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VOL. 28.

TORONTO, JULY 6, 1894.

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SUGAR DUTIES.

The Montreal Gazette makes what it no doubt supposes to be a noble rally in behalf of the Canadian sugar refiners. In an editorial, A Bad Precedent, it alludes to a speech delivered a few days before in the House of Commons by Mr. Charlton in which he objected to the duty of 64-100 of a cent per pound upon sugar above 16 Dutch standard, and in which he said:—

The protection afforded to Canadian refiners by this

section is almost exactly five times as great as the United States Congress has seen fit to give the sugar refiners in the United States. Their duty on sugar is 40 per cent. and an additional one-eighth cent per pound on refined sugar. This duty is sixty-four-one-hundredths cent per pound. I protest now, as before, against this duty, on behalf of the consumers as being larger than necessary for the refiners.

It will be observed that Mr. Charlton did not ask that Canada adopt the American tariff as it now is, or even the substitute therefore proposed by the Senate. He merely called attention to the fact that the protection afforded Canadian refiners was nearly five times as great as that afforded American refiners, his protest being against a duty which, in his opinion, is unnecessarily high.

The Gazette points out the fact that under the late Canadian tariff the protection extended to our sugar refining industry was 8, 10 of a cent per pound, while in the United States, under the McKinley tariff (which is yet in force) the duty is only 5, 10 of a cent, notwithstanding which the price of refined sugar was lower last year in Canada than in the United States, which, it says, shows conclusively that Canadian refiners did not avail themselves of the protection afforded them.

The Gazette is usually very fair in its statements of facts but in this instance its allusion is to a single and isolated transaction wherein a comparatively small quantity of Canadian sugar was sold to the American trade at less than what the American refiners would sell for at that time. When that transaction occurred, the circumstances of which are quite fresh in the minds of many of the readers of the Gazette, the American sugar trust were manipulating the market, during which the Canadian refiners found an opening to sell a few hundred barrels of sugar to enable certain American dealers to fill some orders which they had previously accepted. These are substantially the facts upon which the Gazette builds its claim that "the price of refined sugar was lower in Canada last year than in the neighboring country, showing conclusively that our refiners did not avail themselves of the protection." The Gazette need not search for information regarding the average prices of Canadian sugar last year or any other year any further than the commercial reports in its own files; and if it will do this, taking the average price week by week during last year, including the transaction here alluded to, it will discover that the average price of sugar in Canada was quite as high or higher than in the United States, and that the refiners most certainly did avail themselves of the protection afforded them.

No one supposes that the Dominion Government will adopt the proposed American sugar tariff, even if it should become law. If the McKinley tariff is high, our tariff, until a few days ago was 60 per cent. higher, and even now it is 28 per cent. higher. The Gazette raises a warning finger, pointing to the fact that under the American tariff of 5/10 cent per pound "the sugar refining industry in the Republic is controlled by a trust second only in importance, influence and exactions to the Standard Oil monopoly;" and it quotes the New York Times as saying that the McKinley law "enabled that combination to extort from consumers a tribute yielding great dividends upon capital stock that is four-fifths water, and a surplus so large that the trust has discontinued its annual meetings in order that the

size of it may not be disclosed." Having shown the anconda-like grip that the American sugar trust have upon that country all through the operation of the McKinley tariff, and what it would be if the Senate amendment is accepted, the Gazette very innocently enquires, "Is that the kind of legislation the people of Canada desire?"

Our answer to this question, is the people of Canada should not be subjected to any legislation that would make such a condition possible; and at the same time we would like for the Gazette to explain how it is possible that the American sugar trust can exist and flourish in the way pointed out, under a duty of only 5/10 cent per pound, not impossible that a similar trust should not exist and flourish in Canada where for years the duty was 60 per cent. higher, and where, even under our newly revised tariff, it is 28 per cent. higher. This is the conundrum we respectfully ask the Gazette to solve. Will it enlighten us?

In the discussion of this Canadian sugar question what is wanted is facts. The Gazette speaks of the ability of the American sugar trust to rob their treasury of \$30,000,000 per year, but it is remarkably quiet with regard to the ability of the Canadian sugar refiners to rob our treasury of a proportionate amount by similar means. The consumption of sugar in Canada is, per capita, quite as great as in the United States, and therefore the population of the two countries, being as 12 to 1, it is probable that in the same proportion Canada is affording our refiners to rake off some \$2,500,000 per year by means of an improperly adjusted tariff.

Canadian refiners have the ability to manufacture refined sugar quite as cheaply as American or British or German refiners, and the cost of refining here is probably no more than in any of the countries named. As has been heretofore shown in these pages, from facts made known to the world by the report of a special committee of the British House of Commons, the cost of refining in that country, including waste from impurities in the raw material in its conversion into granulated, is only about fifteen cents per one hundred pounds. Considering the difference in circumstances, a very generous allowance for cost of refining in Canada would be twenty-five cents per hundred pounds, and the difference between this cost and the amount of protection, say thirty-nine cents, multiplied by the amount consumed, would seem to indicate the rake off of the refiners over and above what they should be allowed to receive. It may serve the purpose of the Gazette to tell us what terribly greedy fellows those American refiners are; but from the same standpoint the conviction forces itself that the Canadian refiners are in the same category.

PROFITS OF SUGAR REFINING.

Under the McKinley duty of 5-10 cent per pound upon refined sugar, the American Sugar Trust has become an Old Man of the Sea who the American people and their Congress find difficult if not impossible to throw off. To enable a better appreciation of the situation it should be remembered that in Great Britain and Germany the cost of refining raw sugar of 96 degrees of purity into absolutely pure granulated sugar, including the loss from impurities in the raw, is only about fifteen cents per one hundred pounds of refined. This cost includes all charges, both for labor, charges for management, interest upon investment,

etc. In these countries labor is cheaper and interest upon money is lower than in the United States or Canada; but in both these latter countries the machinery used in refining is, or should be, equal to the most efficacious in use on the other side of the Atlantic. Taking these facts into due consideration, it is, we think, fair to allow that the cost of refining in the United States and Canada should not cost more than one-fourth of a cent per pound, or 25 cents per hundred pounds, or \$5 per ton of 2,000 pounds.

As a study from quotations of prices of sugar in the United States, Willett & Gray, of New York, who are accepted in the trade as statistical sugar experts, in a recently issued circular gives a series of comparative tables in which are given the average monthly and yearly quotations of 96 degrees centrifugal sugar and of granulated sugar, with the difference between the two grades, adjusted to net cash prices; and they give the gratuitous information that the facts discovered by a study of their figures are very suggestive of the benefits and economy of the American sugar industry. We reproduce a table of yearly averages, showing the cost of sugar, 1880 to 1893, both inclusive:

NET CASH YEARLY AVERAGE.			
	96 deg. Centrifugal.	Granu- lated.	Differ- ence.
1880.....	8.206	9.602	1.396
1881.....	8.251	9.667	1.426
1882.....	7.797	9.234	1.437
1883.....	7.423	8.506	1.083
1884.....	5.875	6.780	0.923
1885.....	5.729	6.441	0.712
1886.....	5.336	6.117	0.781
1887.....	5.245	6.013	0.768
1888.....	5.749	7.007	1.258
1889.....	6.433	.640	1,207
1890.....	5.451	6.171	0.720
1891.....	3.863	4.691	0.828
1892.....	3.311	4.346	1.035
1893.....	3.689	4.842	1.153
Average.....	5.882	6.932	1.052

It is evident from the above table that the sugar refining industry has its good and bad years, as do all other industries. Undoubtedly the cost of refining has been somewhat reduced during the period under review, but, says Messrs. Willett & Gray, it is evident that the saving thus made has been shared with, if not altogether given to consumers.

As will be observed by the above table, the difference in price between 96 degrees centrifugal sugar, commercially known as raw sugar not higher than number 16 Dutch standard, and granulated, for the term of years indicated, averaged \$1.05 per hundred pounds; and Messrs. Willett & Gray inform us that the cost of refining ranges from 50 to 62½ cents per hundred pounds. It should be remembered that Messrs. Willett & Gray's standpoint in discussing any phase of the sugar question is identical with that of the sugar trust. But even from this point of view they show that the difference between the cost of refining and the selling price of sugar is about 50 cents per hundred pounds, which, quite singularly, is precisely the amount of protection afforded by the tariff, and which difference, admitting the correctness of their claim as to the cost of refining, indicates the amount of profits that accrue in the business. But as we have shown, this claim of 50 cents

per hundred pounds for refining is entirely too high—not less than 100 per cent.,—for if British and German refiners can refine sugar at a cost of 15 cents per hundred pounds, without doubt the American refiners could do the same work for 25 cents, or 60 per cent. more. Conceding, then, a cost of 25 cents per hundred pounds for refining, and we find that the difference between the average cost of raw sugar in the United States, and the selling price of granulated, \$1.05, gives the refiners there a clear profit of 80 cents per hundred pounds, or 4-5 of a cent per pound. Multiply the number of pounds of sugar imported into that country in any year by 4-5 of a cent per pound, and we have an amount very closely approximating the clean sweep in profits made in that year by the American sugar trust. We have before us a statement of the imports of the United States for the ten months ending with April, 1894, prepared in the Bureau of Statistics of the Treasury Department, in which it is shown that for the said ten months the imports of raw sugar into that country amounted to 3,336,172,695 pounds, the average value of which at port of shipment averaged 3 cents per pound. The difference between this cost and the United States value, according to Willett & Gray, indicates the cost of carriage, amounting to \$2.88 per hundred pounds. We think this charge for freight of nearly 100 per cent. very excessive, and suspect its accuracy, but accept it for the purpose of this argument. The official figures, then, indicate that the imports of raw sugar into the United States for 1894 would amount to over 4,000,000,000 pounds, and if it all went into the refineries and was converted into the equivalent of granulated sugar; and if the profits of refining as above stated, over and above the cost, is 8-10 of a cent per pound, it is evident that during the year the American sugar trust scooped probably \$32,000,000 more than what they should have been allowed to do, and this through and by the McKinley duty.

