It is the buildings that have encroached on the rights of the sparrow. He is a hardened sinner who will make war against God's creations.

How about snakes and mosquitoes and vermin of all sorts including recalcitrant Cubans and Philipinos and Southern niggers? It depends very much upon the view point whether war is justifiable against God's creations.

Beginning with March 11th inst., "The Electrical World" and "The Electrical Engineer," both of New York, will be issued weekly as one publication, to be known as "Electrical World and Electrical Engineer," under the editorship of Mr. T. Commerford Martin and Mr. W. D. Weaver, and the business management of Mr. James M. Wakenan, until recently of The American Machinist, and Mr. A. C. Shaw. The combined journal will be conducted along broad and well determined lines as a high-class representative of the American electrical industry and of the electrical engineering profession. The best features of the original journals will be retained, and others introduced with the definite object of producing an electrical periodical without rival in its special field. By thus combining, to the obvious advantage of the reader and the advertiser, the effort heretofore divided between the two leading weekly electrical publications, a technical and industrial journal will be produced that should worthily represent the important field covered, and rank among the great engineering and industrial periodicals of the world.

Canadian Hand Book of Steam and Electricity, adapted to the requirements of persons in charge of the operation of steam and electrical appliances. By Wm. Thompson, published by the C. H. Mortimer Publishing Company, of Toronto. The information contained in this exceedingly useful book was specially prepared by Mr. Thompson to meet the requirements of persons desirous of qualifying themselves to undertake the successful management of electrical and steam appliances. The preparatory chapters are devoted to a concise explanation of the foundation principles of mathematics, a knowledge of which is absolutely essential to the study of electricity and engineering. In the succeeding chapters the student is led by gradual stages to a more complete acquaintance with these subjects, and becomes equipped with knowledge sufficient to enable him to pursue his researches to any further extent within the compass of his abilities and opportunities.

The Manual of Receipts, being a collection of the formulæ and processes for artisans, giving the composition of various alloys, amalgams, solder, bronzes, lacquers, varnishes, cements, etc.; also data for the preservation and decoration of various metallic articles compiled from the files of the American Artisan and other sources, by Sidney P. Johnston, 1899. The American Artisan Press, Chicago, with the compliments of Daniel Stern, editor. As the title indicates, this Manual is exhaustive in its character and invaluable in the technical and other information it contains. Not many years ago, the publication of a book such as this would have been impossible, as metal workers guarded their secrets with the most jealous care, and would, under no consideration, give any information as to the composition of the various means they used in carrying on their work. The strides taken by analytical chemistry has changed all this, and recent years have seen publicity given regarding many processes absolutely unknown before. The compiler cautions those attempting practical applications of the receipts given in the book, to be careful that their ingredients are proportioned with precision, and in event of a failure at first attempt, to make a second trial.

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### WEST AFRICA AS A TRADING FIELD.

South Africa has for so many years past absorbed the attention of the whole world by virtue of its fabulous mineral wealth, that it has altogether dwarfed other and certainly older parts of the erstwhile "Dark" Continent, which merit, if not an equal share of interest, at least a far larger proportion of consideration than is usually bestowed upon them. The British and South African Export Gazette draws attention to the claims of the West Coast of Africa, with the object of affording some clearer indications than have hitherto been forthcoming of the extent and importance of its trade; the classes of manufactures which there find a market; and the facilities it affords for the expansion of commerce. It should have considerable interest for manufacturers, in that it will serve to show that new and valuable fields are lying idle and awaiting exploitation by capitalists.

The whole of this long littoral, together with its hinterland, approximating in area to 2½ millions of square miles, and supporting a population of between fifty and sixty millions, is, under the energetic exploitation of European Colonial houses and concession-holders, now being rapidly developed and opened up according to modern ideas. Civilization in its march towards the interior carries with it, into a land sunk during many centuries in barbarous obscurity, order and light, substituting for the primitive, inadequate and stationary methods characteristic of the Ancient World the more active and progressive tactics of the nineteenth century; displacing the human bearer by the railway, the system of barter by that of currency, the rude native handiwork by industries carried on with up-to-date machinery, and according to the most advanced scientific methods. It supplements the facilities afforded by natural harbors by artificially made wharves

and piers; pierces the trackless wilderness by railways; fords rivers and torrents by means of bridges; it places the territories in touch with the rest of the world by the telegraph and regular services of steamships; it encourages labor by creating a sale for produce; and it constantly opens out new markets for the fruits of the manifold industries of the congested populations of Europe. To-day the volume of commerce of these regions may be roundly stated at fourteen or fifteen millions sterling, of which not quite half may be regarded as imports. In 1893 the total trade amounted to less than nine millions sterling, so that, roughly, the increase has since been at the rate of about one million annually. Exact figures are, however, extremely difficult to obtain, on account of the absence of complete statistics in connection with territories belonging to countries like France, Spain and Portugal. Nevertheless, the totals given may be taken as under rather than over the true level. What is chiefly interesting to us is the preponderating proportion of British trade with nearly all these territories. Of the grand total of imports in 1897—£5,839,000—as much as £3,046,096 represented the value of the produce and manufactures from the United Kingdom, in addition to £323,852, the value of goods shipped in British vessels, but being the produce or manufactures of foreign countries or British colonies. In 1893 the total imports amounted to £1,652,186, British goods being of the value of £2,611,798, while those consigned in British vessels without being of British origin were £298,197. The principal articles of English manufacture shipped to all these territories are cotton goods, piece goods alone amounting to £853,712 in 1897, the total of all cotton goods consigned to West African ports exceeding £1,500,000 in value annually. The articles comprising British exports are, however, numer-



ous and diversified, Mr. G. E. Wolby, Secretary to Her Majesty's Legation at Brussels, enumerating nearly seventy classes of English goods consigned to the Congo Free State alone, where, however, the share which the trade of Great Britain enjoys is comparatively small. The Commissioner of the Niger Coast Protectorate, on the other hand, complains of the inadequate variety of articles sent by English firms. This latter gentleman (Sir R. Moor) also severely impeaches shippers who consign to West African shores shoddy articles of every description. Whether the impeachment is levelled at British merchants, or against those American firms who manufacture a flimsy article elegantly got up for the purpose of selling, and not for use, is not clear. But his strictures are linked with the best possible advice to whosoever is or would be a trader on the West Coast. He says, truly, that the native who purchases a chair which, with the greatest care, will fall to pieces within a fortnight, will be most likely to return to his old native seat for the rest of his natural life; while similar mistrusts might be expected from one who had purchased an umbrella which either would not open or remain open with safety, or was not guaranteed to keep out ordinary rain. Such dishonest practices in trade are the methods best calculated to lose it altogether. A "wooden nutmeg" policy, even if successful for a time, does not pay in the long run. While superfine articles are not as yet indispensable to native requirements, serviceable articles are always so. A splendid opening for Home manufactures is presented in the West African markets. Those markets are capable of almost indefinite expansion, and it is within the bounds of possibility that the prosperous Southern shores of Africa may ere long find a powerful compeer in those of the West.

It is a singular fact worth mentioning, that, although the British Colonies and Protectorates on the West Coast of Africa are not claimed to be of greater natural wealth than the combined territories of all the other foreign and independent States, yet the trade of the former exceeds by nearly three-quarters of a million sterling that of the latter, although the territories are scarcely one-third as large. The reason for this undoubtedly is the greater commercial aptitudes of our merchants and traders, who, in spite of alleged shortcomings and conservatism in methods, by their very insistence, thoroughness and honesty, carry everything before them. The British possessions and protectorates on the West Coast comprise Gambia, Sierra Leone, the Gold Coast, Lagos, the Niger Protectorate, and the territories of the Royal Niger Co. These together have an area of some 621,000 square miles, and a population estimated at nearly thirty millions. The aggregate value of imports amounted in 1897 to £2,808,064, against £2,474,836 in 1893. Of these the United Kingdom contributed produce and manufactures to the value of £2,054,821, compared with £1,767,063 five years previously, or an increase of £287,758. In addition to this, foreign and colonial goods were carried in British vessels to the various ports to the amount of £235,982, against £213,261. The total exports were of a value of about £3,600,000, or an increase of about £640,000 on those of 1893. The proportion of exports shipped to the United Kingdom amounted to £2,467,496, against £1,748,134 five years previously. These figures, which, by the way, are exclusive of the territories of the Royal Niger Co., of which statistics are not available, show that of the whole volume of the trade of British West Africa the proportion in the hands of British merchants and the British mercantile marine amounted to £4,758,299, or 74 per cent.

#### GAMBIA.

This is the most northerly of British possessions in West Africa, as it is also the smallest, comprising an area of only twenty-one square miles, and a population of 15,000. The Colony consists of trading stations along the banks of the Gambia, besides several islands in the river. The port is Bathurst, an enterprising place which claims to be the handsomest town on the West Coast. It has anchorage up to fourteen fathoms close to the town. The Administrator,

in his report for 1897, speaks of that year as one of the most prosperous in the history of the Colony, and he records the fact, indicative in itself of successful enterprise, that several substantial trading stations had been established during the year. The gross total of imports was £110,000, an increase on the average value for the previous four years of about £25,000. Imports from the United Kingdom amounted to £70,803, principal among them being cotton, £52,221, against £24,292 in 1896; metals, £2,675; and firearms, £1,140. The other chief articles imported under four figures were apparel and haberdashery; bags and sacks; beer and ale; earthenware, china and glass; hardware and cutlery; leather and manufactures; British and Irish spirits; wooden goods; and woollens and worsteds. The exports comprise chiefly caoutchouc and nuts, and also palm oil and wax. For the further development of the place more European settlers are required. Trade with the industrious native population is on a cash basis.

#### SIERRA LEONE

is a more important colony and lies between French Guinea and Liberia, having an area of 4,000 superficial miles, and containing a population of 136,000. Its coast line is 185 miles in extent. Freetown, the capital, has the best harbor in West Africa, is a thriving place with a large shipping business, and having a municipal council and a Chamber of Commerce. The land in the immediate vicinity of the town being wholly barren, the inhabitants are mostly employed in the goods forwarding traffic to the interior and in bringing the native products to the Coast. The imports in 1897 were valued at £457,389, against £417,460 in 1893, of which the United Kingdom contributed £377,508 and £325,829 respectively, and foreign and colonial countries, per British vessels £26,865, compared with £25,167. The principal imports from the United Kingdom in 1897 were, cotton, £146,779 (the total imports from all sources being £160,012); apparel and haberdashery, £11,378 (and from all sources £27,189); leather and manufactures, £1,105; woolen and worsted goods, £5,224 (and from all sources £10,253); umbrellas and parasols, £3,413; metals, £26,028; hardware and cutlery, £3,004; machinery and millwork, £1,941 (the metal goods from all countries amounted to £12,624); telegraphic material, £713; earthenware and glassware, £5,168; beer and ale, £1,732; and British and Irish spirits, £5,354. The exports totalled £400,248, of which £188,948 were consigned to the United Kingdom. They consisted of caoutchouc, gun, hides, ivory, nuts, ginger, pepper, palm oil, etc. The customs revenue amounted to £82,887, an increase of £5,999 on the preceding year. The aggregate tonnage of vessels entered and cleared in 1897 was 1,084,745, of which 1,068,743 tons represented that of steamers. The tonnage was forty-five per cent. more than in 1893, the figures being steadily progressive year by year. The steam lines serving the Colony are the African Steamship Co., and the British and African Steam Navigation Co. The line of railway to the interior was commenced in 1896, and at the end of the following year was opened for the transport of goods for about twelve miles, although the rails were laid to Waterloo, nine miles further inland. The first section of this line, that to Songo Town, has since been completed, and a twenty-five mile extension to Rotifunk is now under construction. The projected pier at the port will afford further convenience for ocean-going steamers.

#### THE GOLD COAST COLONY AND PROTECTORATE

on the Gulf of Guinea has an area of about 90,000 square miles, and a population estimated at 1,500,000. It has a number of trading stations and ports on the coast, of which the principal are Accra (the seat of government), Addah, Saltpond, Appam, Axim, Cape Coast Castle, Christiansborg, Elmina, Quitta and Winnebah, most of them places of considerable importance, while 150 miles up-country is the well-known trading post of Kumassi. The commerce of this important territory has been steadily on the increase since the remaining Dutch forts were ceded to England a quarter of

century ago. In 1893 the total imports amounted to £718,353, and by 1897 they had risen to £784,188. The British contribution to this trade in 1897 was £526,411, or seventy per cent. of the whole. Textile manufactures (cotton, woolen and silk) were imported to the extent of £281,790, the United Kingdom's share being:—Cottons, £226,750; woollens, £4,603; and apparel and haberdashery, £12,156, thus leaving only £38,881 to be supplied from other countries. Of metal goods the value landed was £55,077, the proportion supplied from England being £37,438, divided as follows:—Machinery and millwork, £7,722; implements and tools, £2,699; hardware and cutlery, £6,336; and other metals, rough and manufactured, £20,681. There were also imported from this country umbrellas and parasols (articles of first importance on the West Coast) to the value of £3,455; wooden goods, £12,032; spirits, £6,118; cement, £4,847; and earthenware and glass, £5,027. Large quantities of beads are among the goods landed, but this trade is almost wholly in the hands of Continental firms. Other leading imports were rice, flour, provisions, tobacco, building materials, etc. Of exports the value in 1897 was £857,793, against £722,107 in 1893. The principal articles of export are caoutchouc, ivory, gold dust, nuts, palm oil, palm kernels, kola nuts, skins and furs, timber and wooden furniture. Of the exports amounting to £857,793, £581,904 (of which rubber £391,106) were shipped to England. In 1893 the exports were valued at £722,107. It will be noticed how largely rubber figures in the exports, yet it has been stated that were the supply double what it is the present price would still be maintained owing to the innumerable industrial uses to which it can now be put. Timber (particularly mahogany) exports are steadily increasing, the port of shipment being Axim. In 1893 only 3,407,226 feet were exported; in 1897 the amount was 15,236,216 feet, valued at £90,569. Coffee and cocoa cultivation is progressing satisfactorily, and other natural products being experimented with are jute, cinnamon, cotton, arrowroot and fibre. The gold reefs in the western district—Wassau and Appollonia—are declared by experts to be similar to those of the Witwatersrand. Three or four companies are at work but hampered by the difficulty of getting machinery from the Coast. The Government are seeking to help the industry by pushing on the construction of a railway from the Coast to Tarquah, the centre of the gold district, which, when completed, will contribute greatly to its development. A new mining law giving security of holding is also being draughted. In addition to the railway to the gold fields, the survey for a line from Accra to Kumassi has been made, while a line from Sekendi to Tarquah through the mining and timber districts was begun early last year. In 1897 a permanent telegraph line was laid to the capital of Ashanti, and this has since been extended to Kintampo, another 200 miles up country. The increase of traffic has also rendered necessary the duplication of the Accra to Cape Coast line. There are now twenty-six Government telegraph stations in the Colony, seventeen on the coast and nine in the interior. The tonnage of steamers visiting the various ports in 1897 was 580,277, against 553,794 in the previous year. There can be no doubt that since the opening up of the Ashanti district the Gold Coast Colony has rapidly risen in importance, and larger fields for enterprise are awaiting development.