Further reference to the United States official report, to which we have alluded, shows this matter in an even stronger light, for it shows that the average market price in that country of centrifugal 96 degrees polarization sugar from July 6, 1893, to May 24, 1894, was but 3.28 cents per pound, while the price for standard granulated averaged 4.41 cents, the difference being 1.13 cents per pound. The difference here shown and that heretofore alluded to—1.05 cents, or .08 of a cent per pound, say 8 cents per hundred pounds, would add more than \$3,000,000 to the annual profits of the sugar trust. A clean sweep of \$35,000,000 per year is quite a nice profit on an investment for plant, machinery, etc., of not exceeding \$25,000,000, is quite a soft snap. No wonder, as the Montreal Gazette tells us, that the McKinley duty of 5-10 of a cent per pound upon refined sugar has enabled the American sugar trust to extort from consumers a tribute yielding great dividends upon capital stock that is four-fifths water, and a surplus so large that the trust has discontinued its annual meetings in order that the size of it may not be disclosed.

It is timely and appropriate to here enquire how Canada is affected with regard to this question. According to the Trade and Navigation returns for the year ending June 30, 1893, the imports of raw sugar, coming in duty free, amounted to 252,474,140 pounds, valued at \$6,628,419, or

2.625 cents per pound. This, it will be observed, is considerably less than the cost of similar sugars imported into the United States, the value for entry there being 3 cents per pound, and this difference of 37½ cents per hundred pounds, it should be noted, is in favor of the Canadian refiners. Applying the calculations used in the preceding argument as to the United States to the Canadian situation, and we find as follows:—The actual cost of refining in Great Britain and Germany is 15 cents per one hundred pounds of the refined product—in Canada, 25 cents. The duty upon refined sugar in the United States is 5-10 of a cent per pound—in Canada last year 8-10 of a cent. We take the average market value of granulated sugar to be substantially the same in both Canada and the United States, to wit, as per Willett and Gray's circular, 4.84 cents per pound. If the import cost, then, of raw sugar in Canada is 2.625 cents per pound, and the cost of refining .25 of a cent per pound, making a total of 2.875 cents per pound, and the selling price is 4.84 cents per pound, the clear profit to the refiners, over and beyond the cost of refining, is about 1.965 cents per pound, which, upon 252,474,140 pounds imported, amounts to \$4,961,116. It may not be that Canada does not indulge in just such an Old Man of the Sea as the Montreal Gazette tells us the American sugar trust is, but these figures suggest something very closely akin to it, differing only in the size of the market around whose neck his octopus-like legs are entwined. Our Finance Minister seems to think that the strangling effects of the incubus will be neutralized by a 20 per cent. reduction upon refined sugar, but our opinion is that in this he is greatly mistaken. Mr. Laurier said that the manipulator of the Canadian sugar trust was paid \$60,000 per year for his services, and Mr. Drummond says that the figure is incorrect. Can it be that \$600,000 would be closer the fact? According to the census report, less than a thousand men are employed in the sugar refining industry in Canada.

SHALL CANADA HAVE A BEET SUGAR INDUSTRY? IF NOT, WHY NOT.

This journal has taken pleasure in frequently directing attention to the possibilities of establishing a beet sugar industry in Canada. We have shown that the industry is in a most flourishing condition in several European countries as well as in the United States, and that the advantages possessed by Canada are equal to those of any other country and superior to those of many. This fact has been demonstrated by actual experiments, made by intelligent and skillful men. Canadian farmers have shown that our soil and climate are well adapted to the cultivation of the beet; Canadian analysts have shown that Canadian grown beets contain quite as high, or higher saccharine qualities as those of Germany, the greatest sugar beet producing country of the world, and we know that the pulp left after the saccharine matter has been extracted is most excellent and nutritious food for fattening cattle. These facts have been well established.

Whether the industry would prove successful may be judged by the results in countries where it has been tried and is now in most successful operation.

The United States Department of Agriculture, in a re-

port regarding this industry for 1893, shows that the amount of beet sugar produced in that country had increased from 600,000 pounds in 1887 to 43,453,264 pounds in 1893. The record is as follows:—

1887.....	pounds	600,000
1888.....	"	4,000,000
1889.....	"	6,000,000
1890.....	"	8,000,000
1891.....	"	12,004,838
1892.....	"	27,038,288
1893.....	"	43,953,264
Total.....	"	101,641,390

of which California's output for 1893 was 35,088,969 pounds. The total amount of beets manufactured into sugar in 1893, in the United States was 200,353 tons; the average price paid growers was \$4.50 per ton. The value of the crop to beet farmers was, therefore, worth \$900,000, and the sugar produced was worth 3c per pound giving a value of \$1,320,000 for the product, besides the government bounty of \$860,000; making the whole amount of money received for sugar and beets a little over \$3,000,000.

The output in the last three years shows a large and steady increase. This undoubtedly was due to the bounty offered by the government.

In 1893 the United States imported 543,288,489 pounds of beet sugar, valued at \$17,331,343, the total imports of sugar of all kinds costing something like \$200,000,000. Three factories in California, in 1893, produced beet sugar as follows:—

Alvarado.....	pounds	4,186,572
Watsonville.....	"	14,500,000
Chino.....	"	15,039,867
Total.....	"	33,726,439

This quantity was about one-seventh the quantity of raw sugar imported into Canada during the same year.

There are four other beet sugar factories in the United States, with production last year as follows:

Staunton, Virginia.....	pounds	36,458
Grand Island, Nebraska.....	"	1,835,900
Lehigh, Utah.....	"	3,750,500
Norfolk, Nebraska.....	"	4,000,000

Total..... " 9,622,858

The amount of capital invested in these seven beet sugar factories is about \$2,000,000. Tributary to these factories, under cultivation in beets, are about 20,000 acres of land. The value of this land has greatly increased since it has been used for beet-growing, especially near Chino, Cal., where the price per acre has become very high, as much as \$200 having been paid in some cases. The cost of cultivating this land in beets is considerably more than \$500,000 a year. The production of beet roots for sugar-making purposes in the United States during the past year approximated 200,000 tons, and the average price paid to the farmers for this raw material was \$4.50 per ton.

It will be seen that a large investment of capital in land and machinery, and a large outlay of money for labor are needed to produce 22,000 tons of sugar per year; and it is not difficult to foresee the large amount of capital that would be required, the immense amount of labor that would be employed, and the great extent of land that would have to be appropriated to this purpose if the Canadian

Government were to enter heart and soul into the building up of the industry in Canada to a point where the production would be sufficient to meet such a demand as even now exists. This would mean the investment of some \$14,000,000 in factories; 140,000 acres of land under cultivation in beets; the great enhancement in value of these lands, the expenditure of some \$3,500,000 per year for their cultivation; the production of 1,400,000 tons of beets for which the farmers would be paid at \$4.50 per ton, \$6,300,000.

In a paper written by H. W. Wiley, published in the Engineering Magazine, we are told that the production of the sugar beet is in itself an art, and that the ordinary forms of agriculture cannot be used for the purpose. Sugar beet culture is intensive, not extensive farming. High priced lands can be used for sugar beet culture on which it would be impossible to profitably grow staple crops. Intensive culture and scientific care characterize the successful culture the world over. The establishment of the industry in a community affords an object lesson in the highest art of agriculture. It acts reflexively upon every other branch of agriculture, so that in countries in which sugar beets are grown there are better crops of wheat, barley, hay, etc.; there are better classes of live stock, finer horses and cattle, and in general the whole tone and character of agriculture are elevated by reason of the influence, direct and reflexive, of the culture of the sugar beet.

The manufacture of beet sugar also represents the foremost advancement in mechanical improvement. It is a science of itself. It requires special machinery and apparatus, and its practice is a benefit not only to those immediately engaged in it, but, reflexively, to the whole community.

An ordinary beet sugar factory should have a capacity for the consumption of about 300 tons of beets per day, and should make from 200 to 240 pounds of sugar per ton. In Europe much larger factories are quite common, capable of working from 400 to 600 tons of beets per day. In central factories there are large numbers of diffusion batteries situated at different points, in which the juices are extracted, and which are delivered to the central factory by means of pipe lines usually laid under ground. A central factory of this description would have capacity to work up the juices from 1,000 tons of beets per day.

We have shown the large demand of Canada for sugar; that the article is not produced to any considerable commercial extent; that millions of dollars are sent out of the country every year for sugar; that a few monopolists, because of an improperly arranged tariff, have become millionaires through the abnormal profits of their refining industry; that the refining industry in Canada gives employment to less than a thousand persons; that the soil and climate of Canada are excellently adapted to the cultivation of the sugar beet; that sugar beets grown in Canada are quite as rich in saccharine matter as those grown anywhere else in the world; that the whole country abounds in locations and natural and artificial advantages unexcelled for the purposes of manufacture, and that all the capital necessary to place the industry on a good footing is ready for investment and will be forthcoming just as soon as the government offers the necessary encouragement, to be extended through a proper period of time.

As far as the ordinary beholder can see, there is but one thing, apparently, that stands between the desire for the establishment of the industry in Canada, and the fulfillment thereof—the opposition of the Canadian sugar refiners. Why their opposition should prove so effective our readers are at liberty to imagine for themselves.

THE NATIONAL POLICY AND BEET SUGAR.

According to the ethics of protection and of the National Policy, and according also to the declarations of all the members of the Dominion Government, made time and again from their places in the House of Commons, in the Senate and in public assemblages in different places in all parts of Canada; and also of every member of Parliament elected as a Conservative, it is the duty of the Government whenever it can be clearly demonstrated to them that any particular industry could be made to prove a success by and through protection and encouragement, to promptly render the necessary aid. It is in this manner the Government are encouraging and building up the iron industry by granting liberal bonuses upon the production of Canadian pig iron and of muck iron made in Canada of home made pig iron, and by placing heavy duties upon all forms of imported iron. There are many other industries that have developed most remarkably under the influence of tariff protection, and it is quite noticeable that such important industries as the production of steel rails, heavy steel beams for architectural purposes, tin plates and the cultivation of beet roots and the manufacture of beet sugar, never having received the encouragement that would have inaugurated them, have never materialized. If we do not care to have these industries, and because we do not thus care, we have never brought them under the influence of protection, they will never become factors in Canadian industrial pursuits. If, however, we deem it desirable to have them, the only way to obtain them is by extending over them the influence of protection.

Is it desirable that we have a beet sugar industry? Think of the great advantage it would be to Canada if we had even three such factories as there are now in California where more than 33,000,000 pounds of sugar were produced last year. The production of beet sugar in the United States in 1893 amounted to some 22,000 tons made in seven factories, some of which are quite small, which amount is about one seventh of the quantity of sugar consumed in Canada last year. Every surrounding in Canada would be quite as propitious as those in California; and if we had the industry to no greater extent than what obtains in the United States it would imply the employment of millions of capital, of thousands of farm hands and skilled and other labor in and about the factories and the cultivation of thousands of acres of farm land at the most remunerative prices. Is such a condition desirable? If it is, why not bring it about. If it is well to bonus the production of iron why would it not be equally well to bonus the production of sugar. If the iron is not produced the bonus is not paid; neither would there be any bonus to the sugar industry if no sugar was produced. In all countries where beet sugar is a large product it has been brought about under some sort of bonus system; and in Germany, where the industry has reached the highest

conditions of perfection, and where the production is much larger than in any other country, the advancement has been so satisfactory that after 1895 the bonus will not be paid the industry being in a condition to then cease to require it. Last year Canada paid more than \$6,628,000 for the raw and entirely unedible sugar brought into the country. This vast sum went to foreign countries and to people for whom we entertain no particular sympathy; and we also paid almost as large a sum to a handful of men—some of them not even living in Canada, and who give employment to less than a thousand hands, for preparing that sugar for use. If we had a sufficiently comprehensive beet sugar industry not one dollar of that money would necessarily have been sent out of the country, but it would have been very equitably distributed to farmers, railroads, factory hands, skilled mechanics and workmen, etc., throughout our own land.

From what is generally known concerning the industry, it is quite remarkable that the Dominion Government do not take hold of the matter in a vigorous whole-souled manner, and, carrying out the teachings of the National Policy and their own oft repeated professions, push it to a practical determination. We have proved to a certainty that under the tariff protection the Government are determined to give to the refiners of imported sugar, those favored ones are making hundreds of thousands of dollars each year more than what they should be allowed to acquire by that means; and if such large amounts are permitted to flow into the pockets of a few monopolists, it would be but fair to the rest of the community for the Government to offer a sufficient bonus upon the production of beet sugar, to be continued for a sufficient term of years, even if it approximated the amount now unfairly flowing into the pockets of the monopolists.

The Government seems anxious to shape legislation favorable as far as may be to the farmers. Of course this is right, and we suggest that it would be well to elaborate this idea by encouraging the beet sugar industry.

A WRONG POLICY.

Pending the recent Ontario elections it was painfully observable that the political newspapers almost without exception, resorted to personalities in what they seemed to think the interests of the causes they advocated against which to enter a strong protest. The campaign was entered upon with declarations from these papers that personalities should be avoided, and that the canvas of the different candidates should be upon their merits; but these good resolutions were quickly abandoned, and methods resorted to well calculated to deter any respectable gentleman from allowing himself to be used as target for the delvers in and slingers of every conceivable variety of political mud and filth.

But while we deplore and deprecate most seriously this feature of the campaign, another feature of it no less reprehensible from a political standpoint—that of the National Policy—was that to be observed in such papers as the London Free Press and the Toronto Empire in entirely abandoning some of the strongest arguments in favor of that policy, and advocating those not at all in harmony with it. Thus the Free Press in opposing the election of Mr. Thomas

S. Hobbs to represent that city in the local legislature said about every mean thing that could be thought of regarding one of the most worthy and enterprising business men of Canada, and withal a manufacturer of whom any city or any country might well be proud. In its sane moments the Free Press is an able exponent of the principles of protection, precisely such as are exemplified by Mr. Hobbs, its political teachings usually being of a character well calculated to encourage and build up the manufacturing industries of the country. We willingly concede the right of the Free Press to advocate the election of Mr. Meredith, but we fail to see wherein, in thus doing, it was necessary to adversely criticise the business methods and reputation of a manufacturer who became such, and a most successful one, under the algis of the National Policy. From our point of view Mr. Hobbs is of a class who do quite as much for the welfare and prosperity of Canada as that to which Mr. Meredith belongs. He may not be an astute lawyer as Mr. Meredith undoubtedly is, but as a keen, bright, intelligent business man, he is the equal of any gentleman who solicited the suffrages of the people. It was proper and right that every voter in the riding should judge between the two men and cast his ballot accordingly; but it was not right that the Free Press should depreciate the worth and merits of Mr. Hobbs, or that the Advertiser should lie about Mr. Meredith, as they both did without stint.

The Empire during the whole campaign, and indeed for weeks before the opening of it, sought to make capital against Mr. Mowat and his party because the Ontario Government declined to forbid the export of saw logs from this province to the United States. Speaking of this as being The Policy of Wrong it says:—

These limits have passed into the hands of Americans, who carry off the logs to foreign mills, and all the people have for their timber land, justly considered an inestimable possession, is the bare price of the limit, usually sold far below its value. The Opposition, in order that the people may have such advantage as comes from the milling of the logs, have contended for stipulations in the conditions of sale, that the logs must be sawn in the province, but the Government, playing into the hands of the Americans, have steadfastly refused to take any such advice. The Globe abets them in this, and, lifting up its voice in behalf of John Charlton and the other renegades in the Liberal party, who waits but a chance to sacrifice us to the Yankees, protests against even the Dominion Government coming to the relief of the ill-used people of this province by re-enacting the export duty upon logs. There is little use in entering into a discussion with The Globe as to the economic value of the present arrangement. Hair-splitting and grandiose platitudes upon the perils of interfering with established trade may satisfy the organ and its annexationist friends, but will not satisfy the people, who know that, while Michigan mills and Michigan labor are faring profitably upon logs exported from this side, Canadian mills along the Georgian bay are silent and Canadian labor driven to seek sustenance elsewhere.

Our protest against the spirit of this quotation, and of the stand The Empire has assumed in this matter all the way through is on the ground that it wilfully intends to deceive and mislead its readers as to the true and only source for remedying the evil complained of. Without doubt it is an evil, and a great one, this denuding Canadian forests for the sake of building up the American lumber in-

dustry; but The Empire knows that the true and only remedy is in the hands of the Dominion Government, not that of Ontario. By whose will was it that these Ontario timber limits passed into the hands of the Americans? Surely it was because the people of Ontario, or their Government were willing to thus sell them. There is no robbery or violence involved. The Americans paid the price demanded for them, and they are exercising their right in carrying off their logs to their mills in their own country. But Ontario has no right to interfere with these Americans in disposing of their property as they see fit. The right may exist to stipulate that in the future all the timber cut from public lands shall be manufactured in Ontario; but such a restriction could not be made to apply to limits already sold, or to private lands. Ontario has no right or authority to interfere in interprovincial trade, neither has it the authority to interfere in international trade. The Empire knows this full well, and it also knows that this right rests exclusively with the Dominion Government. For its own political reasons it ignores these facts. It heaps abuse upon Mr. Mowat, its political enemy, because he will not do that which he has no authority to do; and as to demanding that the Dominion Government, its political friends, should intervene and impose an export duty upon saw logs, which would be the only way of remedying the evil, it is as dumb as a clam.

By slightly changing the language of The Empire which we have quoted, it might with much truth be said that the Dominion Government, playing into the hands of the Americans, withdrew the export duty upon logs, which they had imposed, and ever since have steadfastly refused to reimpose it, although a strong and general demand has been made time and again that the Canadian sawmill industry may have such advantages as comes from the milling of the logs. It protests against hair-splitting and grandiose platitudes in discussing the question, but it knows that while Michigan mills and Michigan labor are faring profitably upon logs exported from this side, simply because the Dominion Government decline to impose the export duty, Canadian mills along the Georgian Bay are silent, and Canadian labor driven to seek sustenance elsewhere.

A SACRED RIGHT VERSUS ANARCHY.

Recently in discussing Coxeyism in the United States, our esteemed neighbor, The Week, delivered itself as follows:—

On what principle can a Government give repeated audience to the few and deny it to the many? Is it that the larger number is suggestive of intimidation? Is not the other equally capable of using intimidation of another kind? One has but to recall certain statements which were boldly made in the Canadian Manufacturer, a year or two ago, in order to find a suggestive answer to the question. Of course the farmers and other law-abiding citizens of Canada are not likely to have either the inclination or the time to go in large bodies to Ottawa, to lay their views before the Government while Parliament is in session. But, assuming that there is a conflict or divergence of views and interests between them and the proprietors of the various industries whose representatives are so much in evidence at the Capital, and keeping in mind the great advantage which the latter consequently have for impressing their opinions upon the law-makers, it seems a fair question whether the inequality should not be corrected by a strict

adherence to the principle that the elected representatives of the people are the only proper medium of communication between the Government and the people, at least while Parliament is in session. If it is maintained, on the other hand, that it is the right of the proprietors of every industry to have access to the responsible heads of departments, for the purpose of giving information and urging their own views, personally or through the medium of chosen agents, why should it not be equally the right of the farmers, tradesmen, etc., to do the same. If a dozen, or fifty, proprietors or managers may have their cause pleaded by three or four delegates, why may not ten or a hundred thousand laborers be represented in like proportion by a few hundreds or thousands of their own class?