## LAGOS.

Of equal commercial importance with the Gold Coast is Lagos, situated some fifty miles to the east of it, and separated from it by Togoland and Dahomey. The extent of this district may be estimated at about 15,000 square miles, although Lagos proper is but 1,071 square miles in extent. The population is said to be about two millions, the thriving town of Lagos accounting for 32,000. This busy port, which possesses a Chamber of Commerce, is the medium for the trade of the extensive and important districts lying between the Niger River and the Coast. The imports in 1897 amounted to £770,510, of which the share contributed by the United Kingdom was £574,937, showing a substantial in-

crease of £224,416 on the figures for 1893. The growth of British trade with this colony has been continuous, the principal items in 1897 being cottons, £262,617; apparel and haberdashery, £13,355; silk, £15,191; woollens and worsteds, £3,690; umbrellas and parasols, £1,666; hardware and cutlery, £9,329; implements and tools, £2,751; machinery and millwork, £5,255; other metal goods, £63,300; spirits, £2,712; cement, £2,768; earthenware and glass, 7,542; and wooden goods, £8,186. The exports are similar to those of the Gold Coast, with which it has much in common. Mahogany is a new article of shipment. To the United Kingdom were exported goods to the value of £1,160,943. In 1897 trade was not quite so good as in the previous year, but this was owing, it was said, to methods of trading forced (or supposed to be forced) on merchants—viz., speculation, long credit, and advances to irresponsible natives. The disquietude resulting from political events in the hinterland, and a very dry season, had possibly a great share in the unsatisfactory trade result. A railway, together with the bridges, to connect the town of Lagos with Iddo Island and the mainland at Ebuto Metta, is in course of construction, twenty-five miles of which were already laid at the close of 1897. The hope is entertained that the railhead will reach Abeokuta, fifty miles inland, by the latter part of the present year. A telegraph line has been completed to Saki, 150 miles in the up-country, with a branch to Jebba, about 300 miles up the Niger. A drainage and water supply scheme for the town of Lagos, and the deepening of the bar in the river, are among the public works under consideration.

## THE NIGER COAST PROTECTORATE.

on the Niger delta, includes several important ports, the chief being Old Calabar, the seat of Government, Bonny, Opopo, and New Calabar, besides the inland stations of Sapele and Warri, and six garrison posts, which will form the nuclei of trade. The imports amounted in 1897 to £655,977, against £624,017 in 1893, the British proportion in 1897 being £505,162, in addition to £103,031 foreign and Colonial goods carried in British vessels. Cottons were imported from the United Kingdom to the extent of £224,660; apparel and haberdashery, £12,363; silks, £15,037; woollens and worsteds, £6,121; umbrellas and parasols, £3,130; hardware and cutlery, £8,694; machinery, £2,439; metals, £39,163; and British and Irish spirits, £15,355. There is a large import of drugs and medicines, both here and to other West Coast ports, and it is stated that the natives are inclining to the use of the necessaries and comforts of civilized life more than formerly. The exports to the United Kingdom amounted to £546,466, against £295,669 in 1893. Palm oil and caoutchouc are the principal exports, but generally the same articles are shipped as in the cases of Lagos and the Gold Coast. The trade of the country has been recently somewhat upset by the imposition of new customs dues, and the raising of others. In particular the augmentation of the duties on spirits has resulted in lessened imports of this article. While however, dutiable imports declined, free imports, among which may be mentioned hardware and cutlery, woolen goods and earthenware, have shown satisfactory increases. What is important to Home firms is the advice tendered by Sir R. Moor, the Resident Commissioner, regarding the imports, which in his opinion are not of sufficient variety nor of the quality to foster trade. In many cases he says, they are of such inferior quality as to prejudice the establishment of a stable trade and steady demand throughout the territories. He, however, admits that it is difficult to define the directions in which greater variety might be introduced, as for this purpose some enterprise and speculation on the part of the merchants are requisite. It must be borne in mind by exporters that they are not catering for a civilized community and that in introducing trade goods the demand will have to be created by the importation of articles which are in all probability unknown to native purchasers. In the case of agricultural implements, intelligent inquiry with regard to the actual requirements of the native would probably show

that a large trade in such articles could be opened up; also in household furniture and tools for native industries, which would have to be made to suit the needs of native workmen. As examples of the class of goods prejudicing future trade, Sir R. Moor mentions imported chairs which, even with the greatest care, came to pieces in about a fortnight; clocks which were only guaranteed to work for ten days; and umbrellas which were not guaranteed to keep out ordinary rain, or to open with safety, or even to remain open. His concluding remarks are worthy of attention: "It does not appear to me that selling to the native shoddy articles of any description whatever is a policy likely to lead to a good demand in the future." An opening for ship builders is afforded by the intimation that several new launches are required for patrol and coast transport. The authorities have under consideration the displacement of brass rods, copper wire, cowries, and Manila coins, used as currency, by English money, and the introduction of English weights and measures. The establishment of a bank here is also considered likely to be carried out within the next year or so.

#### THE ROYAL NIGER CO.

Of the territories of this chartered and limited company forming the hinterland of Lagos and the Niger Coast Protectorate, accurate statistics are not available. The region is estimated at about 500,000 square miles in extent, and is said to contain a population of twenty-five millions. The capital is Asaba, near the mouth of the Niger. The imports and exports are similar to those of the other Guinea Coast territories. Imports are admitted practically free, but there are dues upon the exports. The Royal Niger Co., have the exclusive right of navigating the Niger, upon which they have thirty steamers. There are within its borders between forty and fifty trading stations.

#### FOREIGN POSSESSIONS.

The neighboring foreign territories on the West Coast affording more or less opportunity of British trading are Togoland and the Cameroons, belonging to Germany; the Ivory Coast, French Guinea, French Congo and Dahomey, belonging to France; Angola, San Thome, Principe, and Portuguese Guinea, dependencies of Portugal; and Spanish Corisco Bay and the islands of Fernando Po and Annobom. There are also the independent territories known as Liberia and the Congo Free State, the latter being allocated to the West African Coast solely by virtue of the fact that its only seaport is at the mouth of the Congo. These thirteen territories have an aggregate area of about 1,900,000 square miles, and an approximate population of thirty millions. Their combined trade may be valued at upwards of six millions sterling, and their exploitation is proceeding rapidly, such figures as are available showing that the United Kingdom has no mean share in their development.

#### THE GERMAN COLONIES.

Togoland, the narrow strip of German territory between the Gold Coast and Dahomey, has a superficial extent of about 60,000 square miles and a population of 850,000. The principal towns are Tomo (the seat of government), and Klein Popo, which are places of considerable commerce. Three English firms are located at the former and two at the latter, the other merchant houses being French and German. The colony is reported as thoroughly paying its way, being in this respect unique among German Colonies. The Cameroons, to the south of the Niger territories, are far from self-supporting. They comprise a district 181,000 square miles in extent, and contain a population of about 4,500,000. The combined imports of Togoland and the Cameroons amounted in 1897 to £365,797. The figures given for 1895, the earliest available, are somewhat in excess of these. The share of British trade has increased in volume, being 91,320 in 1897, as compared with £66,418 two years previously. Among the imports from the United Kingdom may be mentioned cottons, to the value of £48,656; and apparel and haberdashery, £5,389 (out of a total for textile goods of about £75,000); hardware and cut-

lery £2,020; and other metal goods, £5,292. The total exports in 1897 amounted to £280,000, of which a large proportion were shipped to the United Kingdom. They consisted principally of palm nuts and oil, India rubber, ivory, ebony, cacao, and kola and cocoa nuts. There are fifteen firms in the country, of which eight are German and seven English.

#### THE FRENCH COLONIES.

French Guinea, the Ivory Coast, French Congo and Dahomey have a gross area of about 250,000 superficial miles, and a population of between two and three millions. Of their many ports and trading stations, English merchants are established at Conarkry, on Tombo Island, a calling station for steamers trading on the Coast; Conta, Coyah, Donninghia, Dobreka, Farecaria, Pharmoriah and Victoria. The imports in 1897 were probably about £450,000, of which £401,224 were English goods. The principal articles contributed by this country were cottons, £288,996; apparel and haberdashery, £4,302; hardware and cutlery, £3,070; other metal goods, £11,570; British and Irish spirits, £2,274; and manufactured wood, £4,136. In 1893 the imports from the United Kingdom amounted to only £153,122. The total exports in 1897 were valued at £350,000, of which £312,430 went to England.

#### THE PORTUGUESE COLONIES

of Angola and Portuguese Guinea have a superficial extent of 528,600 square miles, of which the proportion of the former is 517,000 square miles. The population of the two is stated to be about five millions. Angola is a country of large commercial importance, for besides offering a splendid market for the introduction of European commodities, it has flourishing manufactories of its own, such as rum in large quantities, tobacco, besides cotton and wollen articles for native wear. The principal port is Loanda, which is also the capital of the Colony. It is a handsome town with a distinctly European appearance, and includes among its conveniences two railway stations, an abundant water supply, a complete gas lighting installation, and a commodious harbor with good anchorage. The railway has been recently extended to Ambaca, nearly 200 miles into the interior. The trade of this port alone is valued at over a million sterling annually. Other ports are Ambriz, 20 miles to the north of Loanda, Cabinda, Landuna, St. Philippe de Benguella, and Mossamedes. The last two are especially flourishing, and from St. Philippe a railway runs to Catumbella, where at active commercial intercourse with the natives is carried on. British exports to Angola in 1897 amounted to £360,121, a slight falling off compared with previous years. The principal items were:—Cotton, £131,105; machinery, and millwork, £6,042; hardware and cutlery, £2,331; and other metal goods, £16,240. The exports to the United Kingdom amounted to £116,554. The Belgian Vice-Consul at Mossamedes states that the ploughs, axes and hatchets, and saws imported are chiefly of American make; Sheffield and Birmingham firms having the principal trade in padlocks, cutlery, sickles, and spades and shovels. A good opening exists for chains for Boer ox carts, which should be in 7-foot lengths. Of Portuguese Guinea little need be said. It comprises a district about 11,600 square miles in extent, with a native population of about one million and a-half. The principal ports are Bulama, Bissao, and Cacheu. Its trade is said to be exclusively with France and the Cape Verde Islands, the imports consisting of brandies, firearms, gunpowder, and cotton cloth, and the exports of palm oil, hides and skins, ivory and wax. San Thomé and Principe, two small islands in the Gulf of Guinea, have together an area of 117 square miles, and a population of 26,000. The town of San Thomé contains about 24,000 inhabitants, and steamers from Lisbon call there twice every month. San Antonio is the chief port of Principe. The British Consul is resident at Loanda in Angola. The imports consist chiefly of farming implements, sacks and provisions, and the exports are cocoa, of which about 20,000 cwt. are shipped, palm kernels, copra, and chinchona bark. All trade is done through Lisbon.

## THE SPANISH POSSESSION

of Fernando Po in the Bight of Biafra, together with the still smaller island of Annobon, and the shore of Corisco Bay on the Cameroons mainland, have an area of about 1,500 square miles, and a population of 50,000. The United Kingdom exports to these colonies merchandise to the amount of about £10,000 annually. Cotton goods are the principal articles shipped, reaching to about £1,000, the others being apparel and haberdashery; hardware and cutlery, metals (wrought and unwrought); British and Irish spirits; provisions; arms, ammunition, and military stores; coal and wood (wrought and unwrought). The exports of Fernando Po are palm oil and cocoa, valued at £20,000. Liverpool and Barcelona are the chief markets for cocoa, and the former and Hamburg for palm oil. Isabel, the principal port of the island, has excellent anchorage up to 14 fathoms. The exports of Corisco Bay are rubber, ebony, ivory, barrwood, palm oil, and kernels. Several English firms are established in these colonies.

## LIBERIA.

This independent native Republic is located between Sierra Leone and the Ivory Coast, has an area of 48,000 square miles, and a population of one million and a half. Separate statistics of its trade were not available until 1897, in which year the imports from the United Kingdom amounted to £31,963, of which £12,741 represented cotton goods, and £3,102 metals. The chief port is Monrovia, the capital, a well-built and flourishing town. The chief exports are caoutchouc, ivory, palm oil, nuts and kernels.

## THE CONGO FREE STATE.

In respect of this territory, it will be only necessary to mention Boma, situated on the river Congo, the State itself more properly belonging to the Central African group than to the West Coast. Through the port of Boma, which is also the seat of Government, the entire imports from Europe pass into the country. In 1897 these amounted to £937,087, as against £405,936 in 1893. British goods were valued at £91,867, and although rather higher in amount than for 1896, were lower than for previous years, the figures in 1893 being £103,662. British cotton goods in 1897 amounted to £51,153; hardware and cutlery, £1,644; machinery, £1,274; wooden goods, £8,186; and woollens and worsteds, £3,630. Of the long list of British merchandise imported into this State there figured beer, boats, bricks, candles, cannon, cartridges, cement, camping outfits, copper wire, carpets, cotton, crockery and earthenware, drugs, furniture, glassware, harness and saddlery, haberdashery and perfumery, ironmongery, iron bars and nails, jewellery, clocks, etc., machinery and tools, oil cloth, paints and varnishes, petroleum and tar, spirits, sailcloth, soap, shawls, and tobacco and cigars. The total exports were valued at £702,283, those to the United Kingdom being no more than £13,859.

Such, then, is a brief glance at the commerce of the West African States and Colonies, which, with a population of

between fifty and sixty millions, having a trade of less than fifteen millions sterling, or a proportionate ratio of about 9s. per head. The extent to which this is open to improvement is shown by the fact that the trade of South Africa is equal to £11 per head. The expansive and profitable trade opening which the West Coast of Africa thus affords to British firms needs little further enforcement.

## BEDSTEADS AND CORDAGE IN BRITISH GUIANA.

Consul Moulton sends from Demarara the following information in regard to the import of these articles into British Guiana:—

“Stump bedsteads, measuring from six feet to six feet six inches by two feet six inches to three feet: French bedsteads, with top and bottom rails, from six feet six inches by three feet to four feet six inches; or with one inch posts and brass rails, in same sizes; four post bedsteads, with seven-eighths of an inch posts and no foot rail; or with one inch or 1½ inches, no foot rail, all in above sizes, or with two-inch posts, no foot rail, in sizes six feet six inches by four feet six inches to five feet—are the varieties imported. They come principally from Birmingham. The manufacturers' prices are: Stumps, from \$2.76 to \$2.94; French, from \$5.14 to \$5.88; French, with one-inch posts and brass rails, from \$7.32 to \$8.04, four-post bedsteads, in the sizes above stated, from \$5.28 to \$15.36. Discount, forty-five per cent. and five per cent. They retail at 33½ per cent. on landed cost, the latter including the ten per cent. duty and sixty per cent. on first cost. Transportation charges are from \$6 to \$7.20 per ton measurement of forty cubic feet. The goods are packed in cases for the better quality; the others in straw and bagging.

“Of rope, 301,908 pounds are annually imported from England and 20,921 pounds from the United States. Of twine, 53,655 pounds represent the average yearly import from England, and 1,079 pounds from the United States. The varieties include manila, sisal, bolt, tarred, spun yarn and gasketing, brown and colored, sewing and seaming twine. The retail prices are: Manila, from twelve to sixteen cents per pound; sisal, eleven to fourteen cents; bolt, twenty cents; tarred, sixteen cents; spun yarn, ten to twelve cents; hemp, twelve cents; and flax gasketing, twenty cents a pound. Transportation charges are 30s. to 35s. (\$7.29 to \$8.51) per ton weight from England, \$4.50 to \$5.50 from the United States. The import rate is \$1 per cwt., and two cents per pound on twine. Each coil is covered with bagging. Brown twine comes in from two-ounce to one-pound balls, and colored in from four-ounce to half-pound balls, put up in packets of twelve balls each. Ropes are shipped in coils of from sixty to 120 fathoms, and measure from one-fourth of an inch to six inches; manila and sisal, bolt and tarred, usually sixty fathoms, and from one-half inch to four inches. Spun yarn comes in bundles of from seven to ten pounds. Gasketing comes in coils of about twenty-eight to thirty-two pounds.”