If the "bold statements" made in this journal a year or two ago, thus recalled by *The Week*, had reference to the propriety of manufacturers who might be interested in proposed changes in the tariff, going to Ottawa and presenting their views to the Government, we are quite free to remark that such boldness is not to be reprehended. *The Week*, while not quite fully endorsing the Coxey method of marching upon the Capitol while the law makers are in session, endeavors to show a strong comparison between that and of the manufacturers whom this journal advised to visit Ottawa under certain circumstances. Of course we hold as sacred the right of petition, which includes with it the right of presenting a petition at the very throne and fountain of authority. A manufacturer has an undoubted right to present his petition asking for protection in his business, the farmer has a similar right, and Coxeyites and tramps generally possess inherently precisely the same privilege. But *The Week* is certainly afflicted with strabismus if it cannot observe a very wide difference in the manner of these different types of society in their methods of petition. Farmers may go—manufacturers have frequently gone to the source of power, petition in hand, and respectfully pray that their interests may have due consideration; but the history of the country does not record that on any occasion did they ever encamp around the Capitol and declare their determination there to remain until they could, by force of numbers and openly-made threats, to remain thus encamped, have their demands complied with.

The Week suggests that the principle that the elected representatives of the people should be the only proper medium of communication between the Government and the people, and that this rule should be strictly adhered to. Perhaps according to the ethics of democratic government this theory is correct, but experience shows that the observance of it is much more honored in its breach than its observance. As far as the interests of manufacturers are concerned, it is to be deplored that although members of the House of Commons are frequently elected upon platforms and pledges having special reference to those interests, the atmosphere or something else in or about Ottawa induces a somnolence and forgetfulness of those things truly distressing; and which has, time and again, led members to forget and ignore their pledges, and even to espouse the other side; as for instance in the case of the sitting member for Centre Toronto who, when asking for the assistance of the manufacturers to place him where he is, and without which he most certainly would not have arrived at that destination, declared time and again in most unequivocal terms his belief in the theory of tariff protec-

tion and the National Policy, but who, as occasion serves, does not hesitate to declare in favor of free trade, as occurred only a few days ago at the Ottawa meeting of the Imperial Federation League.

It is this sort of unfaithfulness to solemn pledges on the part of members of legislative bodies to the very interests they were elected to serve that makes it necessary at times for those who are so vitally interested to repair to the seat of government and urge their own cause and fight their own battles. Adherence to party is well enough in its way; but men elected to serve some particular interest are not faithful to the trust and confidence reposed in them if they surrender their individuality and manhood to party leaders, and allow themselves to be used and made to become pliant tools in the hands of others. Perhaps this is frequently because of a desire to avoid the enervating labor of thinking for themselves, quite willing that others should do the thinking for them; and it is this sort of thing that begets and leads to such vigorous protests as are emphasized in the styles alluded to. There is no more question of right or authority involved in multitudes of manufacturers or of farmers, or of tramps and the unemployed going to the seat of government to prefer their petitions than for individuals; and the admission of the right of the latter to do so carries with it an equal admission of the right of the former. It is to be regretted then that *The Week* cannot observe that the abstract right of petition may be overstrained in one instance and not in another. It is right for the manufacturer or the farmer, or multitudes of them, to personally present their petitions to the law-makers, it may be and certainly is wrong for the Coxeyite, or armies of Coxeyites, to march in martial array with the avowed determination to overawe and coerce the law-makers, by sheer force of numbers, to accede to their demands. In one instance a sacred right is being enjoyed—in the other we find anarchy and revolution.

EDITORIAL NOTES.

It is a fact which is, or at least ought to be, well known to engineers that the term "horse power" as signifying a certain rate of doing work, is absolutely meaningless, except as an arbitrary conventional term which has been adopted by common consent. The tradition is that James Watt, by experience with a good average Clydesdale draft horse, found that such an animal could do work, day in and day out, at a rate approximating 22,000 pounds raised one foot in one minute, and then, distrusting the results of his own experiments, he arbitrarily raised the value of his horse power unit to 33,000 foot pounds. Of late years the distribution of power is obviously falling largely into the domain of electricity, and hence is more and more coming to be commonly spoken of in terms of the accepted electrical units, which, as is well known, are based on the decimal or metric system. Of the electrical unit of the rate, the watt, 746 go to the horse power, but any considerable amount of power is more conveniently measured in kilowatts, or 1,000 watts each, ordinarily abbreviated as "k.w." Now, why should not mechanical, as well as electrical engineers agree to drop, once for all, the meaningless term "horse power" as a relic of the dark ages, and henceforth determine to use the far more convenient, as well as more

scientific unit, the kilowatt? Fortunately the relation of the old and new units happens to be such that they may be converted into each other with sufficient accuracy for most purposes by a very simple mental calculation, the horse power being three-quarters, or, in exact terms, 74.6 per cent. of the kilowatt. The time is prophesied when the horse, except as a zoological curiosity, will be unknown, but the horse power has already become, at least among electrical engineers, a useless anachronism.—Engineering Magazine.

The recently issued annual report of the New York State Chamber of Commerce contains considerable that is more or less interesting to Canada regarding commercial relations between the two countries. The Chamber believes that if Canada's agricultural products are admitted to American markets free of duty, it is but fair that Canada should reciprocate as regards American manufactures. United States fishermen, it says, are entitled to better treatment than they have heretofore received at the hands of the Canadian Government. American shipping on the Great Lakes should have the benefit of uniform navigation laws, applying alike to Canadian and American shipping; and American railroads entitled to fair and non-discriminating tariffs. These great advantages, it is urged, could be obtained by suspending the operation of the tariff law, as it applies to Canada, until these questions can be adjusted by a commission representing both the interests of Canada and the United States. Of course Canada is not much interested in this declaration, and we allude to it merely to show the animus that actuate a lot of supposedly intelligent business men who ought to be better informed in the history of current events in their country and this. These smart Alecks seem to think that Canada is a country that produces nothing but what grows on the farm or in the farm yard, and that the United States is the only possible market in which to dispose of our surplus; and that we are dependent upon the outside world for everything else that we require. They think, too, that Yankee poaching fishermen should be permitted to violate our laws with impunity, and to enjoy all rights and privileges in common with Canadian fishermen, while they refuse to accord equal privileges to Canadians. And if they really desire to have the benefit of uniform navigation laws applying alike to Canadian and American shipping on the Great Lakes, why don't they make laws to that effect? And as to rescinding the arrangements by which Canadian railroads are permitted to transport freight in bond through American territory; it might suit New York and Pennsylvania railroads to do so, and no doubt the rescinding would have been done long ago if New England and the West had consented. But this they will never do. Canada is not disposed to enter into any arrangement for the appointment of a joint commission to consider any method of delivering her independence to those who have no love for her. The New York Chamber of Commerce is on the wrong track.

Canada with a small surplus of revenue over expenditure looms up pretty well when compared with Great Britain, where there is a deficit of about \$20,000,000, France with one of \$17,000,000, the United States with one already this

year of \$70,000,000. Notwithstanding the growls of Cartwright and the other fellows out of power, Canada is doing pretty well.

From forges where no fires burn,
From mills where wheels no longer turn,
From looms o'er which no shuttles leap,
From merchants' shops—which sheriffs keep,
From banks gone up, from stocks gone down,
From God-made country, man-made town,
From Wall street men, from sons of toil,
From the bronzed tillers of the soil,
From North, from South, from East, from West,
Business is crying with a zest—

“Don't monkey with the Tariff.”

—New York Tribune.

It is unreasonable for any high-tariff country to expect success in shipbuilding. The cost of transporting a ship is practically nothing, so they will always be built where tariffs do not hamper operations. It is one of many industries which can never survive a tariff.—Toronto Globe.

If our esteemed neighbor will refer to the official documents it will discover that the inland and coastwise shipping trade of the United States, under a most rigid and to that country satisfactory system not only of protection but absolute exclusion from participation in that trade by foreign vessels, has succeeded in its shipbuilding industry most astonishingly. No finer ships float on water than those built in the United States, and more tons of exclusively American shipping pass through the St. Mary canal during the few months of open navigation each year than all that of Great Britain and all the rest of the world through the Suez Canal in the whole calendar year. And yet The Globe tells us that the shipbuilding industry cannot survive a tariff.

All things being equal, we are always glad when city work is awarded to a city firm. For this reason, seeing that so many mechanics have found it hard to get work recently, it is satisfactory to know that a city firm of known ability has obtained the contract for constructing the new waterworks pumps. The assumption is, though the figures are not yet made public, that the tender accepted was the best put forward.—London Advertiser.

Our esteemed free trade contemporary is coming around to protection very nicely indeed. Solomon, the wise man, said something to the effect that though a fool be brayed in the mortar yet would not his foolishness depart from him; and verily for a long time we almost despaired of the returning good sense of the Advertiser, though it has been brayed so frequently. But even a little gleam of wisdom like the above may afford hope.

In 1878 we imported only 19,090,000 lbs. of raw sugars. In 1893 we imported 252,600,000 lbs. of these raw sugars. The wages to workmen to refine this are kept in Canada instead of going to workmen in some other country. That this is an advantage to our workmen and business men need only to be noted to be acknowledged, when in addition we call the attention to the fact that we now get more than twice as much sugar for the same money as in 1878. The most inveterate grumbler should be ashamed to breathe a word of complaint. Do not forget that Cartwright taxed sugar and tea and coffee heavily.—Welland Telegraph.