# Transfer Ornaments, AMERICAN MADE.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

For **HARDWARE, BICYCLES, VEHICLES, POTTERY, FURNITURE, etc.**

Sketches submitted free of charge. Being home makers can deliver promptly. Write us.

## THE MEYERCORD CO., Inc., MAIN OFFICE— CHAMBER OF COMMERCE, - CHICAGO.

NEW YORK OFFICE—805 St. James Building.  
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Largest Makers in the World Guaranteed Decalcomania Transfers.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

## CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser on these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, bolting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalies, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The Calhoun Lumber Co., Calhoun, N.B., has applied for incorporation with a capital stock of \$40,000.

The London Hat Cap and Mantle Manufacturing Co., London, Ont., has been incorporated with a capital stock of \$20,000.

The Middleton Marble & Granite Co., Hamilton, Ont., has been incorporated with a capital stock of \$20,000.

The Canadian Pacific Railway Co., will erect a new station at Woodstock, Ont., to cost about \$13,000.

The Strathroy Elevator Co., Strathroy, Ont., has been incorporated with a capital stock of \$2,000.

The Atlin Lake Lumber Co., Vancouver, B.C., has been incorporated with a capital stock of \$25,000.

The Sturgeon Falls Electric Light & Power Co., Sturgeon Falls, Ont., has been incorporated with a capital stock of \$20,000.

The Ottawa Building Co., Ottawa, has been incorporated with a capital stock of \$200,000.

T. D. Adams, of the firm of Adams, Flannigan & Co., New York, intends erecting a pulp mill at Bathurst, N.B., which will cost about \$200,000 and will have a capacity of thirty tons per day.

The Lake Manitou Gold Mining Co., of St. Paul, have placed an order with the Jenckes Machine Co., Sherbrooke, Que., for a ten stamp mill to be erected on their property near Wabigoon, Ont.

The Farmers' Union Elevator Co., Grotna, Man., are applying for incorporation with a capital stock of \$10,000, for the purpose of carrying on the elevator business.

Belleville, Ont., has decided to purchase road machinery, and will expend \$3,500 on a steam crusher and roller.

The John Sykes Mining and Milling Co., of Toronto, have purchased from the Jenckes Machine Co., Sherbrooke, Que., a ten stamp mill, engine, boiler, and saw and shingle mill, to be erected immediately on their property near Dinowic, Ont.

A new tobacco factory will be established in St. Roch's, Que., to cost about \$10,000.

The Empire Tobacco Co., Granby, Que., are erecting an addition to their present works.

Thomas Lord, of L'Epiphanie Station, Que., is increasing his plant by the addition of a thirty-five h.p. engine from the well-known builder, the Jenckes Machine Co., Sherbrooke, Que.

Samuel Leach's large machine warehouse, at Deloraine, Man., was destroyed by fire. The custom house was also scorched. Loss about \$10,000.

The premises of the Harriston Flax Co., Harriston, Ont., was destroyed by fire recently.

The Dominion Bridge Co., Montreal, have received a contract from Mr. W. G. Reid, contractor for all the iron bridges needed on the line of the new Midland Railway in Nova Scotia.

McKay Bros., East Hatley, Que., are putting in one of the Jenckes Machine Co.'s steam plants, consisting of a slide valve engine and horizontal tubular boiler.

The Electric Lighting Co., Megantic, Que., has been incorporated with a capital stock of \$10,000.

The Woodstock Metal Working Co., Woodstock, Ont., has been incorporated with a capital stock of \$5,000.

The Thomas Bell & Son Mfg. Co., Wingham, Ont., has been incorporated with a capital stock of \$95,000.

Mr. Geo. Long, of Sherbrooke, Que., whose increasing business requires more motive power, is about to install a twenty-five-inch Crocker turbine, in order that production may cope with the demand. The order was placed with the Jenckes Machine Company.

Vancouver, B.C., will vote on a by-law to raise \$100,000 to extend its waterworks system.

The merchants of Moosomin, Assa., propose to erect an elevator at that place.

Mr. W. D. Pettigrow, of Winnipeg, who is developing mines at Wabigoon, Ont., has placed an order with the Jenckes Machine Co., Sherbrooke, Que., for hoisting, crushing and pumping plants.

Dresden, Ont., will probably give a \$5,000 bonus for the erection of two canning factories and a grist mill.

Messrs. J. Wallace & Son, Hamilton, Ont., have recently shipped a thirty light acetylene gas generator to Calcutta, India.

Acetylene gas has become popular in Guelph, Ont. Mr. A. B. Petrie has installed a 200 light plant in his skating rink, a thirty light plant in his residence and one of the same size in his store. These machines were made by Messrs. J. Wallace & Son, of Hamilton, Ont.

The Kootenay Standard Publishing Company of Rossland, B.C., are having placed in their printing house one of the Royal Electric Company's S.K.C. induction motors to operate their printing presses, the power being furnished from the Kootenay long distance line.

The Royal Electric Co., Montreal, have received an order from the Hamilton Electric Light and Power Co., for 350 h.p. motors, and an additional order for a 500 h.p. S.K.C. two-phase synchronous generator.

## INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

## PISTON INLET Air Compressors

STRAIGHT LINE  
 DUPLEX and  
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

JAMES COOPER MANUF'G CO., Limited, - 299 St. James St., Montreal.

Other Offices - - - ROSSLAND, B.C. RAT PORTAGE, ONT. HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Ottawa Car Company have at present under construction six new cars for the Vancouver electric railway, and also several cars for the Montmorenci Railway Company. These cars are all longer than the usual street cars.

H. H. Shaver's sawmill at Shaverton, Ont., near St. Thomas, was destroyed by fire Feb. 28th, loss about \$5,000.

James Harrison, Niagara Falls, Ont., will shortly commence the erection of a four-story frame flour mill to cost about \$6,000.

The Wilson Carbide Works at Merriton, Ont., are now lighted by acetylene gas. The generator used is the "Ideal" manufactured by J. Wallace & Son, of Hamilton, Ont.

The Rat Portage Lumber Company is this season getting out 60,000,000 feet of logs. The Ontario and Rainy River Railway will be completed from Winnipeg to Rainy river next fall, this information has induced the company to plan the construction of a large sawmill in Winnipeg, the log supply to be shipped direct from the boom in Rainy river over the now railroad. The new mill will have a large capacity, and will supply all points on the Northern Pacific and Great Northern roads, which is a new field of operations for the company.

The Royal Electric Co., Montreal, have received an order from the Hawthorn Woolen

Mills Co., Carlton Place, Ont., for one of their twenty-five k.w. bipolar direct current generators.

The Canadian General Electric Co., Toronto, report the following recent sales:— A fifty light dynamo to be installed in Edmonton, N.W.T.; Evans & Hastings, Vancouver, B.C., a six kilowatt Edison dynamo; Guelph Light and Power Co., Guelph, Ont., a new 1,000 light single-phase alternator, together with marble switchboard panels for the control of two machines; Braid & Co., Vancouver, B.C., a ten h.p. motor, for use in their spice mills; Comstock Concentrator, Silvertown, B.C., a twenty-five light Edison dynamo, to be used in lighting their premises; Athabasca Gold Mining Co., Nelson, B.C., a 100 light Edison dynamo; Savoy Theatre, Vancouver, B.C., a 250 light incandescent lighting dynamo, of their multipolar slow speed type; Scottish Colonial Mining and Milling Co., Three Forks, B.C., a 100 light 16 c.p. incandescent dynamo; McKenzie Bros., Victoria, B.C., a six kilowatt Edison motor; B.C. Electric Railway Co., a twelve kilowatt Edison motor; Hoffmeister Bros., Vancouver, B.C., a twenty-five light incandescent lighting dynamo; J. C. Woodrow, Vancouver, B.C., a three kilowatt Edison motor; Hinton & Co., Vancouver, B.C., a twenty-five light incandescent dynamo; C. E. Naylor, Essex, Ont., a 750 light machine.

The Packard Electric Co., St. Catharines, Ont., have sent us an illustrated circular having reference to the Brunt's regulating socket, manufactured by them. This regulating socket is for 16 c.p. incandescent lights, and is adapted to direct or alternating current, any voltage from 50 to 118. By simply turning the key the volume of light may be raised or lowered in range from two to sixteen c.p. Of course this means a great saving of current when the light is turned down. This socket cannot but be a most valuable adjunct for the sick room, vestibules and sleeping apartments. The company will send particulars on application.

A Toronto syndicate, headed by Mr. J. A. Culverwell, have secured control of the Burleigh Falls water power, with a thirty-seven foot head and 3,000 minimum horse power, the proposal being to transmit one-half of the power to the town of Lindsay, Ont., thirty miles away, the franchises for town lighting for ten years, and revenue for power and lighting amounting to \$15,000 per annum. A company with \$200,000 capital, composed of Toronto and Lindsay citizens, is being formed. Peterboro is only twenty miles distant, and it is proposed to transmit the balance of power there and to other places.

The sawmill at Pine River, Man., on the Dauphin railway, owned by T. A. Burrows, was destroyed by fire Feb. 4th.

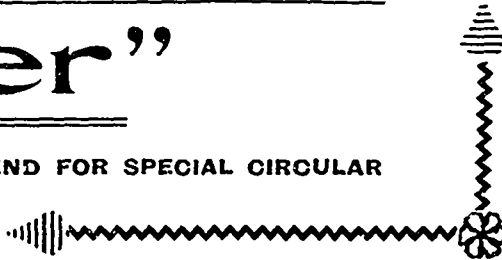
# THE WM. HAMILTON MNFG. CO., LIMITED,

Engineers and Builders

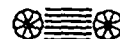
## MODERN MINING and MILLING MACHINERY

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SHAKES LIKE A PAN—SEND FOR SPECIAL CIRCULAR



Contractors for the Design and Construction of Complete Stamp Mills, Concentration, Chlorination, Cyanide, and Smelter Equipments....



Department "E"

PETERBOROUGH, ONT., or VANCOUVER, B.C.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



Mr. George Tye, of Tye & Co., importers of Melbourne, Australia, who was in Toronto a few days ago, stated that he had come to Canada to make purchases of Canadian goods for his firm, principally of furniture, of which he had already shipped a quantity. His firm, he said, had engaged in the manufacturing business, but the passing of a Factory Act by the Government of Victoria, fixing wages they were to pay their employes, the hours they should work, etc., had done them so much injury, together with Chinese competition, that they found it more profitable to import. There was, he said, a good demand not only for furniture, but for bicycles, agricultural implements, and other manufactured goods. Only a few years ago Canada was unknown in Australia, but since the visit of Sir Mackenzie Bowell they have taken much interest in this country, and Mr. Larko, at Sydney, is doing a great deal to bring Canada prominently before Australians. When he left Melbourne on 16th January, harvest was in progress, and the prospects were splendid.

Messrs. Wortman & Ward, manufacturers of agricultural implements, etc., London, Ont., will increase their capacity by the addition of a large three story brick wing. This addition to their already extensive works has been necessitated by the rapid increase of their business.

Andrew Holland, of Ottawa, has prepared an estimate of the various water powers in the Ottawa valley. His calculation is as follows: Ottawa river, 664,000 h.p.; Rideau river, 1,300 h.p.; Mississippi river, 14,700 h.p.; Madawaska river, 20,600 h.p.; Bon-nechere river, 3,400 h.p.; Petit Nation, 2,000 h.p.; Blanche river, 2,000 h.p.; Lioevres river, 98,450 h.p.; Little Blanche, 300 h.p.; Quyon river, 100 h.p.; Coulonge river, 27,600 h.p.; Black river, 24,000 h.p.; Gatineau river, 31,675 h.p.; total, 890,225 h.p.

A phonograph that is placed on a floor of some big store and that even in the dead of night, with not a living soul in the building, calls up the central telephone office in case of fire is the newest use this talking machine is put to. It is the happy idea of E. H. Kaufmann of Wizard Edison's firm, a little,

keen-eyed German with the hooked nose of the inventor and a fair moustache that curls up like the Kaiser's. The inventor told of its workings at the Rossin House last night. The building or floor where the phonograph stands is furnished with wires, which, when heated, set the machine talking over the wire to the telephone office. Besides being automatic, the phonograph on each floor tells its own story and the fire department, before arriving, know just on what floors to run their hose in. The new system is already working in Kansas City and is to be introduced at New Orleans.—Toronto World.

The town of Bothwell, Ont., have awarded a contract to the Canadian General Electric Co. for a 500 light plant, to be used for commercial and street lighting purposes. The lighting of the streets will be done by fifteen enclosed arc lamps of the latest type, which will be operated from the same machine.

The Fairbanks Co. have placed a large stock of their scales with Miller, Morse & Co., of Winnipeg, who will handle Fairbanks' Standard Scales, gasoline engines, and some of the other specialties of the Fairbanks Co. for Manitoba and the Northwest Territories. They will constantly carry in stock a full assortment of goods most commonly called for, and all inquiries for these products for this territory should be sent to them. It gives us much pleasure to notice the increasing volume of business that is being done by the Fairbanks Co. under the energetic management of Mr. H. J. Fuller, who has charge of their Montreal branch.

Letters of incorporation have been granted to Henry Mooers, and Associates, of Kingston, Ont., and Henry F. Mooers, of Goderich Ont., under the name of The Frontenac Milling Company, to carry on the manufacture of flour, etc., at Kingston, with a capital stock of \$50,000.

A sawmill has been erected by the Columbia Lumber Co., of Golden, B.C., at a point about two miles east of Notch Hill. The company's mill at Golden has been enlarged and supplied with new plant, which will increase the capacity to 80,000 to 90,-

000 feet per day. The new plant includes a complete new steam power plant of 400 horse power, and a machine shop. The company's mill at Moberly, B.C., was burned on Feb. 2nd.

A London, Eng., meat-packing company, Messrs. Campbell, Shearer & Co., propose to erect a half-million dollar abattoir, and cold-storage warehouse in Halifax, N.S., to have a capacity for handling annually 30,000 head of cattle, 30,000 head of sheep, and 20,000 head of swine. Of th. they would purchase in Nova Scotia, if the stock could be had, 10,000 head of each, the balance to come from the west.

The directors of the Minnehaha Gold Mining and Milling Company have purchased a five-drill air compressor plant, with an eighty horse power boiler, and all necessary equipments from the James Cooper Mfg. Co., of Montreal. This machinery is expected to reach the Minnehaha grounds in Camp McKinley, B.C., in about six weeks, when it will be installed and the new drills started in the drifts upon the ledge.

Messrs. Macphie and Meador, of Moulinette, Ont., propose erecting a \$10,000 mill of a 100 barrel capacity at South Finch, Ont.