Some good hard common sense and some nonsense. To fix the duty upon sugar at just the right notch, make

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it to just cover the difference in wages to workmen and other necessary expenses over and above the cost in other countries. The present duty does more than that and enables the refiners to become millionaires, which it ought not to do. It is nonsense to argue in favor of protection from the standpoint that sugar is cheaper now than it was in 1878. Cheaper productions abroad, not protection at home is the cause. It is no excuse to the protection government of to-day that the Cartwright government of 1878 taxed sugar heavily. Cartwright should not be the criterion. Why not encourage the growth of the sugar beet and the manufacture of beet sugar in Canada and produce at home all the sugar we require. Millions of dollars per year are paid to labor in foreign countries for the sugar we use. Why not pay those millions to our own farmers?

One of the curses of this city is over-competition. No sane man goes into a new business in Toronto to-day unless he surrounds himself with some kind of protection against men who are watching his every move. As soon as he gets his business going half-a-dozen men begin to buzz around enquiring about the rent of the next door shop. It is not prudent to encourage the spirit of reckless competition that everyone knows to exist in Toronto. What business concerns we have we would all like to see getting fair returns for their investments. We do not say, however, that the city should actively oppose this kind of competition. But it should not at least encourage it.—Toronto World.

Toronto can never hope to become celebrated as a manufacturing centre until some of the obstacles that now intervene are removed. As a general thing manufacturers are not beggars for special privileges, but on the other hand they object to being subjected to burdens that they ought not to have imposed upon them, but which they must bear if they go into business here. They are most unmercifully taxed at every turn to enable rich people to worship in expensive churches that pay no taxes; and to sustain Universities sustained at public expense, that yearly turn out hundreds of lawyers, physicians and theologians who, most of them, will never earn the salt in their bread.

The United States Consul at Chemnitz reports to the State Department concerning the export societies of Germany. It appears that these unions exist in all parts of the Empire, and are active agents in helping to extend foreign markets. Of the material progress of the Empire the Consul says:

For so old a country the progress of the last twenty years seems incredible. The impulses of her unions, the energy of her agents, the patriotism of her people, the co-operation of her governments, the education furnished by her schools, the excellence of her products, the faithfulness with which orders are filled, and the wisdom with which each people's wishes are met are only a few of the many factors that make the Empire rich, prosperous and progressive. The nation's interest in foreign trade is intense. The newspapers teem with all kinds of information regarding it. Not a day passes that a Consul could not find information valuable to our merchants and manufacturers. On my table at this moment are editorials out of the local papers covering the Empire's commerce with many foreign countries.

In England they are trying to help the domestic silk manufacture by persuading patriotic women to buy British

rather than foreign silk fabrics. A Ladies' Silk Association, organized for this purpose, is in active operation. It is difficult for an American to understand why a protective duty upon silk goods is any more wicked than a boycott against foreign goods established by associations of individuals. In any event the duty would certainly accomplish a result which the boycott will almost surely not secure. At a recent meeting of this Association Mr. Thomas Wardle read a paper in which he related how, in 1852, there was a duty upon silk fabrics, and how 27 principal manufacturers in Manchester asked the government to remove the duty because it violated the free trade principle and, in their view, obstructed the business of the aforesaid manufacturers. This request was granted and Mr. Wardle related that as a "result the whole 27 firms have been wiped out, not one of them being left." Like some American manufacturers who favor free trade, these Englishmen made a considerable miscalculation. Their business, and much of the total silk business of the British Islands, was destroyed by the silk manufacturers of France and Germany operating under protective systems. These foreigners poured their products into the unprotected British market, while keeping their own markets closed against British fabrics. Under similar conditions the complete destruction of American silk manufacture would be accomplished within five years.

Mr. Edward Atkinson urges that low prices are a good thing to have, and that [high wages always go with low prices; and he insists that the gold standard permits us to have both. But, low prices for what? The low price of wheat surely does not enable the farmers, 40 per cent. of the population, to pay high wages. Few of them are able to pay interest and taxes with wheat below sixty cents. When improved machinery in a mill permits the production of three or four times as much material at the same cost, then the price of the product falls while wages advance. The reason is that there is larger creation of wealth with no greater effort or cost. The world gains by this. But there is a different condition of things when a farmer must give five bushels of wheat to pay a debt which he could have paid a year or two ago with three bushels. In the former case there is enrichment. In the latter there is impoverishment. The manufacturer works no harder and makes more. The farmer works as hard and makes less. In the one case inventive ingenuity changes the conditions for the benefit of everybody. In the other case, legislative interference with the standard of value changes the conditions for the advantage of nobody but the creditor. This theory has behind it a solid mass of facts. The agricultural population of this country is swiftly moving towards impoverishment and bankruptcy, because of the oppressive influences of advancing gold. Indeed, producers all over the world are crying out because of the sufferings thus inflicted upon them. If Mr. Atkinson be right, the whole world-wide demand for the restoration of bimetalism is based upon a wild delusion; but Mr. Atkinson is decidedly and hopelessly wrong.—The Manufacturer.

A rather startling industrial development is reported from Victoria, where women are now being substituted for

men at no fewer than 200 railway stations. The result has been a saving of £30,000 per year in salaries. The average wage paid to a station mistress is £50 per year, whereas "the objectional male" used to receive £130. But, as the Sydney Telegraph asks, "How is the Victorian woman going to support a husband and family on £20 a year?"—London Globe.

An American official report states the entire horse power used in the States as 3,500,000, which he informs us is equal to the muscular force of 21 millions of men. From these data he proceeds to show the effect on population of having all the power of the country supplied by men. The calculations are absurd. Fancy railway trains drawn by men, or men used to give the power necessary for running the machinery of a factory. Such official statistics are worse than useless, they are childish.—Canadian Trade Review.

Not at all useless or childish. They serve to convey ideas of the developments that have been and are being made in mechanics, and to illustrate the progress of the world in these directions. Of course railway trains cannot be successfully moved by the power of human muscles, but even in this day the only available method of travel in some parts of the world is by chairs slung to poles carried upon the shoulders of human beings.

The London Times publishes a letter which is signed A Capitalist in which are related some truths that should command the attention of those who desire Canada to adopt Britain's free trade system. Two paragraphs of this letter are here reproduced:—

I am a capitalist and have been engaged in one of our largest staple industries for over 30 years. During the first 20 years the returns were sufficient to provide for renewals of plant and also for its gradual extension. During the last ten years each year has produced diminished results, until there is now not only no profit at all, but a gradual diminution of capital. At the same time I know that my trade is extending in all parts of the world, and is yielding, in all countries except England, from 10 to 30 per cent. of profit. As to the prospects, I can see only a settled determination (which is openly expressed) on the part of the work-people to exact every penny of profit from me; and on the part of the Government to make me pay every year a larger proportion towards the taxation of the country. It is quite clear to me that capital has to have no place in England, and that it is going to be an offence punishable by fine to be frugal and industrious; therefore the sooner capitalists accept the situation and act upon it the better for themselves. With this view I am quietly working out my plant, and I know many others who are doing likewise.

When the working classes have got rid of "the bloated capitalists," and the Government finds the unemployed on its hands without the income-tax and other taxes in its hands, it will realise, like the Israelites of old, how difficult it is to make bricks without straw. It is a fact that for the last four years many of our largest machine works have made over three times more machinery for exportation than for home use; and some of these machinists are now removing their works to foreign countries. Capital must have its remuneration, and, if I am correct in my views that it does not now receive any return, whether employed in agriculture or in manufacturing industries, the time is not far distant when the army of our unemployed will be counted by its millions, and our industries will be lost never to return. Government and trade unions seem to be conspiring together which can first drive capital out of the country. With the capital will depart those who have

contributed more than any others to build up the prosperity of England—I mean the thrifty and industrious out of all classes. Money is very cheap at present, where the security is undoubted; but this arises from the general disinclination to employ it where labour comes in. It will be gradually drafted into other countries as our active capitalists clear out from here, and we shall, with present conditions, before long be overtaken by a period of dear and scarce money and of dire distress.

The electric railway is one of the best friends of the man of moderate means, the man who belongs to that class which forms the majority of the 44 per cent. of this country's population which makes its home in cities.

This man of moderate means is usually called upon to spend a third of his income for rent. He must live in the city in order to be near his business. He is forced to raise his children in the city, often under very undesirable circumstances. He cannot give his family the many benefits of country or suburban life, because he must earn money so that they may all live; to earn money he must work; to work satisfactorily he must have his home convenient to his business—therefore, as the majority of occupations are carried on in cities, he must, perforce, live in a city. But with the constantly increasing number of suburban and interurban electric railways, this state of affairs is being more pleasantly adjusted. By using the electric railway this man can live miles out of the city and be within the same number of minutes of his business as he is now in the city. When he is miles from his business he is in the country or suburbs, where he has the advantage of cheaper rent, pure air, good environments for his family, and much else his heart craves. If he moves miles from the city he leaves vacant his former home. If his neighbors do the same, there are many vacant houses, and the landlord must reduce his rents in order to collect any. Thus, substantial benefits accrue to those who must live in cities. These are simple and logical facts, and their truth is being demonstrated daily. Electrical Review.

One of the singular and remarkable anomalies of the Ontario elections now fortunately brought to a determination was the defense of a Canadian Manufacturer and the National Policy by the London Advertiser, an avowed free trade paper, against what it calls the attacks of the Free Press of that city, a staunch protectionist paper except during the campaign. Hear what the Advertiser says:—

The London Free Press indorsed the civic by-law which has for years been on the books of the City Council. It offers exemption from taxation for a term of years to any one who will start a new industry. The Messrs. Hobbs found the large factory idle. It had been so for years. Its buildings were going to wreck. There seemed to be no prospect of having it set going. Though they had up till then confined their attention to their large wholesale business, the Messrs. Hobbs accepted the offer of the city. They agreed to employ the necessary number of men to receive the advantages offered, with the consent of us all, to any one who would start a new industry. From the day of starting till now the factory has been humming, with many more hands at work than stipulated in the contract with the city. The Free Press, on behalf of Mr. Meredith, now argues that the bargain should be broken—that the terms offered to this company shall be withdrawn, and that—such is its reasoning—the workmen will be dismissed and the factory brought to a standstill!