The Ontario Wind Engine and Pump Company, of Toronto, are extending their business, not only in Canada, but abroad. Not only is the Canadian Air Motor serving mankind in England, Cyprus, Egypt, Australia, and giving universal satisfaction, but we also note that Her Majesty's Government in India have placed an order with them for a geared Air Motor on Steel Tower for running a dynamo, which is a new development in wind power. Canadian enterprise is winning its way all around the globe and we are pleased to understand that the Ontario Wind Engine and Pump Company are in a position, by their greatly increased facilities to share in bringing Canadian manufactures before the world.

An extensive addition is to be made to the biscuit factory of Christie, Brown & Co., Toronto, involving the expenditure of about \$20,000. The old part of the building is to be raised two stories, making the height five stories over all the factory.

### THE TORONTO PATENT AGENCY, (LIMITED).

TORONTO, CAN.

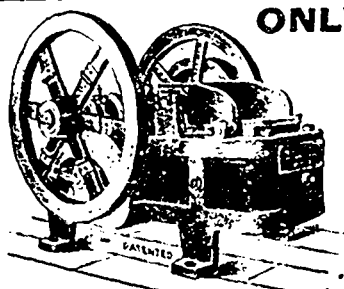
Head Office, 79, 80, 81 Confederation Life Building.  
CAPITAL, \$25,000.00.

Patents obtained. Patents sold on commission. Provincial rights sold. Most actual sales. Best results. Quickest work. Honest Treatment. Oldest company. Reliable references. All patent business promptly attended to. Valuation and prospects of any patent furnished on application.

## Pipe and Boiler Coverings, Engine Packings,

LUBRICATING OILS, GREASES, AND BOILER COMPOUND, COTTON WASTE, ETC.

## EUREKA MINERAL WOOL and ASBESTOS CO., 136 Bay Street, - Toronto.



ROLL JAW CRUSHER.

ONLY

# FINE CRUSHER

BREAKS LARGE, or when set close  
Reduces to GRAVEL and SAND.

FOR ORES.

STURTEVANT MILL CO., BOSTON, MASS.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Another important office building for Toronto is being planned by a syndicate which proposes to build a modern six-story edifice on Teraulay street, directly opposite the western entrance of the new City Hall. The building will be constructed almost entirely of iron and pressed brick. It will be modern in design and will possess several unique features for an office building. One of these will be an immense Turkish bath establishment in the basement, which will contain two swimming pools, one on either side of the building, each 47 feet long and 25 feet wide. A restaurant will also occupy part of the basement, and the first floor will contain the branch office of a bank and an insurance company. The upper floors will be devoted to some 200 offices and the promoters of the building say that they will be prepared to cut the rents of offices down to \$5 per month and to give for this sum light, heat, water and caretaking. With each office will be furnished a telephone, and there will be an exchange with switchboard and "hello" girls complete within the building. The estimated cost of the building will be \$150,000. It will have a frontage of 90 feet and a depth of 150 feet, and to ensure good light a passage 10 feet wide will run completely round it. The electric lighting plant will be situated with the engines and boilers

in another building in the rear, and no pipes will run through the building. They will be carried along the walls on the outside.

Mr. J. N. Wigle, of Ruthven, Ont., went to England some months ago to try to find a market there for the tobacco produced in Essex county. He has recently returned with Mr. F. Bailey, of Liverpool, who has long been connected with the tobacco trade in that country, and they intend to form a joint stock company to prepare the tobacco for the English market. "England can use all the tobacco we have on hand and all we can raise in fifty years," said Mr. Wigle, "but the manufacturers insist upon having it supplied to them just as they want it. We are accustomed to selling the leaf entire. The English manufacturers want it stripped and assorted, as is done in the United States. In Essex County we can raise the very lightest and finest tobacco, and it could not be distinguished from the best Sumatra wrapper. For the tobacco we raise we can get from eight to sixteen cents a pound in bond."

Mr. Thomas Drew, of Michipicoton, Ont., who was in Toronto a few days ago, speaking of the mineral riches of that region, says that the chief developments of the recent past are the bringing of copper and iron

mining to the front as strong competitors for popularity with gold mining. The iron of the district is of the red hematite character and the deposits are said to be very extensive. Mr. F. H. Clergue, of Sault Ste. Marie, Ont., and associates, are opening up the iron properties, and as soon as navigation opens they will commence the construction of a small tide-water railway. The iron mines lie about six miles from Lake Superior and the railway will be used to take the hematite to the water side, where it will be transhipped in boats to Sault Ste. Marie. Mr. Clergue, it is understood, will erect at the Canadian Soo large reduction works for the treatment of iron ore. The unsurpassed water power available at the Soo will greatly facilitate Mr. Clergue's operations.

### THE London Brush Factory

Practical Painters prefer to bridle their own brushes with twine. With the help of the **JENKINS PATENT BRIDLE CATCH.**

This is now easily accomplished. These Catches are attached to all our large Paint Brushes without extra cost.

Ask for **BRYAN BRUSHES.**

**THOMAS BRYAN, - London, Ont.**

## REDDAWAY'S ORIGINAL

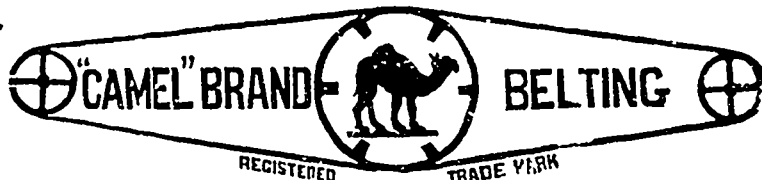
# CAMEL BRAND HAIR BELTING

**STRONGEST BELT MADE. NO STRETCHING.**

NOT AFFECTED BY DAMPNESS, HEAT OR STEAM.

WRITE FOR PARTICULARS. LARGE STOCK ON HAND.

Fire Hose, Steam Hose, General Mill Supplies.



**W. A. FLEMING & CO.,** SOLE AGENTS FOR CANADA, 57 St. Francois-Xavier St., Montreal

### The KAY Electrical Manufacturing Co.

HAMILTON, ONT.

Begs to announce that in future it will conduct its business under the name of

## The T. & H. Electric Co.

HAMILTON, ONT.,  
255-257 James St.

Phone 938.

TORONTO, ONT.,  
58 Adelaide St. W.

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### To Lease.

Two Large Four-Story Factories. One

140 x 40 ft.

The other 90 x 60 ft.

RENT, \$1,500 EACH PER ANNUM.

Well Lighted. Shipping facilities the very best by both rail and boat, premises being situated on water front at corner of

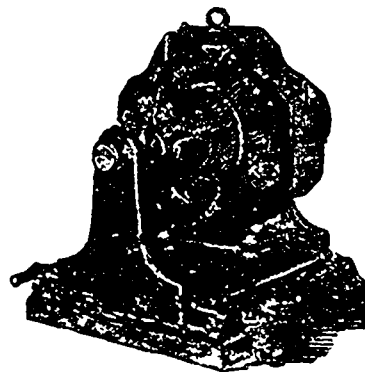
Esplanade and Jarvis Streets, TORONTO.

Possession 1st April, 1899.

Apply to.....

**TORONTO CARPET MFG. CO.**  
TORONTO.

### Electrical Construction Co. of London, Limited.



### MULTIPOLAR MOTORS & DYNAMOS

And Direct Connected Plants for Isolated Lighting.

Repair Work a Speciality.

HEAD OFFICE AND FACTORY:

No. 80 YORK STREET, London, Canada.  
700 Main St., Winnipeg.

42 York St., Toronto. 131 Granville St., Halifax.



Tenders for the new office building of the National Trust Company of Ontario, in Toronto, have been accepted. The contracts aggregate \$65,000.

An effort is to be made by some of the Canadian canners to establish a demand for canned peas in the English market, and work up an export trade in that direction. Heretofore, the French canners have had the monopoly of the pea trade. Some Ontario canners, however, are of the belief that they can participate in this trade, and they propose to try it. Mr. W. Boulter, of Picton, and Mr. L. A. Wright, of the A. C. Miller Canning Company, Picton, are to leave for the old country shortly to look into the prospects for establishing a pea export trade. Both these firms will make experimental shipments.

A petition signed by over seventy millers of Western Ontario has been forwarded to the Ottawa government praying that the harbor of Goderich, Ont., be deepened as speedily as possible to admit the largest grain-vessels now trading in the upper lakes. The petition recites that, under such an improvement, Goderich would become headquarters for the manufacture of flour, both for home consumption and for export to Europe.

The Farnham Corset Co., Farnham, Que., has been incorporated with a capital stock of \$12,000.

The Agriculturist credits E. D. Tilson, of Tilsonburg, Ont., with the possession of one of the finest farms in Canada. The farm consists of 400 acres in one block, and 200 acres, more or less, broken up into pasture. There is a water tower 150 feet high, which conveys water all over the place, part of the supply being used for irrigation. The main barn is of brick, 60x125 feet, and there is a brick annex 16x48 feet. There are two hog buildings of brick, each 40x80 feet, and two additions, one being 30x30 feet, and the other 20x80 feet. There are 75 milch cows on the farm. These are a cross between the Holstein and Shorthorn. The cows are milked thirteen to fifteen months and then allowed to go dry three or four months. There are five silos on the farm and they hold enough silage to carry the stock over two summers if necessary. In 1898 Mr. Tilson's herd averaged 10,242 pounds of

milk testing 3½ per cent. The best cow in ten months and twenty days gave 17,731 pounds of milk from which were made 765 pounds of butter. The ten best cows averaged 560 pounds of butter. Mr. Tilson is feeding at the present time 150 cattle, 150 hogs, and nine horses. There are over 1,000 sugar maples planted along the gravel drives on the farm, most of the trees being thirty years old.

The Consumers' Brewing Company, of Windsor, Ont., has been incorporated with a capital stock of \$4,000.

The Electric Boiler Compound Co., Guelph, Ont., has been incorporated with a capital stock of \$15,000.

The Canadian Steamship Company is not daunted by the detention of the *Gaspesia* in the ice in the Gulf of St. Lawrence, and has decided to continue the service to Paspébiac, and a new steamer named the *Metapedia* is scheduled to sail the last week in March. The *Metapedia* was formerly the steamer *Halsburg* of the North German Lloyd Line, and is a fine new vessel. After her will sail the steamer *Milford Haven*, formerly the *Werra*, on or about April 19th. Mr. Keating, the assistant manager, states that the contract had been signed to erect a mammoth grain elevator at Paspébiac, with the capacity of a million bushels.

Fritz Gleim, who was formerly superintendent of the Hudson County Furnace of the New Jersey Zinc Company, has severed his connection with the company named and has accepted the position of superintendent of the blast furnace of the Minerals Products Company, at Bridgeville, N.S. This company some time ago leased the charcoal furnace of the Picton Charcoal Iron Company, Limited, and expects to blow it in about May 1st. Its specialty will be ferromanganese, from briquettes made from Hillsboro manganese ore. The annual capacity of the furnace is 7,500 gross tons. The Bulletin.

The Hammond Gold Reef Mining Company has sent the following notice to its shareholders:— "Following the proposal contained in the annual report, the directors have contracted with the Jenckes Machine Company, of Sherbrooke, Que., for thirty additional stamps, fine vanners, crushers, aerial rope tramway, etc., and a portion of

the machinery has already been shipped. The directors have been most fortunate in being able to purchase in the immediate vicinity of the mine all the necessary lumber and timber which will be required for the additional buildings and dams, thereby effecting a great saving in cost. The contract for the installation of the electric power has been let to the Canadian General Electric Company, and it is fully expected that the forty stamps, driven by electric power, will be in full operation, crushing over 100 tons a day by Sept. 1st next."

Plans are being completed, under the direction of Mr. E. J. Lennox, for the reconstruction of McConkey's restaurant on King street, Toronto. The store immediately to the west of Mr. McConkey's establishment, which has been purchased for the purpose, will be taken in as part of the restaurant, making one of the largest places of the kind on the continent. The design shows that the spacious main floor will be converted into a large palm garden, divided into apartments for private parties, the interior fittings to be finished in staff and mahogany. At the south end a buffet will be placed. The upper flats will be divided into supper and ball rooms, the intention being to provide for the largest and smallest gatherings. Elevators will be run between the different floors, and highly-relieved staff will be used in the decorations throughout the building.

The Hamilton Brass Mfg. Co., Hamilton, Ont., manufacturers of the Hamilton cash register, have opened up a Toronto branch, where they make a splendid display of their goods. This makes the third Canadian branch office established, other branches having already been established in Montreal and Vancouver, as well as in Australia and South Africa. Although this company have been making cash registers for only three years, they employ over 170 hands and manufacture over ninety different styles of registers.

The Maganetawan Tanning & Electric Co., Maganetawan, Ont., has increased its capital stock from \$50,000 to \$100,000.

The Owen Sound Iron Works Co., Owen Sound, Ont., has been incorporated with a capital stock of \$20,000 to carry on the business of iron foundries, machinists, etc.

# The Crocker Patent Turbine

WE MAKE A SPECIALTY OF SUPPLYING

COMPLETE  
WATER POWER  
PLANTS

Designed to meet the working conditions in each instance, and to yield the highest efficiency obtainable thereunder. Every detail constructed in a thorough and substantial manner, and the whole equipment installed on the site by our own workmen, especially skilled in this class of work.

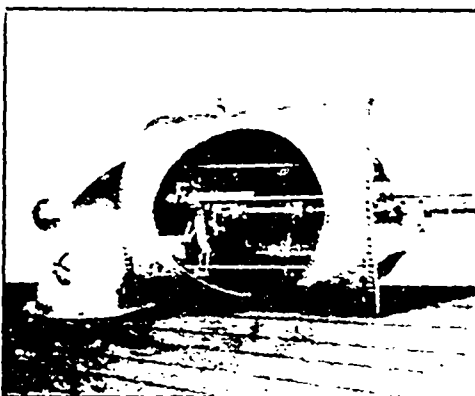
If you are interested in water power in any way, we shall be glad to take pleasure in supplying you with information regarding our work in the above line.

Catalogue Free on Request. Correspondence Invited.

## The JENCKES MACHINE CO.

42 Lansdowne St., Sherbrooke Que.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



35-inch Crocker Wheel in Horizontal Setting, for Shipton Electric Light and Power Co., Danville, Que.

A summary of the mineral production of Canada, recently issued from the Geological Survey, shows that in 1898 there was an increase in value of over \$9,000,000 or nearly 32 per cent. in the production of minerals as compared with 1897. The more important increases were: Gold, \$7,673,000; coal, \$924,000; copper, \$658,000; nickel, \$422,000. The increase in copper in Ontario was over 50 per cent. The total value of metals produced was \$21,622,601; non-metallic, \$15,884,596; and \$250,000, not returned. The increase in Yukon gold was \$7,500,000.

St. George's Cathedral, at Kingston, Ont., recently destroyed by fire, is to be rebuilt without delay.

The London Electric Co., London, Ont., has increased its capital stock from \$250,000 to \$500,000.

The Canada Atlantic workshops in Ottawa, are to be operated by electricity generated at the Chaudiere Falls. A contract has been closed between Mr. J. R. Booth and the Canadian General Electric Company for the appliances.

The Trent Valley Peat Fuel Company of Peterborough, Ont., has been incorporated with a capital stock of \$500,000.

The Minerva Manufacturing Co., Toronto, has been incorporated with a capital stock of \$50,000 to manufacture ladies clothing.