Such scandalous election tactics will no doubt be rebuk-

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ed by the electors without regard to political leanings. The only difference between the Messrs. Hobbs' factory and such industries as the London Furniture Company, the White Machine Works, the Canada Chemical Works and other city factories, lies in the fact that the industry was brought to London after the passage of the by-law, and in the further fact that Mr. Thomas S. Hobbs, one of its managers, has been chosen as a candidate for the representation of the city against Mr. Meredith.

Straw matting as a wall covering for a shooting box or bachelor's den has been used successfully. The dado may be of a fancy pattern with plain above, and with a dado rail of bamboo poles, a very effective result is obtained. Another treatment consists of a bamboo dado with a plain matting for the upper walls.—American Carpet and Upholstery Trade Journal.

A power plant on the upper waters of the San Gabriel river, Cal., is to be constructed for the purpose of furnishing electricity for power and other purposes. There will be 30,000 feet of six-foot cement tunnel through a mountain cliff, from which the water will fall 400 feet into the canyon below. The work is estimated to cost \$250,000, besides the power and the electrical machinery. It is claimed that the machinery will be in operation within a year. The aim of the projectors is to locate manufacturing enterprises in that locality to use all the power.

A new development of electric motive power has appeared in the streets of London. A parcel van driven by electricity, bearing a striking resemblance to an ordinary two-horse van without shafts and horses, may be seen at work. The current is supplied by accumulators placed below the body of the vehicle. These with one charge can propel the vehicle fifty miles at any speed that may be desired up to ten miles an hour. The steering, which presents few features of difficulty, is managed from a wheel worked by the driver's right hand. The motor occupies but a small part of the interior, which is lighted by electric lamps. The cost is said to be one-half that of horsepower.—London, Eng., Transport.

A Washington press dispatch announces that the Department of State has been informed that the Spanish government has caused to be introduced in the Cortes an act to take effect July 1 authorizing Cuba and Porto Rico to collect a transitory duty of 24 per cent. on all articles now on the free list of the reciprocity treaty. This will be a serious blow to exporters in the United States, falling upon the producers of raw materials as well as upon manufacturers. The principal articles that will be affected are: Building stone, ice, coal, rosin, crude petroleum, tiles and brick, iron in many forms, such as pig, scrap, cast and wrought; building forms and rails, wire, nails, screws and ordinary manufactures, raw cotton, cottonseed and oil, tallow, books, woods of all kinds, barrels, boxes and manufactures, agricultural implements and trade tools, machinery, railroad equipment, preserved meats, lard and butter, cheese, fish, oats, barley, rye, and buckwheat, starch and corn products, fruits, vegetables and garden products, hay, straw and bran, tan bark. All of these articles are now free, and if the bill passes, and it is expected it will pass, all must pay 24 per cent. duty. The action of the Spanish

government is understood not to be an infraction of the treaty, for the reason that in a letter closing the negotiations, written by the Spanish minister to Secretary Blaine June 8, 1891, it was expressly stipulated by him that the right was reserved to the Cortes and to Congress to modify or repeal the treaty whenever they think proper.

My son, observe the postage stamp. Its usefulness depends upon its ability to stick to one thing till it gets there.—Elmira Gazette.

The Greenock Beetroot Sugar Association are endeavoring, by the offer of liberal prizes, to get the farmers of Scotland, particularly in the West, to take up the cultivation of sugar beet. Last year thirteen growers sent in samples for testing, and we are glad to see a Bute sample second on the list. This was grown in Mr. M. C. Cuthbertson's Sunny Park Nursery, Barone Road. This year the association is offering £25 in five prizes for the greatest quantity of sugar beet best adapted for sugar making, the produce of one rood of ground. The first prize is a piece of plate to the value of ten guineas, or that sum in money. This, we think, should be a strong inducement for some of our Bute farmers to try their hand. Besides the value of the experiment, it should be noted that the roots are superior in conjunction with Mr. Cuthbertson's successful experiment to either turnips or potatoes for cattle feeding, and last year Mr. Gibb, Gladston Farm, Bishop-ton, raised twenty-four tons of roots per acre. The association provides as much seed free as will sow a rood. This has been placed in the hands of Mr. Cuthbertson for distribution—five lots only are allocated to Bute, and already one or more lots are taken up. Parties therefore who wish to compete should at once apply to Mr. Cuthbertson, who will be pleased to supply the seed and give every information about last year's experiments, a full printed report of which can be had. The experiments of the last two years prove that sugar beet of as good quality can be raised in Scotland as in France or Germany, and it is the intention of the association, as soon as farmers take up its cultivation in sufficient numbers, to erect works for extracting the sugar. We think it scarcely necessary to point out the immense benefit it would be to farmers were the cultivation of sugar beet successfully established in this country. Germany, previous to 1865, grew little or no beet. Last year that country produced 1,350,000 tons of sugar, and France 575,000 tons. Why should not the British farmer share in this golden harvest? At least he should lose no time in satisfactory proving whether or not the growing of sugar beet can be made a paying crop.—Sugar, London.

We congratulate the CANADIAN MANUFACTURER on its growth during the last eighteen months. The journal is ably edited and well managed.—American Carpet and Upholstery Trade, Philadelphia.

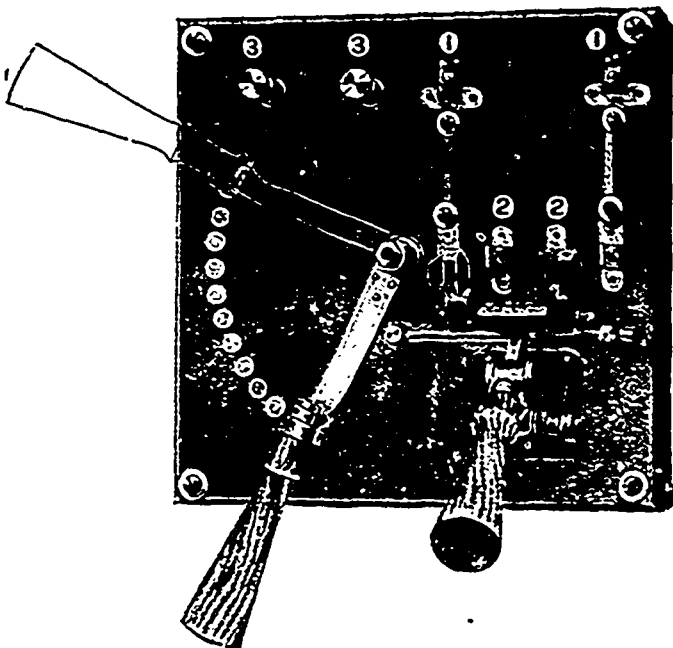
Many thanks. Kind words can never die.

The pleasant pages of *Outing* for July bring with them whiffs of pine-scented breezes, the restfulness of cool green woods, the foamy music of surf and mountain torrent. Every seasonable sport and pastime receives attention in one of the most interesting and best illustrated numbers yet received. The contents are as follows: "The

Descent of Isaac Russ," by Frank M. Bicknell; "Sport with Illinois Bass," by Allister K. Stewart; "A Day in a Catboat," by Ed. W. Sandys; "The Land of the Breadfruit," by F. M. Turner; "A Blue Grass Cycling Tour," by J. B. Carrington; "Bachelor Buttons," by Florence L. Guertin; "Lenz's World Tour Awheel! The Ape That Talked," by A. J. Kenealy; "Champions at Law: Tennis," by Clarence Hobart; "The Last Fish," by T. I. Sherman; "Rifle and Rod in the Rockies," by Chas. L. Marsh. "The Michigan National Guard," by Capt. Chas. B. Hall; "Touring Europe on Next to Nothing," by J. Perry Worden; and in addition to the usual editorials and poems there is an admirably edited department of "Records," covering the entire field of amateur athletic sports.

"What Constitutes a Good Husband" is discussed by a lot of clever women, among whom are Mary Hallock Foote, Elizabeth Stuart Phelps Ward, "The Duchess," "Grace Greenwood" and Amelia E. Barr, in the July Ladies' Home Journal. "The Thirty and One" is the clever title of a delightful short story by Charles D. Lanier. Will N. Harben contributes "The Heresy of Abner Caliban," a strong study of life in the Tennessee mountains, which Alice Barber Stephens has illustrated most successfully. The biography of the number consists of sketches, with portraits, of Mrs. Wayland Hoyt and Mary Hartwell Catherwood. Frank R. Stockton gives two more of "Pomona's" characteristic letters to her old "Rudder Grange" mistress, and Mr. Howell's literary reminiscences under the title "My Literary Passions" grow in interest and charm. Robert J. Burdette is particularly happy in his "Making a Suburban Home," the editor gives a most interesting review of a new and unique Southern story and the Rev. T. DeWitt Talmage writes of "When Things are Against Us." Miss Scovill's paper "On Feeding a Baby in Summer" will be found especially valuable to mothers. Women everywhere will be charmed with Miss Parloa's "House Furnishing in Paris," Cora Scott Waring's "Graceful Lunch Set," Mrs. Mallow's "The Art of Dressing in White," Eliza R. Parker's receipts for "The Apple, the Peach and the Pear," Miss Hooper's "Styles in Household Linen," the page of "Dainty Luncheons, Tea and Dinner," "Little Summer Belongings," "Up-Stairs and Down-Stairs," "Useful Things Worth Knowing," and Harriot Ogden Morison's exquisite page of "Ecclesiastical Embroidery." Altogether this July issue, with its attractive cover specially designed by W. T. Smedley, and its admirable table of contents, is an ideal woman's magazine and worth many times its price of ten cents. Published by The Curtis Publishing Company of Philadelphia for ten cents per number and one dollar per year.

Combined Switch and Rheostat.



We illustrate herewith a very clever device for protecting the armature of motors when the current is first thrown on.

In installing motors, the switch and rheostat being generally placed side by side, and being entirely separate from each other, it often times happens that through haste or carelessness the current is thrown on by the switch before the resistance is cut in by the rheostat, and as a consequence the motor armature is burned out or the fuses blown.

The W. S. Hill Electric Co., of Boston, Mass., have placed on the market a patent self locking starting switch, in which the switch and rheostat are combined in such a manner that the switch cannot be thrown in without first putting in all of the resistance; this avoids any possible chance for an accident of any kind.

Besides the price is less than that of a switch and rheostat separate, thus offering the inducement of economy, as well as saving the risk of accident to the motor by its use.

The Popular Science Monthly presents a varied table of content^s in its July number. The opening article, by Logan G. McPherson, is on "The Meaning of Corporations and Trusts," showing that such combinations are natural results of well-known causes. Several articles suggest subjects for observation during summer outings. Prof. Byron D. Halsted has an illustrated paper under the title "Sunshine Through the Woods," describing the rings and veining of several important woods. Alexander McAdie describes "A Colonial Weather Service," from the records of which we learn the temperature on July 4, 1776. Two full-page pictures illustrate modern meteorological methods. Prof. James Sully contributes the first of half a dozen papers on "Studies of Childhood," the subject of imagination being first treated. Some curious structures are described and illustrated by L. N. Badenoch, under the title "Homes of Social Insects." "In Latitude and Vertebrae," Prof. David Starr Jordan presents a study in the evolution of fishes. "The Great Bluestone Industry," is described in an illustrated article by Henry B. Ingram. In "Lady Mary Wortley Montagu and Modern Bacteriology," the introduction of inoculation and vaccination for smallpox in England is described by Mrs. H. M. Plunkett. O. S. Whitmore gives an account of early trials in "Kiln-Drying Hard Wood." Dr. Louis Robinson discusses "Acquired Facial Expression," bringing out some very interesting facts. Under the title "Savagery and Survivals," Prof. J. W. Black shows that many of our ceremonies, fashions, habits, and notions have come down to us from savage forebears. There is a biographical sketch of Heinrich Hertz, who has died at the age of thirty-seven, after making some of the most wonderful researches of recent years on light and electricity. The death of Prof. Billoth, of Vienna, is also noticed, and there are portraits of both men. New York: D. Appleton & Company. Fifty cents a number, \$5 a year.

Bristol's Recording Wattmeter.

The accompanying engravings illustrate a new recording wattmeter that is being manufactured and introduced by the Bristol Company of Waterbury, Conn., to supplement their present line of recording voltmeters.

The general design of the wattmeter is the same as that of the voltmeter, the principal modification being that a coil wound with a heavy conductor is substituted for one of the stationary coils of fine wire. This method of adapting the recording voltmeter to a recording dynamometer or wattmeter was planned for and fully described in the specifications of the patent of the voltmeter.

Referring to the engravings, Fig. 1 shows the instrument complete, ready for connection. Fig. 2 shows the interior construction and manner of operation. The coil A wound with fine wire is mounted on a spring knife edge supports and is free to move toward the

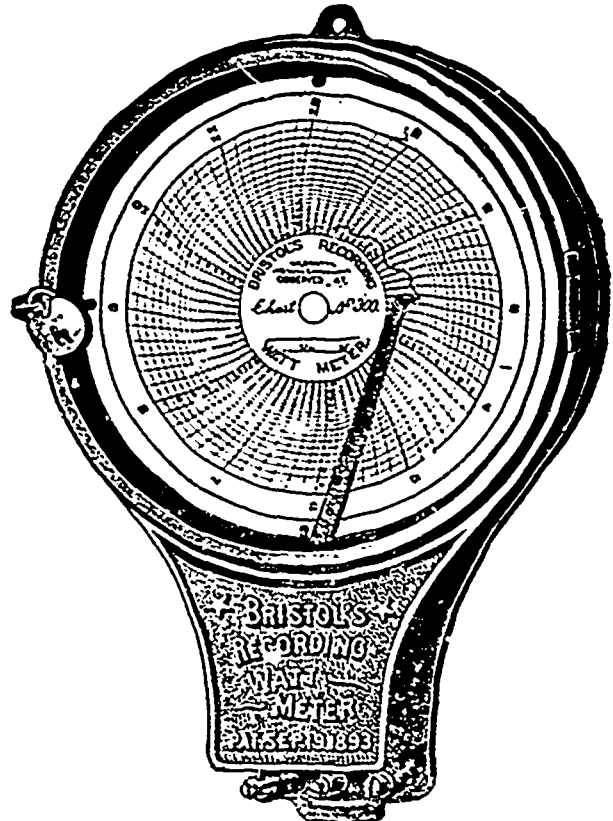


Fig. 1.

stationary coil B, which is wound with a heavy conductor capable of carrying the entire current to be measured. The terminals of the coil A are connected to the positive and negative conductors, and the magnetic effect of the current through this coil of high resistance

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will be dependent upon the voltage, while the magnetic effect of the main current through the coil B of low resistance will depend upon the number of amperes passing. The mutual attraction of the coils

will be the product of these magnetic forces and proportional to the number of watts.

The marking-arm F is attached directly to the knife edge spring supports of the movable coil and partakes of its motion, recording the variations of electrical energy on a uniformly revolving chart.

While the actual motion of the coil is quite small it will be seen that the angular motion of the pen-arm affords a sufficiently open scale on the chart without resort to ordinary multiplying mechanism which would introduce friction. As the only bearings in the instrument are the knife edge supports of the movable coil it is extremely sensitive to the smallest changes of current. The magnetic balance principle involved in the construction makes it possible to entirely avoid the use of permanent magnets.

The divisions on the chart shown are kilowatts with a total range of eleven kilowatts. The stationary coil is designed for a maximum current of one hundred amperes. For larger currents proportional shunts will be employed.

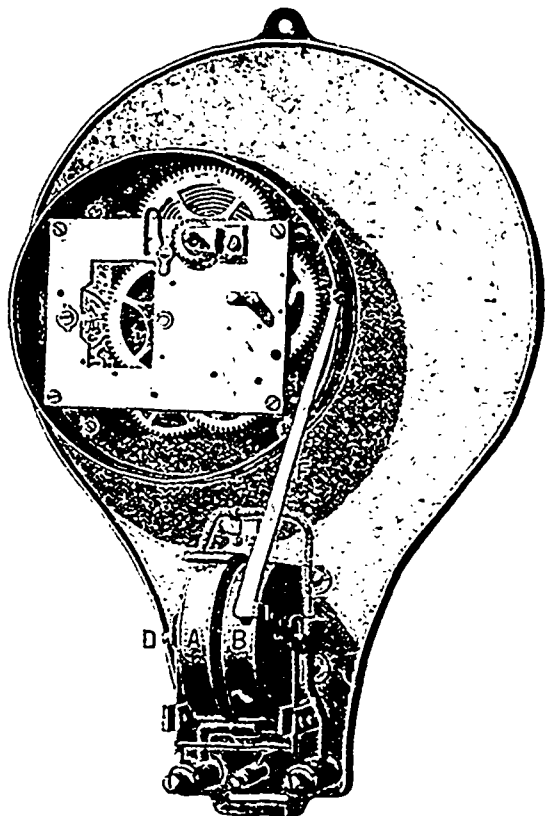


Fig 2.

CAPTAINS OF INDUSTRY.

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

An addition is being made to the electric plant of G.K. Nesbitt's flour mill, Cowansville, Que.

An arc lighting plant will be installed at Goderich, Ont., by Robert Mainprize, of Wingham, Ont.

The Gibbs-Franchot-MacLaren Company, Ottawa, have been incorporated, capital \$50,000, to manufacture chemicals, etc.

The Dominion Compressed Food and Fodder Co., Barrie, Ont., are applying for incorporation with a capital stock of \$100,000.

A syndicate of American capitalists has leased four thousand acres of land from the Canada Company, three miles north of Thedford, Ont., and test wells for petroleum are being put down.

The Brockville Light & Power Co. are applying for the contract to light the new asylum building. If their application is successful they will require a new alternator of at least 2,000 lights' capacity.

EXCELLING ALL OTHERS

Canada's Great Industrial Exhibition

Toronto, Sept. 3rd to 15th, 1894.

MANUFACTURERS OF EVERY KIND

If you want to increase your business in dull times the only way is to advertise your goods, and you cannot do so more effectually or more economically than by making an

Exhibit At This Great Fair

NO CHARGE FOR SPACE AND ALL REQUIREMENTS PROVIDED

The Most Extensive Manufacturers are those who have exhibited at Toronto.

APPLICATIONS FOR SPACE SHOULD BE MADE AT ONCE

All Entries Must be Made Before August 11th.

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Regina, N.W.T., is to have a new English church.

An iron bridge is to be built over the Speed river at Hespeler, Ont.

The Corticelli Silk Co., St. John, Que., will build an addition to their factory.

A steel bridge is to be built over the Rogue river at Milne's Mills, Scarboro' Ont.

The glass makers of the U. S. will hold their convention in Montreal on 9th inst.

B.C. Iron Works, Vancouver, was slightly damaged by fire last week.—Commercial.

The Nova Scotia Gypsum Co. Parrsboro', N.S., is applying for incorporation, capital \$2,000.

Mr. W. C. Crawford is about to build an addition to his handle factory at Tilbury Centre, Ont.

The Montreal Street Ry. Co., are talking of building a large power house in the centre of the city.

The Dominion Coal Co., Glace Bay, C.B., will build new workshops and make other improvements.

Mr. Bramish, of Brandon, Man., has been awarded the contract for the new court house at Portage la Prairie, Man.