The Diamond Harrow Company of Windsor, Ont., has been incorporated with a capital stock of \$30,000.

The Canadian Camera Co., Montreal, has been incorporated with a capital stock of \$10,000, to manufacture cameras, dry plates, etc.

A carbide factory will shortly be erected at Ottawa. The Bronson-Weston mills, at the Chaudiere, are to become the site of it. Mr. James Sutherland, M.P., is one of the promoters.

The Ottawa Electric Company has begun extensive improvements in its power plant at the Chaudiere Falls. New buildings and heavy machinery will be added. A new flume will also be built, which will be twenty feet wide and will be closed in on one side by a cut of solid rock and on the other by an immense stone wall. It is expected that by the company's method of controlling the water flowing into the flume anchor ice will be avoided.

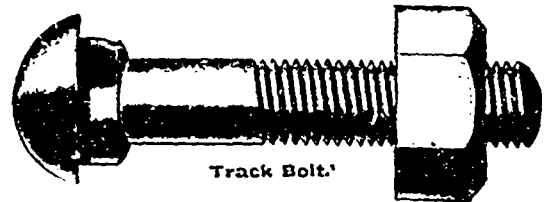
The Department of Railways and Canals has awarded the Canadian General Electric Co., Toronto, the contract for the erection of a power house and the complete equipment of the Soulanges Canal with electrical apparatus, for operating the locks, by means of electric motors. The entire canal will be illuminated by arc lamps.

The Canadian General Electric Co., Toronto, have made the following recent sales:-- Cunliffe & Ablett, Rossland, B. C., two standard fifty h. p. three phase induction motors; the Light, Heat & Power Co., Lindsay, Ont., 500 volt multipolar power generator; the Richillieu & Ontario Navigation Co., two standard direct connected 500 light generators, with Ideal engines and marble switchboards; Joseph Knox, Stayner, Ont., a 700 light single-phase alternating current dynamo; the Montreal Novelty Co., an electric light plant for lighting their factories at Louisville, Que.; the Alberta Railway & Coal Co., Lethbridge, N. W. T., a 150 light direct current generator; the Guelph Street Railway Co., Guelph, Ont., a standard 110 kilowatt six pole railway generators; the London, Ont., Electric Co., a standard 300 kilowatt revolving field type single-phase generator; Toronto Street Railway, a generator of the direct connected type, with a capacity of 850 kilowatts; T. Eaton Co., Toronto, a standard 130 kilowatt direct connected generators; Montreal Street Railway, ten G.E., 1,000 two-motor equipments; Montreal Cotton Co., Valleyfield, Que., three induction motors of ten h.p., fifty h.p., and seventy-five h.p. respectively; The Penman Mfg. Co., Paris, Ont., a 150 light direct current generator. Contract includes the wiring installation, etc.

**WE**

MANUFACTURE

*Track Bolts and Nuts,  
Bridge and Roof Rods,  
Wrot and Cast Washers,  
Railroad and Contractors' Supplies,  
Carriage, Machine, Plow and Special Bolts,  
Bridge and Boiler Rivets,  
Drop Forgings of all Kinds.*



Track Bolt.

SEND FOR ILLUSTRATED CATALOGUE.



Coach Screw.

**The SWANSEA FORGING CO., Limited**

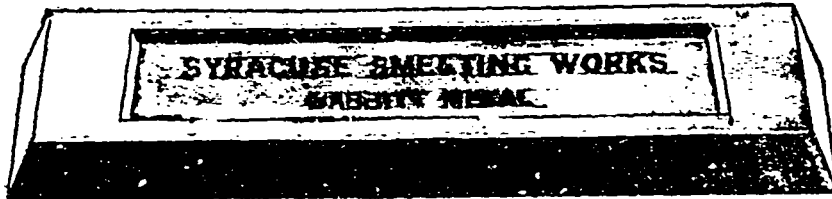
SWANSEA (NEAR TORONTO).

# Use Syracuse Babbitt Metal

IT IS THE BEST AND CHEAPEST FOR

Paper and Pulp Mills, Saw and Wood Working Machinery, Cotton and Silk Dynamos, Marine Engines and all kinds of Machinery Bearings.

WORKS:  
332 WILLIAM STREET,  
MONTREAL,  
Canada  
AND  
SYRACUSE,  
N.Y., U.S.



Pig Tin, Lead Ingot, Copper, Brass, Aluminum, Zinc, Spelter, Antimony, etc., furnished promptly.

**SYRACUSE SMELTING WORKS.**

AGENTS IN CANADA:--A. R. WILLIAMS MACHINERY CO., Toronto; MECHANICS SUPPLY CO., Quebec; JOHN J. BARRY, St. John, N.B.; H. H. FULLER & CO., Halifax, N.S.

The Royal Electric Co., Montreal, have installed a fifty h.p. "S.K.C." two-phase motor in the factory of the McPherson Shoe Co., Hamilton, Ont.

The Ottawa Suburban Electric Co., Ottawa, Ont., are asking for a charter to build an electric railway to Skead's Mills and Windermore.

The Royal Electric Co., Montreal, have recently installed a 100 h.p. "S.K.C." synchronous motor in the Iron Mask mine at Rossland, B. C.; also one of their "S. K.C." induction motors to operate the printing presses of the Kootenay Standard Publishing Co., Rossland, B.C.; and a thirty h.p. two phase "S.K.C." induction motor for Messrs. Lawry, Sons & Co., Hamilton, Ont.

The London Electric Co., London, Ont., have increased their capital stock to \$500,000.

The tender of John Macdougall, of the Caledonian Iron Works, Montreal, for furnishing a boiler for the waterworks of that city, has been accepted by the city council.

The Canadian General Electric Co., Toronto, have received an order from the British Columbia Electric Railway Co., Vancouver, B.C., for three C.G.E. 1,000 two-motor equipments, and four C.G.E. four-motor equipments, complete with controllers, resistances, etc. An order has also been placed with that company for a 500 kilowatt alternator.

The Goldie & McCulloch Co., Galt, Ont., are supplying a steam boiler to the railway commissioners of the town of Port Arthur, Ont., for operating the electric street railway there.

The Royal Electric Co., Montreal, have been awarded a contract by the town of Barrie, Ont., to supply 120 k.w., S.K.C., two phase alternating current generator for power and lighting purposes.

USE THE  
**..CHICAGO..**  
 NUMERICAL OR AUTOGRAPH  
**TIME RECORDER**

For Keeping Time of Employes.

The Record becomes visible the instant you register, thus producing an **ABSOLUTELY INDISPUTABLE and LEGAL RECORD.** The Only Recorder possessing this feature.

What users say of this feature:

We would not have a Time Recorder that did not possess this feature. A. BOLTER'S SONS, Chicago, Ill.

We would rather retain the old system than use a Time Recorder where this is not possible. A. S. KLEIN CO., Chicago, Ill.

We give a 30 days' trial free of charge. Send for Circular or notify our Agents and they will call.

CHICAGO TIME REGISTER CO., CHICAGO, ILL.

SOLE AGENTS FOR CANADA:

**W. C. BULLOCK & CO.,**

442 York Street, TORONTO, ONT.



Numerical (or Key) Recorder

**B. GREENING WIRE CO.**  
 (LIMITED)  
 WIRE MANUFACTURERS  
 & METAL PERFORATORS  
**HAMILTON  
 & MONTREAL.**

Wire Screens for Every Class of Material.

Perforated Metal of Steel, Copper, Brass, Zinc for all purposes.

Special Attention given to Miner's Requirements.

The  
**Canadian Gazette**

LONDON, ENGLAND

*A Weekly Journal*

Of Information and comment upon matters of use and interest to those concerned in Canada, Canadian Emigration and Canadian investment.

EDITED BY THOMAS SKINNER,  
 Compiler and Editor of

"The Stock Exchange Year Book,"  
 "The Directory of Directories," etc.

Every Thursday. Subscription, \$4.38 per annum

OFFICES.....

1 ROYAL EXCHANGE BUILDINGS  
 LONDON, E.C., ENG.

Advertisements—The charge for ordinary advertisements is 8d. per line of twelve words; and for Leader page advertisements, 1s. per line. The scale of charges for Dis-played Advertisements, Special Positions, and for a Series may be had upon application to the publisher.

**THE SOUTH AFRICAN  
 Trade Journal**

AND

**Shipping Gazette**

THE RECOGNIZED ORGAN OF  
 COMMERCE  
 FOR SOUTH AFRICA.

PUBLISHED MONTHLY AT CAPE TOWN,  
 SOUTH AFRICA.

It circulates throughout the Mercantile Centres of South and East Africa, including Cape Colony, Orange Free State, Transvaal, Natal, British Protectorate of Bechuanaland, Zambesia, etc.

Advertising Rates on Application.

**THE AMERICAN  
 CARPET and  
 .. UPHOLSTERY ..  
 JOURNAL**

Each number contains valuable statistics as to the imports and exports of the United States, and all the news relating to the allied industries.

It carries the advertisements of the leading firms in the business, and is regarded as a most valuable medium for reaching the entire trade of the country.

Subscription Price, - \$2.00 a year  
 For Canada and the United States.

PUBLISHED BY

THE TRADES PUBLISHING COMPANY.

122 South Twelfth Street,

PHILADELPHIA, PENN.

We are informed that in consequence of the advertisement of Still's Electric Motot appearing in THE CANADIAN MANUFACTURER, the proprietors, the Canadian Motor Syndicate, Toronto, are in receipt of a great many enquiries concerning it, some of them from New Brunswick and Nova Scotia. The Editor, speaking from personal knowledge, can certify that the vehicle is what it is represented to be - light, graceful, easy to manage, runs smoothly and occupies less space than a dog cart. Its range of travel without recharging battery is about 30 miles, the cost of the energy being only about a-half cent per mile.

Messrs. Brown, Boggs & Co., Hamilton, Ont., are installing a thirty h.p. two-phase S.K.C. motor, manufactured by the Royal Electric Co., Montreal.

The Manufacturers' Life Insurance Company will erect a large office building in Brantford, Ont.

Tenders will be received for the erection of a stone and brick building at Neepawa, Man., for the Union Bank of Canada.

H. R. Keyes, Midway, Man., is erecting a large implement and furniture warehouse.

The Cranbrook Lumber Co., Cranbrook, B.C., has been incorporated with a capital stock of \$20,000.

The King Brothers' Company, of Whitby, Ont., has been incorporated with a capital stock of \$40,000 to manufacture leather.

The Brockville Peat & Power Co., Brockville, Ont., has been incorporated with a capital stock of \$99,000 to manufacture peat fuel.

Wm. Bell, Dauphin, Man., is starting a pump factory at that place.

The Owen Sound Portland Cement Co., Owen Sound, Ont., has increased its capital stock from \$100,000 to \$200,000.

The Diamond Light & Heating Company, of Montreal, has been incorporated with a capital stock of \$200,000 to manufacture lamps, burners, radiators, etc.

Mr. J. L. Whitecomb is at Ottawa, representing a New York syndicate who intend erecting a large paper mill at Britannia, Ont. The new industry will be put into operation with all possible despatch, and will require an expenditure of about \$200,000. The works will employ about 300 men.

The woodenware factory of the William Cane & Sons Manufacturing Co., Newmarket, Ont., was partly destroyed by fire March 11th. Loss about \$3,000.

The Bloomingdale Furniture Co. will remove their factory to Preston, Ont., where they will occupy a large three-story stone building. The new company will be known as the Mineral Springs Furniture Company, of Preston, and will employ about fifty hands.

Owen Sound, Ont., will make a loan of \$16,000 to Messrs. Hay & Co. of that place, to rebuild their extensive chair factory which was burned a few weeks ago.

The sawmill of F. X. Martel, Lorette, Que., was recently destroyed by fire.

The Motor Carriage Co., of Ontario, at Toronto, has been incorporated with a capital stock of \$250,000 to manufacture carriages, hacks, etc., to be propelled by electricity.

The contract to equip an electric railway from Quebec to St. Anne de Beauport, a distance of twenty-eight miles, has been awarded to Messrs. Ahearn & Soper, of Ottawa.

The Wortman & Ward Co., London, Ont., will erect a new factory which will be three stories in height. The work is to be commenced about May 1st.

The building occupied by Messrs. A. Learmouth & Co., machinists, Quebec, was damaged by fire March 11th, to the extent of about \$6,000.

BRADFORD Merchant who is buying British Textiles on commission for two good German and Swiss houses and has ample warehouse and office accommodation, desires to add Canadian connection (knows market well) or any other country, and will confine himself to good house. Address—  
Box 3495 Sell's, 167 Fleet St., London, England.

# To MANUFACTURERS

Do not be misled on the Wood Pulley question! The construction of the Dodge Split Pulley is unique. The complete and extensive plant of Dodge Manufacturing Company, of Toronto, makes it possible for them to make an all-wood pulley nearer perfection than any of its competitors. No other wood pulley is made just like the Dodge Pulley, because a lot of special and expensive machinery was necessary before the Dodge Pulley could be produced in its present state of perfection.

Our output exceeds that of all other wood pulleys combined. There are no drawbacks with us, we have the best wood split pulley made, and we want to send you our new 200-page Catalogue, also our revised Discount Sheet and to tell you all about all kind of pulleys.

We carry a complete stock of pulleys in sizes from 1/2 in. diam. to 60 in. diam. any face, and can ship most any order on day received. A post card or a phone will bring us to you at any time.

**DODGE MANUFACTURING CO. of Toronto, Limited,**  
Office, 74 York St., Toronto, Ontario. Works, Toronto Junction. 'Phone 2080

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Bar Iron, Steel, Boiler Plate,  
Rivets, Tube Expanders,  
Hammers, Metallic Letters  
and  
Figures for Patterns.

**RICE LEWIS & SON**

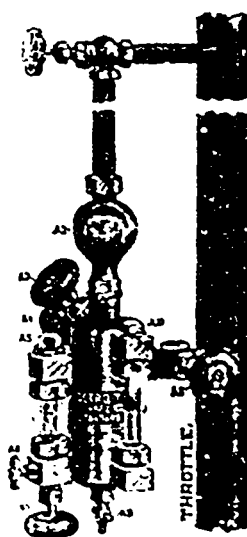
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COR. KING AND VICTORIA STREETS, TORONTO.

ADVERTISE IN THE CANADIAN MANUFACTURER.

SEND FOR RATES.

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## THE BEST JUDGES OF ENGINES

THOSE WHO BUILD HIGH-GRADE ONES  
ALL USE

## The Detroit Sight-Feed Lubricators

This is equally true of Canadian as of American engine builders. They know that the valve friction must be overcome if their engines are to work at their best. They know from experience that the Detroit Lubricators do this, and where so much is at stake they want only the best. It should be the same with all engine owners. The saving our Lubricators effect will pay for themselves very soon.

Send for Catalogue and Prices.

**Detroit Lubricator Co.,**  
DETROIT, MICH.

**CORRESPONDENCE.**

**COMPRESSED PEAT FUEL IN CANADA.**

Editor THE CANADIAN MANUFACTURER:—

Sir:—In reference to an article in your issue of March 3rd, entitled "Turf Briquettes in Germany," I think that you will agree that under the conditions existing in Canada such a subject ought to excite the interest of our manufacturers, especially as the article which can be produced here possesses greater merit than when produced by the processes at present in use in Germany and elsewhere in Europe.

Many ingenious minds have been occupied in devising processes for the conversion of crude peat into a more marketable form for fuel, both before and since the British Government offered in 1865 a reward of £50,000, to run five years, for an invention to meet the case, which reward was never claimed although some partial successes have been attained.

The invention of Mr. A. A. Dickson, of Toronto, which is the result of many years of patient and costly experimenting with old and new methods, has given us a form of compressed peat fuel which speaks for itself, and the compressing machinery exhibits those best elements of construction—simplicity and strength.

It was not, however, till the autumn of 1898 that a demonstration at the works, near Welland, could be made for the Directors of the Canadian Peat Fuel Company (which has acquired the patent rights for the Dominion), and therefore, before the winter set in, no large supply of crude peat could be thoroughly dried (an essential to this method of manufacture), and thus no fuel could be placed upon the market, while even the supply for demonstration purposes is found to be very limited.

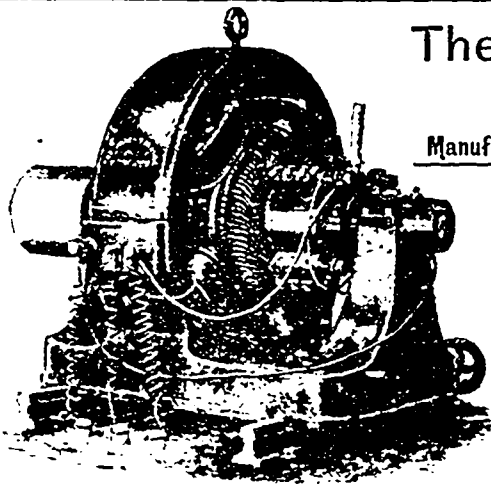
The company, however, is licensing local companies to manufacture and sell under exclusive rights in specified territory. Of the

companies proposed, several have been already organized and the subscription lists closed.

The Trent Valley Peat Fuel Company of Peterborough has rights covering seven counties, it has obtained a charter and arranged for operations at various points.

The original subscribers to the Brockville Peat and Power Company, and to the Simcoe County Company report themselves ready to carry their enterprise through without asking for a general subscription; and a considerable premium was paid for stock in the latter company in a recent case. Plants have also been arranged for in the counties of Waterloo, Perth, Lanark, Prince Edward, Russel, Carleton and Ottawa. Numerous enquiries from Europe are reaching the Organization Department of the Canadian Peat Fuel Company, as over there anything bearing on the manufacture of peat fuel excites an interest born of a practical knowledge of the merits of the subject. All rights outside the Dominion of Canada, however, belong to Mr. Dickson the patentee.

There are numerous deposits of peat in Canada and still more widespread are the deposits of decayed vegetable matter other than sphagnum; every county, if not every township, contains them, varying in depth



**The Jones & Moore Electric Co.,**

Manufacturers and Contractors

All Work Fully Guaranteed

**ELECTRIC LIGHT and POWER PLANTS a Specialty**

A Few Second-Hand A 1 Machines For Sale Cheap

20 and 22 ADELAIDE STREET WEST TORONTO

**Engine Packing,**

**Magnesia Pipe Covering**

**Lubricating Oils**

**and Grease.**

The

**William C. Wilson Co. Limited**

24 FRONT STREET EAST TORONTO, ONT.

**ACETYLENE...**

THE FUTURE LIGHT

The Perfect Light for Public Buildings, Offices, Stores and Dwellings.

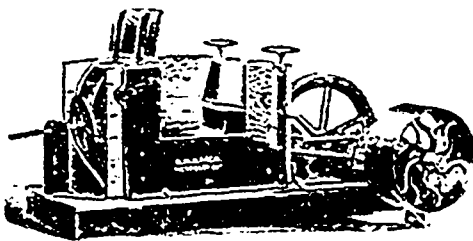
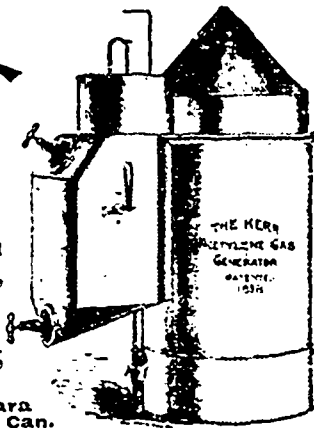
**The Kerr Acetylene Generator**

Patented in Canada, Great Britain, United States, France and Germany. Other Canadian and foreign patents pending. The only perfect apparatus for the generation of Acetylene Gas from Calcium Carbide. Neat, Compact and Durable.

**SIMPLE, SAFE AND RELIABLE**

No Valves or complicated Mechanism to mystify and confuse. No Copper, Brass, or other dangerous element used in its entire construction. Write us your requirements and obtain prices.

**KERR ACETYLENE GAS GENERATOR CO.,** Box Niagara Falls, Can.



**H. W. KARCH**

HESPELER, ONT.

**IRON FOUNDER and MACHINIST**

Manufacturer of

**WOOLEN MACHINERY,**

Rotary Fulling Mills, Kicker Fulling Mills, Soaping Machines, Cloth Washers, Wool and Waste Dusters, Rag Dusters, Drum Spool Winders, Reels, Spooling and Doubling Machines, Ring Twisters, Card Creels, Dead Spindle Spooler for Warp or Dresser Spools, Patent Double-Acting Glg Dyeing Machines.

**JNO. R. CASSIN CO'Y.**

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Reports made on Mining Properties, and advice given on the merits of Mining Stocks and Properties.

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MERCANTILE AGENCY**

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346 & 348 Broadway, NEW YORK.  
Offices in the principal cities of the United States, Canada, the European Continent, Australia, and in London, England.

The Bradstreet Company is the oldest, and financially the strongest organization of its kind—working in one interest and under one management—with wider ramifications, with more capital invested in the business, and it expends more money every year for the collection and dissemination of information than any similar institution in the world.

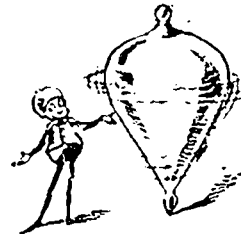
TORONTO OFFICES:  
McKinnon Bldg., Cor. Jordan & Melinda Sts.  
THOS. C. IRVING, Superintendent.

from a foot or so to even forty or more feet. Excellent fuel results in either case. The works of the Parent Company are located at the Welland bog—about 4,000 acres in extent—and here they have also a plant for bailing peat moss which covers its entire area, and which in the case of most other sphagnum deposits has been burnt off the surface. The moss is shipped to New York for litter. It is capable of being used for the manufacture of paper stock, carpets and almost any textile fabric, as will be seen by reference to the article in The Scientific American of Jan. 7th, entitled "Remarkable uses of Peat." The products obtained by distillation are both varied and commercially valuable. Another excellent deposit of decayed sphagnum is the Ellice marsh, north of Stratford, Ontario, which is the site for the principal operations of the proposed Huron District Peat Company. Among other sphagnum deposits may be mentioned the Mer Bleu, near Ottawa, where

**GALVANIZING**

We are prepared to attend to all orders Promptly and Economically.  
WINDMILLS, PUMPS, TANKS, Etc.  
ONTARIO WIND ENGINE and PUMP CO.  
LIMITED,  
95 ATLANTIC AVE., TORONTO.

**METAL "SPINNING"**



in BRASS, COPPER, ALUMINUM, ZINC, SILVER, et c. We are the only Job Spinners in Canada. Write for prices on anything in the Spinning line. EDMUNDS & CO. 20 Sheppard St. TORONTO.

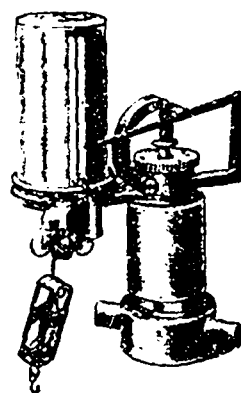


**WATER WHEELS**

For Heads of 3 Feet to 2000 Feet.  
ADAPTED TO MILLING AND ALL POWER PURPOSES.  
Recent tests at Holvoke enable us to guarantee:  
The Largest Power ever obtained from a wheel of the same diameter. The highest speed ever obtained for the same power. The highest mean efficiency ever. Method when running from half to full gate. We guarantee also: A runner of the greatest possible strength. A gate unimpeded in opening and closing at any rate of tide or water.  
Write for pamphlet, stating your head.

JAMES LEFFEL & CO., Springfield, Ohio, U.S.A.

**The McInnes Indicator...**



(Patented). With Vulcanite Sheathing for all Speeds and Pressures. Adopted by the British Admiralty.  
SPECIAL INDICATORS  
For Gas and Explosive Engines, Ammonia Compression Machines, Torpedo Boats, Launches and Locomotives.  
Patent Flexible Unstretchable Wire Cord for Indicator Lead.

Catalogue on application. SOLE MAKERS  
T. S. McINNES & Co., Limited  
42 CLYDE PLACE,  
GLASGOW, - Scotland.

The Diamond Machine & Tool Co.  
TORONTO, ONT.  
Manufacturers of...  
Machine Screws  
OF EVERY DESCRIPTION.

**BELTING**

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Leather Belting,  
Lancashire Hair,  
English  
Card Clothing,

**D. K. McLAREN**

Head Office and Factory  
VICTORIA SQUARE, - MONTREAL  
Stock Depots—Ottawa, Galt.

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WESTERN TRADE:—Toronto Stock Depot.  
69 BAY STREET.

Phone 374.

**STORAGE BATTERIES**

THE LIGHTEST. THE STRONGEST. THE BEST.

If you use Electricity wo Batteries Repaired and Recharged  
can save you Money. at Reasonable Rates.

**The Croftan Storage Battery Co.**

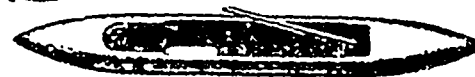
W. M. H. NELLES. CANADIAN BRANCH. REIN WADSWORTH.  
22 Sheppard Street, Toronto, Ont.

**THOMPSON & CO.,** Manufacturers of  
**BOBBINS and SPOOLS**

FROM SELECTED STOCK.

Correspondence Solicited  
Orders Promptly Filled..... SHERBROOKE, P. Q.

**SHUTTLES**



BOBBINS  
SPOOLS  
PICKER  
STICKS  
CLOTH  
ROLLS, Etc.

JOHN HOPE & CO., - - LACHUTE, QUE.

the Ottawa Peat Co., as proposed, will doubtless erect extensive works.

The process of manufacture of the crude peat into fuel, as now proposed, is as follows:—After excavating by hand or steam and spreading to dry in the open air, as commonly done in Europe, the crude peat is trammed to the breakers which reduce it to a powder, in which condition, and containing approximately only the degree of moisture obtaining in the atmosphere, it passes to the compressor.

These compressors are of two types; the smaller, the capacity of which is 1½ tons per

hour, is geared, but the larger machine carries its own steam cylinders and the pistons do the punching.

Only one steam machine has been built and its capacity can without enlargement of the main parts, be largely increased over the present actual output of about 3½ tons per hour.

The simplicity and utility of the invention is evident when it is explained that the forming dies consist of short cylindrical steel tubes open at both ends and of uniform bore, and that while into this die the peat flows in a continuous stream, and without the addition of any cementing substance, the friction in the die or tube of the several previously-formed blocks furnishes the resistance necessary to the compression of each charge—block upon block. The punch in the gear machine enters a twelve inch tube about five inches. As each block is made one drops out at the lower end of the die. The uses to which this machine may be put are varied and the patent fully covers the ground.

The excellent points of the fuel are the absence of clinkers, soot, sulphur, deleterious gases and practically of smoke when burned under proper conditions, also the very small ash residuum and intense heat. It is eminently suitable both for domestic and steam-raising purposes. **ELLICE.**

**LET THERE BE LIGHT.**

The Luxfer Prism Company, Limited, of Toronto, have installed their system of lighting in a number of manufacturing establishments. Artificial light is a constant expense and any method of doing away with such an item is desirable, and all factories, especially, need as much light as possible. Large establishments find it difficult to light up wide floor areas with ordinary windows. By using Luxfer Prisms in the windows, all the light that is necessary can be carried throughout any factory flat. The Massey-Harris Company, Limited, the Kemp Manu-

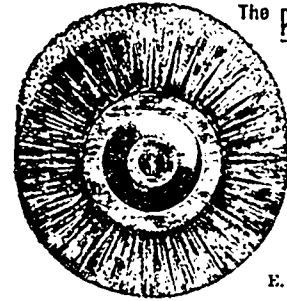
facturing Company, the Tilson Company, Gutta Percha and Rubber Company, D. W. Karn Company, Heintzman Company, and many others have recently had installations made in their factories and offices. By this system of lighting, the first cost of the installation is the only cost, nature does the rest and charges nothing for so doing.

**SITUATION WANTED**

**BY ENGINEER**

with Certificate. Twelve years practical experience. Understands care and management of Dynamos. Best reference. Address,

**JOHN KAPPLER, St. Mary's, Ont.**



The **PRESTON BRUSH FACTORY**

Manufacturers of ALL KINDS OF BRUSHES.

ORDERED MACHINE BRUSHES }  
 Mail Orders }  
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E. B. Salyards, Prop. PRESTON, ONT.

**Dryden, Murney & Co.**

MANUFACTURERS OF

**Hydraulic, Steam,**

**Electric**

**and Hand-Power**

**ELEVATORS.**

**78 ESPLANADE ST. W. TORONTO.**

**FRICITION PULLEY BOARD** If you are not yet using it, send for sample.

The Dominion Leather Board Co., MONTREAL, QUE.

Please mention CANADIAN MANUFACTURER.

**Dominion Oil Cloth Co.**

Manufacturers of...

**OIL-CLOTHS** of Every Description

Floor Oil-Cloth, Table Oil-Cloth, Carriage Oil-Cloth,

Enamelled Oil-Cloth,

Stair Oil-Cloth, etc.

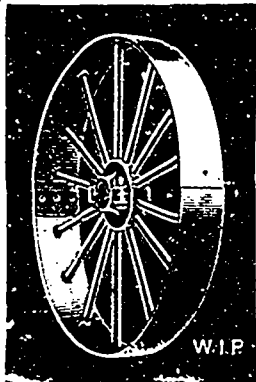
Office and Works

Cor. St. Catharino and Parthonsals Sts., MONTREAL, Quo.



**THE UNBREAKABLE PULLEY and MILL GEARING CO., Limited.**  
 HUNTERS LANE, WEST CORTON, MANCHESTER, ENGLAND.

**Agents Wanted.**



- PULLEYS . .**
- BEARINGS. .**
- SHAFTING. .**
- Gas Engines.**

**ACETYLENE GAS**

**Ideal Generator** the only machine that submerges the carbide.

**No Opening** of generator.

**No Heat** in generator.

**No Overgeneration.**

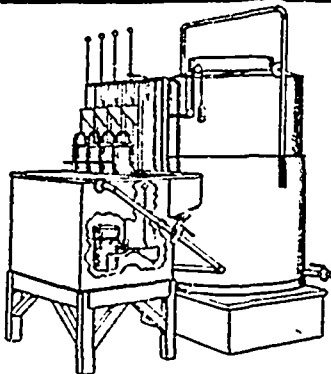
**No Bad Odour** through house.

**No Danger.**

Recognized by all EXPERTS as the PROPER PRINCIPLE

Town Lighting and Large Plants a Specialty

**J. WALLACE & SON, 156 King St. East, Hamilton, Ont.**



Sizes—25 light to 2,000 lights.

**A PAGE OF HISTORY**

The Wire Fence business has been so completely revolutionized by the introduction of

**The Coiled Spring Page**

that wire fence history begins and ends with it. There is more of it in use than of all other makes combined. Does not this attest its superiority? Before buying any other fence get our illustrated circular. Also '99 prices. They are way down.

**THE PAGE WIRE FENCE CO. LTD.**

**WALKERVILLE, ONT.**



**OF VITAL INTEREST.**

A question of vital interest in the present "Growing Time" of Canadian industries, which persistently comes before the manufacturers of this country and forms subject matter for their consideration is, how to open up export trade, and how to extend such trade already commenced.

The manufacturers of the Dominion realize that continued prosperity depends largely upon finding profitable markets for their output, and that such markets being secured, leads to increased capacity and a consequent larger volume of trade.

Kelly's Directory of Merchants, Manufacturers and Shippers, and Guide to the Export and Import Shipping and Manufacturing Industries of the World, is a most valuable aid in all matters touching upon export trade, and that it is highly appreciated in Canada is proved by the fact that during last year nearly 200 leading houses in Ontario availed

themselves of the work for circularizing and advertising purposes. It is endorsed by the British Government as being "a work of considerable value to British trade." A copy of it is sent annually to every British Consulate throughout the world, and is used by our Consuls in directing enquiries to British or Colonial manufacturers. The British Consular agent at Tetuan writes, "Your directory was useful to me and to the merchants in general, and to increase the British trade in this district." Again, "The only book consulted is Kelly's Directory," British Consul at Riga, Russia; and "It is a directory which is very often consulted by the merchants of our town," British Vice Consul at Dedeagatch, Turkey.

The work embraces all commercial centres in the world, giving names and addresses of wholesale merchants and manufacturers in all trades—for instance, the names and addresses are given of over 13,000 British merchants who import goods from Canada and other countries, and of over 1,100 British merchants who export to Canada. These facts indicate the great value of the work to those desirous of building up an export trade. Subscribers or advertisers are entitled to the free and liberal use of the unequalled facilities offered by the London office for private information of a commercial

nature. A prospectus of the work (edition 1900), will be sent on application to the Dominion agent, Mr. Arthur Gate, 794 Dorecourt Road, Toronto, who will be pleased to forward a few addresses of merchants or manufacturers in any quarter of the globe to Canadian firms who may desire same.

Four tons of binder twine are now being turned out daily at the Central Prison, Toronto. In a few days, when some machinery, which has been delayed in transmission, arrives, the manufacture of rope will be commenced. The total output of binder twine and rope will then amount to about six tons daily.

**ACTIVE SOLICITORS WANTED EVERYWHERE** for "The Story of the Philippines," by Murat Halstead, commissioned by the Government as Official Historian to the War Department. The book was written in army camps at San Francisco, on the Pacific with General Merritt, in the hospitals at Honolulu, in Hong Kong, in the American trenches at Manila, in the insurgent camps with Aguinaldo, on the deck of the Olympia with Dewey, and in the roar of battle at the fall of Manila. Bonanza for agents. Bravest of original pictures taken by government photographers on the spot. Large book. Low prices. Big profits. Freight paid. Credit given. Drop all trashy unofficial war books. Quilt free. Address: H. L. Barber, Gen Mgr., 336 Dearborn Street, Chicago.



**HOTELS,  
SCHOOLS,  
LODGE ROOMS,  
PUBLIC HALLS,  
CLUB HOUSES,  
STORES,  
CHURCHES and  
PRIVATE RESIDENCES**

can all be appropriately decorated with Pedlar's Steel Ceiling, not a substitute but superior to lath and plaster, will not crack and fall off, absolutely fire-proof, handsome in appearance. Estimates furnished on receipt of plans.

**Pedlar Metal Roofing Co.  
OSHAWA, CANADA.**

**CHEMICAL COMPOUND COMPANY**      **CORRECTLY COMPILED CHEMICAL COMPOUNDS**      **CIVILITY CAREFULNESS COMPLETENESS CONTINUITY**

**DO YOU KNOW**

That you are paying for Boiler Compound all the time whether you use it or not?

**IF YOU DO NOT BUY**

You will pay your coal dealer more than its cost in the extra Coal you burn.

**Zinkolene Saves Money**

**THE CHEMICAL COMPOUND CO., 66 River Street, - TORONTO.**

**ONTARIO GOLD MINING DISTRICT :**

- Sultana Mine.
- Foley Mine.
- Mikado Mine.
- Olive Gold Mine.
- Cameron Island Mine.
- Hammond Reef Mine.

**A Few Mines**



**WHO USE**

**BRITISH COLUMBIA :**

- Le Roi Mine.
- War Eagle Mine.
- Old Ironsides Mine.
- Centre Star Mine.
- Crown Point Mine.
- Knob Hill Mine.

**CANADIAN RAND DRILL COMPANY, Montreal**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



**THE LONDONDERRY IRON COMPANY.**

It is thought that the furnace plant and ore mines of the old Londonderry Iron Company, at Londonderry, Nova Scotia (now in liquidation), may be leased by Montreal people who would operate them until the completion of the Dominion Coal Company's furnaces at Sydney, or longer. The Londonderry ores make a low phosphorus foundry pig of remarkable strength when used alone. In late years they are mixed heavily with high phosphorus ores, bought outside, making an iron only suitable for stove plate and cast pipe, but quite unsuitable to the western consumers, thus

causing the Londonderry brands to practically disappear out of those markets and contributing a share to the causes of the final shut down of the Londonderry furnaces. There are still very large deposits of ore at Londonderry. Some of the best levels have been neglected in the last ten years and practically abandoned though showing good ore in face and bottom. The old Siemens iron made here was famous in its days, and with proper management and a realization of modern conditions there is every reason to suppose that these ores could be used advantageously to manufacture pig iron that should command a high price in the English market. The property has been offered to eastern capitalists. The

company went into liquidation early in 1899 with an indebtedness of \$160,000, owing to the Bank of Montreal. No bonds have ever been placed on the property, and at time of liquidation all local and minor indebtedness was fully paid up. Operations at the plant in late years have been generally successful, but profits were swamped by heavy fixed charges and depreciation charges to overcome the original inflation of values in all departments. The plant has only been running part time of late as suited the requirements of the banks.

Thousands of acres of fine clay for the manufacture of red brick has been discovered in Southern Manitoba.

**AN OBJECT LESSON IN DRAFT PRODUCTION.**

Nothing so forcibly impresses relative values upon the mind as graphical illustration.



**THE STURTEVANT BLOWER WORKS.**  
As they now appear without a chimney. The smoke pipe from the Mechanical Draft Apparatus is immediately beneath the

required to produce draft for the same boiler plant.

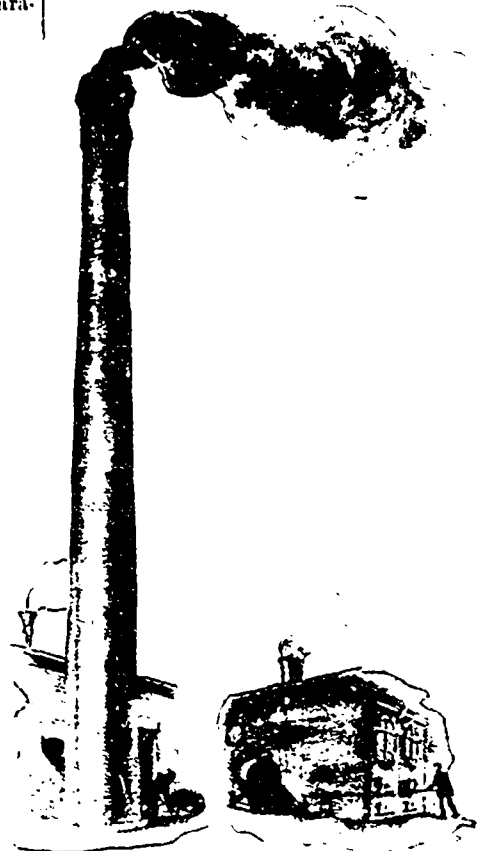
The chimney stands fully sixteen times as high as the fan. Its flue area is comparatively large, and it is by no means a preventor of smoke.

The fan on the other hand is small in size, readily portable, requires merely sufficient stack or smoke pipe to discharge the gases above the roof of the boiler house, and assists greatly in the prevention of smoke. The fan as here shown is applied to force air through a hollow bridge wall, whence it escapes through dampers to the ash pits, and passes upwards under pressure through the fires. The intensity of the draft and the positiveness of the action assure the flow of the gases through the small stack.

The evidence of the existence of manufacturing has so long been indicated by the presence of a tall chimney, that a plant such as is illustrated in the second engraving has a most peculiar appearance. The only evidence of a chimney is to be found in the small smoke pipe extending just above the roof, and appearing in the distance to the right of and just below the flag. Notwithstanding the fact that the top of the stack is only about thirty feet above the boiler house floor, and that it is in close proximity to the buildings, there has been no trouble from the gases or the smoke.

This represents a portion of the plant of the B. F. Sturtevant Co., of Boston, Mass., who have been giving this subject careful study, and conducting experiments in connection therewith.

Some of these facts have been incorporated in Bulletin J., recently issued by this company.



This is the size of the chimney — and — This is the size of the fan required for the same boiler capacity.

**Reduce Your Fuel Bills  
Increase Your Output...**

BY USING  
**The IMPROVED JONES UNDERFEED STOKER**

No ASHES. No SMOKE. No TROUBLE. No MONEY REQUIRED IF GUARANTEES ARE NOT FULFILLED.

The First and Only Successful Underfeed Stoker.

No Underfeed Stoker is successful without infringing our Patents, and the public are warned of just importing or using infringing devices.

N.B. Have you seen our Underfeed as applied to Houses, Schools, Churches, etc. ? (Send for Circular).

For Estimates and other Information write

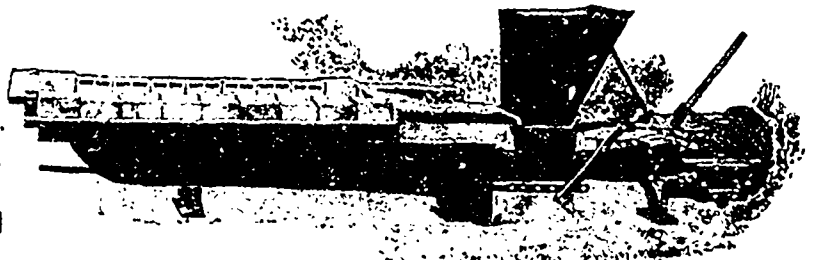
**The General Engineering Co. Limited**

SOLE MANUFACTURERS FOR CANADA,

Head Office . . . **80 CANADA LIFE BUILDING, - TORONTO.**

Montreal—**A. TREVETHICK, - Box 1123.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



The Hammond Reef Gold Mining Co., Toronto, have decided to install at once, thirty additional stamps, a new crusher, aerial tramway and water power plant, to operate their new mill. It is expected that the whole of the machinery will be delivered early in April. The Jonckes Machine Co., Sherbrooke, Que., has been awarded the contract.

## THE CANADIAN COLORED COTTON MILLS COMPANY.

Cottonades, Tickings, Denims,  
Awnings, Shirtings,  
Flannelettes, Gingham,  
Zephyrs, Skirtings,  
Dress Goods, Lawns,  
Cotton Blankets,  
Angolas, Yarns, etc.

Only Wholesale Trade Supplied.

**D. MORRICE, SONS & CO.**

AGENTS

MONTREAL and TORONTO.

## PROPOSALS INVITED.

### THE EDISON

Electric Light and Power Co., Ltd.,  
OF SPRINGHILL, NOVA SCOTIA,

Invite proposals for the development of a water power and supply of generators, switch board equipment, transmission line, extension of line in new district, wiring and all necessary material for 3,000 house lights. Generators to consist of two alternators, 75 K W. each, with sufficient transformers of capacity for above generators, marble switchboard with necessary equipment, hydraulic machinery necessary to develop 500 horse power, including masonry construction and power house.

In submitting proposals complete plans and detailed specifications of the most modern and efficient electrical and hydraulic machinery must accompany each tender, otherwise they will not be considered. All bids must be deemed to cover and include all incidental matters and things necessary to the full and complete working of a first-class modern lighting and hydraulic plant. Said proposals must be filed at the President's Office on or before March 31, 1899. All information required by bidders will be supplied by the undersigned.

The Company reserve the right to reject any and all bids submitted.

**EDISON ELECTRIC LIGHT AND POWER  
CO. OF SPRINGHILL, Limited.**

J. E. SIMPSON, President.

## Felts for Pulp Mills

Felts are woven endless, without a splice. Our Felts will last longer and make dryer Pulp. All up-to-date mills use our Felts. New mills, when in need, write for samples and prices.

20 years in the business  
—the first to make Felts  
in Canada; capacity 1,000  
lbs. per day. All our

**HAMELIN & AYERS, Lachute Mills, P.Q.**

## ACETYLENE GAS...

THE SAFETY LIGHT AND HEAT CO.

Have in successful operation Machines from 5 to 200 Lights.

**SIMPLICITY AND SAFETY** are the leading features.

Being deeply water sealed **IT CANNOT LEAK.**

**IT MAKES THE GAS COOL**, washes it twice, and

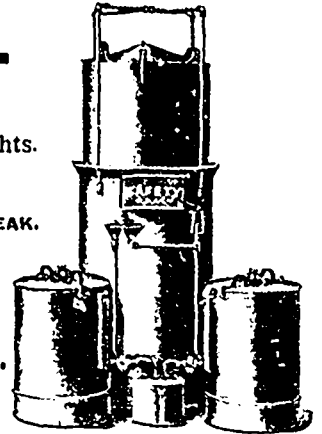
thus makes only **PURE GAS.**

**NEVER CLOGS THE BURNERS.**

**THE SAFETY LIGHT & HEAT CO., Dundas, Ont.**

Solo Proprietors and Manufacturers of the  
**CELEBRATED CLIFF-WARDLAW GENERATORS.**

SEND FOR  
BOOKLET.



## The London Machine Tool Co., LONDON, ONT.

Toronto Office,  
42 York Street.

MANUFACTURERS  
OF

GENERAL MACHINERY...

Having recently sold our patterns and plant to the A. R. Williams Co., of Toronto, retaining only such machines as are useful in our business, we beg to say that we are rapidly putting in New Machinery, from new and improved designs, and are now in a position to receive orders for all Standard Tools for Metal Working in all branches. It will be our aim, by personal supervision of the product of works, with expert men of large experience at the head of each department, to turn out nothing but first-class work at moderate prices. And as we intend to deal directly with the manufacturers, they will be enabled to get their machinery at first cost.

As we shall not be able to personally visit each manufacturer, it is for this purpose that we publish this advertisement. This is our agent who is going about to solicit a share of your patronage. We are thankful for the patronage extended to us in the past, and hope that we may secure an extension of the favors for the future.

All correspondence relating to the following Tools will be promptly answered, viz:

**LATHES**—Engine, Gap, Break, Turret, Fox, Spinning, Etc.

**PLANERS**—Standard, Crank, Plato, Etc.

**DRILLS**—Standard, Sensitive, Multiple, Radial, Etc.

**MILLING MACHINES**—Lincoln, Plain, Universal, Etc.

**SHAPING MACHINES**—Whitworth, C. & E. Rack-Driven, Etc.

**HAMMERS**—Steam, Sandago Drop, Stiles Drop.

**BULL-DOZERS** for all purposes.

**PUNCHES AND SHEARS** for Plate, Angles, Channels, Gauges, Etc.

And we would call special attention to our **PRESSES for Cutting, Stamping, Drawing, Wiring, Riveting, Etc.** We shall also esteem it a pleasure to give quotations on Special and General Machinery in our line.

ALEX. GARTSHORE, President. J. G. ALLAN, Sec.-Treas. JAS. THOMSON, Vice-Pres. and Gen. Mgrt.

## THE GARTSHORE-THOMSON PIPE & FOUNDRY CO.

Limited



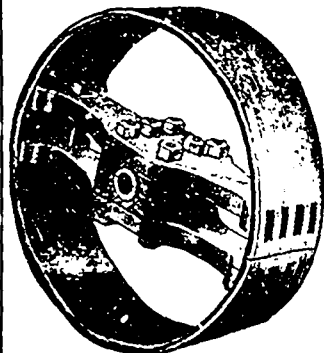
3 in. to 60 in. diameter.

**For Water, Gas, Culverts and Sewers**

Special Castings and all kinds of  
**WATER WORKS SUPPLIES**

**FLEXIBLE AND FLANGE PIPE.**

**HAMILTON, ONT.**



**BENT WOOD SPLIT PULLEYS,  
RIM...**

(REID'S PATENT).

*The Strongest, Lightest and Best Belt Surface in the World*

No Glue, no Nails in Rim like Segment Rim Pulleys, to be affected by Steam, Dampness or Moist Temperature.

**EVERY PULLEY GUARANTEED.**

**The Reid Bros. Manufacturing Co., of Toronto,  
257 King St. West, Toronto.**

**J. WALLACE & SON.**

Messrs. J. Wallace & Son, Hamilton, Ont., manufacturers of "The Ideal" acetylene gas machine, has sent us a handsome catalogue descriptive of it. In offering this machine to the public the makers say that they do so with every confidence, having been the first in Canada to manufacture an acetylene gas generator of any kind which they placed on the market in May of 1896; and that in 1897 they perfected a cheaper style of apparatus than their original standard pattern. This they called the Unique, and both of these patterns have given good satisfaction wherever used. In both of these machines the gas is generated by the automatic sprinkling of water on calcium carbide.

The pamphlet contains a description of

sprinkling machines, and how the carbide is supplied to the water; explains how over-generation of gas is prevented, directions for setting up the machine and mode of operating; advantages submerging carbide, etc.

**DARLING BROTHERS, MONTREAL.**

Messrs. Darling Bros., proprietors of the Reliance Works, Montreal, have sent us their new illustrated catalogue and price list having reference to some of the special machines manufactured by them, and to others for which they are sole agents in Canada. Messrs. Darling Bros. have for many years made a business of manufacturing and introducing special and improved machinery, and have, they say, met with most gratifying success. They inform us that machines of

their manufacture are now in use throughout Canada, Great Britain, Germany, France and Russia. They guarantee all their machines to be first-class, in every respect.

Some of the machines mentioned in the catalogue are as follows:—

The Webster vacuum feed water heater and purifier, which they consider the best on the market. In fact, they are so well satisfied with it that they are prepared to install it, subject to thirty days' trial.

The Webster oil extractor and steam separator—the one separates and removes oil and other impurities from exhaust steam—the other separates and removes moisture or entrained water from live steam.

The Nordborg cut-off governor and regulator, the object of which is to change slide valve throttling engines into automatic cut-off engines.

**JOHN J. KELLER & CO.**

104 and 106 MURRAY ST.  
NEW YORK

220 Church St., Philadelphia.  
135 Pearl Street, Boston.

**Aniline Colors,  
Dyewood Extracts,  
Sumac and  
Nutmeg Extracts.**

**FAST COLORS** for Wool Dyeing,  
One Dip Cotton Colors, Novelties  
and Specialties for Calico  
Printing.

MANUFACTURED BY

**JOHN R. GEIGY & CO.**  
BASEL, SWITZERLAND

**LIGHT YOUR  
FACTORY WITH**

**LUXFER PRISMS**

The latest device for

**LIGHTING**

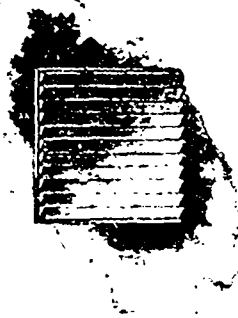
dark rooms and  
offices.

**By Daylight**

For catalogue  
and estimates  
write to

**Luxfer Prism  
Co'y, Limited.**

58 Yonge Street, - **TORONTO.**



**WHEN IN NEED**

OF  
SPECIAL

**MACHINERY**

OF ANY KIND, SEND DRAWINGS  
AND ASK FOR QUOTATIONS.

**G. T. PENDRITH & CO.**

Nos. 73 to 81  
Adelaide Street West

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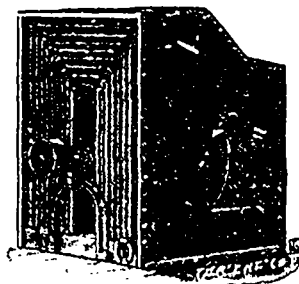
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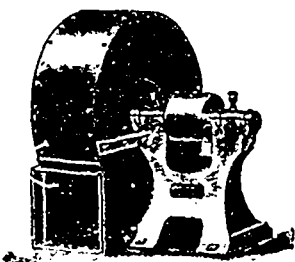
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I. P., SR.,

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During all these years they let their light shine in the above-mentioned place every night, laboring side by side, thus setting an honorable example to all their neighbors, and saying in their peculiar way:

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The Eureka Mineral Wool and Asbestos Co., Toronto, have sent us a very neat calendar for the current year, the central ornament of which is that now famous picture of a bulldog standing ready to defend the British flag, with the legend "What we have we'll hold." This company are manufacturers of sectional pipe and boiler covering, mineral wool, asbestos, engineering supplies, etc.

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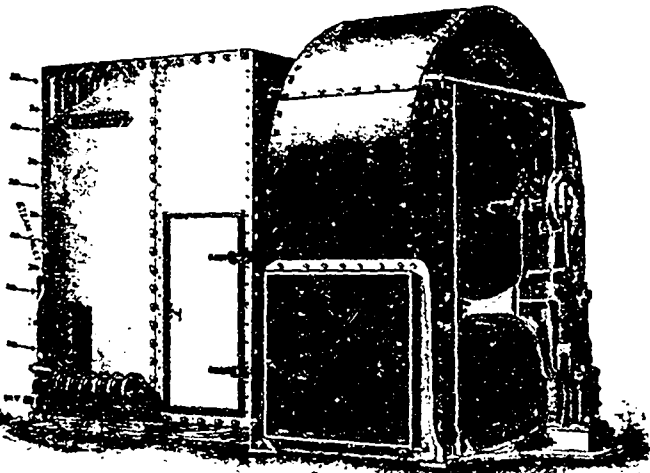
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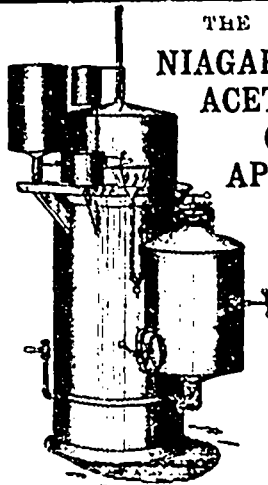
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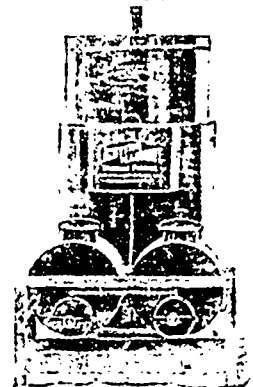
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**CARBORUNDUM: ITS MANUFACTURE AND USE.**

No new field of science can develop apart from parallel industries. Associated with the increasing use of electricity, we find a host of new substances dependent upon it for their existence, among which carborundum is certainly the most interesting. To produce this remarkable crystal all that is necessary is an iron pot holding a layer of carbon, serving as one electrode, a carbon rod, acting as the other electrode, and a mass of carbon and clay, through which the current passes. With this simple apparatus and sufficient electrical energy, the mixture, raised to a terrific heat for some hours and then allowed to cool, will be found to contain crystals of carborundum.

From a commercial standpoint the experiment is of tremendous importance. From a scientific point of view, it represents a successful experiment, doubly interesting because it points to a new discovery that may be the forerunner of others of inestimable value. In fact, the electric furnace will be the means of solving some of the great mysteries connected with the formation of gems and minerals and, possibly, even the primitive condition of matter itself. Furnaces in which carborundum is made may be called arc and incandescent furnaces. In the first type the electrodes were movable, the arc produced between them being used to play upon the mass from which carborundum would be produced. This system was abandoned and the incandescent furnace took its place.

Mr. E. G. Acheson discovered carborundum in 1891, and experimented with both kinds of furnaces, finally adopting the second in conjunction with the process involved in its use, on account of its extreme practicality and efficiency. In this furnace a core is used which has either been taken from an old furnace or is built up anew from a mixture of sand, salt, sawdust and coke. Carborundum is the carbide of silicon, but was supposed to be a combination of carbon and aluminium until further experiments proved clearly that silica was indispensable, the quality of the carborundum depending entirely upon it. As larger and larger furnaces were used, the preliminary processes gave rise to a purer and better product than ever before.

In 1895, the furnace room of the Carborundum Company, at Niagara Falls, held five actively operating furnaces. Each furnace was 9 ft. long, 1 ft 9 in. deep, 1 ft. 11 in. wide, and held a core 8 ft. long. The furnaces in use to day are 16 ft. long, 5 ft. wide, and 5 ft. deep. The core formerly used was rectangular in cross-section, but has been

changed to one that is circular, measuring 9 in. in diameter. Difficulty was experienced at first, due to the formation of gases, in the incandescent mass and the formation of craters, with a subsequent eruption like that proceeding from a miniature Vesuvius. By mixing sawdust with the sand, coke and salt, the mixture, being filled with interstices, allows the free escape of gases to take place without these symptoms.

In the larger furnaces, 300 lbs of carborundum per day is produced. In the original small-sized furnaces, 1/2 lb. per day was all that could be obtained. Two thousand h.p. hours are required in a furnace possessing a capacity of 300 lbs. of carborundum a day; consequently each pound of carborundum produced requires a consumption of 7 h.p. hours. In preparing the constituents of the mixture for use, neither the sand, sawdust, nor salt require further treatment, but the coke is put through a grinder and then through two cylindrical screens. In the first the coke dust is removed, while in the second the meshes are sufficiently large to allow those particles required for building up the core to fall through.

The weighing and mixing is done very readily by two men, and the mass is then brought to the furnace. Each furnace is supplied with two terminals, consisting of 60 carbon rods, 3 in. in diameter and 30 in. long. An iron frame holds them in place; a plate of the same metal is bolted to the frame, with holes bored opposite each carbon rod. A copper rod 3/8 in. in diameter fits tightly into each carbon end. The interior of this box-like arrangement is then filled with graphite, tightly packed, to make good contact. Heavy ribbed projections allow for connection with electric cables.

The electrical apparatus required for the manufacture of carborundum consists of a transformer, the second largest in the world, having a capacity of 830 k.w., or 1,100 h.p. It transforms a 2,200 volt current, received from the Niagara Falls Power Company, down to 185 volts. The transformer possesses a regulator, the function of which is to raise the pressure to 250 volts or reduce it down to 100. To keep the transformer cool and effectively dissipate the 40 h.p. wasted in it as each oil is circulated through it by means of a small pump driven by a motor.

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From the transformer two copper conductors lead into the furnace room. Each of these conductors is eight square inches in cross-section. In the transformer room is a rather unique switch. A great iron vessel, circular in shape, holding a solution of salt and water, has suspended in it an iron plate. The iron plate connects to one pole of the circuit, and the iron vessel to another. When it is to be closed the iron plate is lowered into the water and touches the bottom. When the circuit is to be opened the plate is lifted completely out of the saline solution. This simple method of opening and closing the circuit saves expense, danger, and difficulty.

The core is built up to within four inches from the carbon terminals at either end. The space between each end of the core and the inner extremities of the carbon rods is filled with finely ground coke. Pieces of sheet iron are used to limit the length of the core during its building up. They are removed after the coke filling has been made. These furnaces are sixteen feet long inside, five feet wide, and five feet deep. At the bottom of each is a canal of cylindrical shape, 10 1/2 inches in radius and the total length of the furnace. This canal receives the core, which weighs 850 lb., if it has been previously used, or 1,100 lb. if it is fresh and new.

A practical experience with old and new cores is an immense advantage in the manufacture of carborundum. The old core possesses a much greater conductivity than the new core. With an old core the current rises up to 1,200 amperes. With a new core, in the beginning the current is very small. The resistance of either a new or old core rapidly diminishes, the carbon having a lesser resistance hot than cold. With an old

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core the energy consumed in one hour will reach 1,000 horse power. The current is systematically reduced until the core possesses a fixed resistance; it then flows through uniformly. At the end of twenty-four hours the current is discontinued and the furnace allowed to cool. Meter readings taken at regular intervals of a quarter of an hour give, by calculation, the total watt consumption in each furnace.

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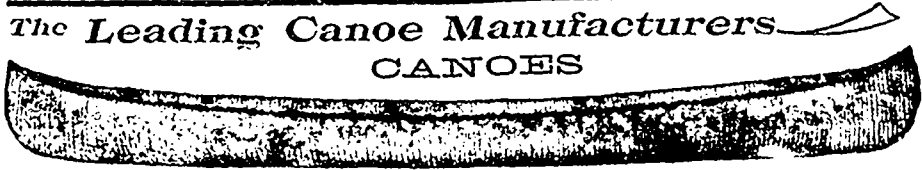
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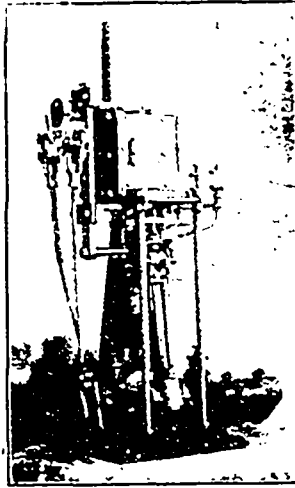
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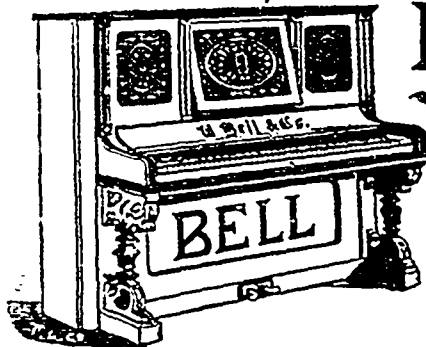
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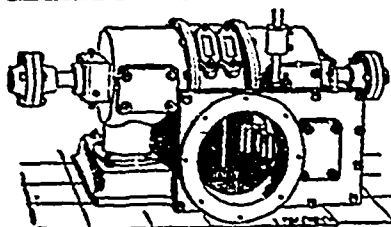
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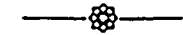
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