The Canadian Cone Coupler Carriage Co., Palmerston, Ont., are applying for incorporation with a capital stock of \$50,000.

Brandon, Man., will submit a vote authorizing the granting of a \$6,000 bonus for the erection of a flour mill, 300 bbls. capacity.

The Brockville and St. Lawrence Bridge Co. is the name of the company who will build the international bridge at Brockville, Ont.

Messrs. Wm. and J. G. Greey, Toronto, are making some new steel rolls for the Toronto Rubber Shoe Co.'s works, Port Dalhousie, Ont.

W. B. McAllister & Son's flour mill at Pembroke, Ont., was partly destroyed by fire June 20th, loss \$30,000. Largely covered by insurance.

The Brantford, Ont., Township Council have decided to build a new steel bridge over Whitman's Creek at Apps Mills, to cost about \$1,500.

Some time ago the woolen mill of Jas. Sheene, at Penfield, N. B., was burned. It is now stated that Mr. Sheene contemplates rebuilding on the old site.

The Ontario Rolling Mills Co., of Hamilton, Ont., have been supplied by Messrs. Wm. and J. G. Greey with some new chilled iron rolls of large size for their Hamilton mills.

The committee at Elkhorn, Man., which has been working to secure the erection of a 100 barrel mill at that place, now propose to reduce the capacity of the mill to 50 barrels per day.

The foundation of the new flouring mill at Prince Albert, Sask., has been completed, and the superstructure will be erected at once. It is hoped to have the mill fully equipped and ready for the new crop.

The Bow Park Farm, Ltd., is the name of a new company applying for incorporation with a capital of \$50,000 to can and preserve meats, fruits, etc. Christopher Cook, Brantford, Ont., is one of the promoters.

Letters patent have been issued incorporating The Ontario Engine and Machine Co., with a capital stock of \$12,000. Their office is 122 Church St., Toronto. A. J. Somerville, pres.; Chas Smith, supt.; Alex. Ashenurst, secy.

Messrs. Ritchie and Ramsay, New Toronto, Ont., manufacturers of coated paper, cardboards, etc., have now got their new cardboard machinery running. The capacity of the new machinery put in is 10,000 sheets a day.

The Sydenham Glass Company, Wallaceburg, Ont., are applying for incorporation with a capital stock of \$50,000. They intend building a factory at Wallaceburg to manufacture glass-ware. A. G. Laird, Wallaceburg, is acting secretary.

Mr. Green, a partner in the firm of Laidlaw, Green & Co., Brandon, Man., has withdrawn from the firm, and will probably go into business in Virden, Man. The business will be continued under the name of the Brandon Machine Company.

The Reid Brothers Co., of Toronto, are applying for incorporation to manufacture billiard and pool tables, bowling alleys, and wood split pulleys. The first directors are Wm. T. Reid, Walter P. Despard, John W. Reid, all of Toronto.

The Canada Coals and Railway Co. Joggins Mines, N.S., are putting in a 300 horse power Lancashire boiler fitted with Galloway conical tubes. It was built by the Robb Engineering Co. who have another of the same size under construction for them.

An offer has been received from a reliable man to build and run a 50 barrel mill at Elkhorn, Man., says the local paper, for a substantial bonus, and it is likely a new by-law will be submitted to the rate-payers, reducing the size of the mill to be built.

La Manufacture de Meubles de Victoriaville (The Victoriaville Furniture Manufactory) are applying for incorporation with a capital stock of \$10,000, headquarters at Victoriaville, Que., to manufacture and sell household furniture and other wooden articles of every description.

Merrickville, Ont., purposes purchasing a new fire engine.

\$10,000 is to be spent in harbor improvements at Belleville, Ont.

The Highland Creek bridge is to be replaced by a new structure.

Messrs. Hovey & Brothers will start a packing establishment at Sherbrooke, Que.

The Methodists of Cooper Falls, Ont., intend putting up a building for religious services.

Mr. Gilmour, Toronto, has ordered a two drum 3 inch sander from the Cant Bros. Co. of Galt.

Messrs. Nie and Whitfield, Hamilton, Ont., are building a large automatic engine for a London flour mill.

The Stanstead Electric Light Company, Stanstead, Que., have been incorporated with a capital of \$25,000.

The cheese factory belonging to Walter Streker, Milford, Ont., was burnt down last month. Loss \$3,500, insurance \$2,500.

An addition is being built to the brewery of E. L. Drewry, Winnipeg, which will be used for manufacturing aerated waters of all kinds.

A fire started in the boiler house of H. J. Beaman's spring bed factory, Montreal, a short time since, doing about \$4,000 damage which was covered by insurance.

The Oxford Wool Manufacturing Company, of Oxford, N. S., are about to erect an iron building, 50x50 feet, in which to operate the pickers, cards and other machinery.

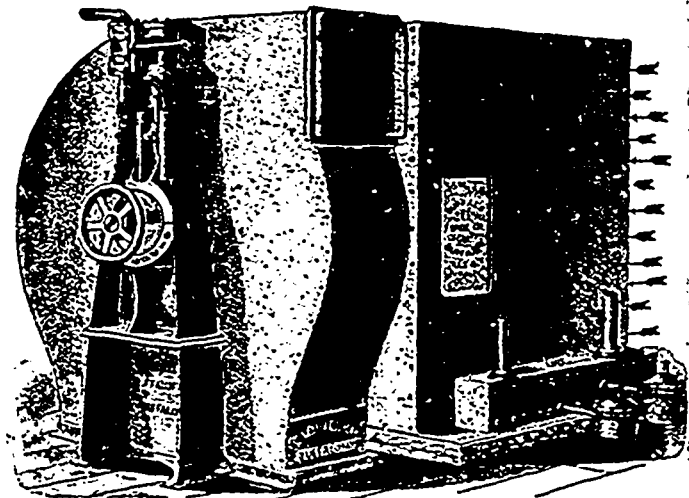
The City of Ottawa has voted \$150,000 in subsidy toward an interprovincial bridge across the Ottawa River, between Ottawa City and the Quebec shore opposite, and the Ontario Government are now being asked to grant similar aid.

The Bell Cigar Company in St. John, N.B., have added a plant for manufacturing German mustard. The machinery consists of a crusher, a mustard mill weighing 1,800 lbs., pumps, tanks, etc. The capacity of the plant is 100 gallons per day.

The St. George Electric Co., St. George, N.B., is applying for incorporation with a capital stock of \$5,000. The provisional directors are Theodore H. Estabrooks, St. John, N. B.; Frederick B. Dunn, Musquash, N.B.; Albert T. Dunn, Musquash, N.B.

The Ontario Wind Engine and Pump Co., Toronto, are applying for incorporation with a capital stock of \$40,000. The provisional directors are Owen Lloyd, Holland Landing, Ont.; Stephen H. Chapman, John H. Chapman, Joshua B. Chapman and Oscar E. Bray, all of Toronto.

Buffalo Lumber Dry Kilns



The Largest Drier in America is equipped with a
"BUFFALO" Hot Blast Apparatus.

THE OWNERS ARE ENTHUSIASTIC

All Users of Buffalo Kilns write letters similar to this one:

"The Kiln answers every purpose to perfection; the Dry Rooms are run with exhaust steam at mere nothing in the way of cost, compared with the old way. Your arrangement is very simple and easily managed, besides being a money saver in operation. We are able, with the Kiln you sent us, to dry soft woods in three days, and hard woods in five days. That's good enough for anyone."—SMITH BROS., Sayre, Penn.

Send for Catalogue.

BUFFALO FORGE CO., Buffalo, N.Y., U.S.

Vancouver Sash and Door Co. have started a planing mill at Vancouver, B.C.

A flour mill, a tannery and a woolen mill are being agitated for at Beeton, Ont.

The Montreal Silk Co., Montreal, Que., will rebuild their factories which were destroyed by fire a short time ago.

Charles Rork, Brodhegan, Ont., has placed his order for a No. 3 planer and matcher, with the Cant Bros. Co., of Galt.

The new buildings for the Newfoundland Brewing Company are now nearly completed. The company will resume operations shortly.

The citizens of West Selkirk, Manitoba, (Canada), have decided to build a woolen mill, and the work will be proceeded with at once.

Experiments are now being made to determine whether there is any hope of Winnipeg securing an adequate water supply from artesian wells.

A steam shovel, weighing 35 tons, has been shipped to be used on the construction of the Parry Sound and Ottawa branch of the Canada Atlantic Railway.

An explosion occurred at the Windsor Gas Works, Windsor, Ont., lately, owing to a leak in the output meter. The building was considerably damaged.

The Town Council of Fort William, Ont., are in receipt of letters from Mr. John King, who represents a company desiring to build a pulp mill in that town, the cost to be about \$300,000.

The pottery business which has been carried on for a number of years by Mr. W. E. Welding, at Brantford, Ont., has been purchased by Dr. Lowrey. The sale includes all the real estate buildings and plant of the establishment and the price paid was \$14,500.

The Johnson Electric Company, 34 York street, Toronto, have sent us a circular which states they have started business at the above address. The manager, Mr. W. A. Johnson, who was for eleven years general manager of the Ball Electric Light Co., of Canada, has been connected with the manufacture and sale of electrical apparatus from the starting of the industry in Canada, and is practically experienced in every detail of the manufacture and operation of all classes of electric machinery. The company inform us their specialties are: an entirely new slow speed alternating current dynamo, a new arc lamp for alternating currents which operates with or without transformer, a new automatic arc dynamo, railroad motors, stationary motors and power generators, besides which they will carry a full stock of electric supplies.

Messrs. Flater & Henry's carriage factory, Blenheim, Ont., was destroyed by fire on June 15th.

J. & T. Conlon's saw mill at Little Current, Ont., was destroyed by fire June 14th. Loss \$50,000. Insurance \$20,000.

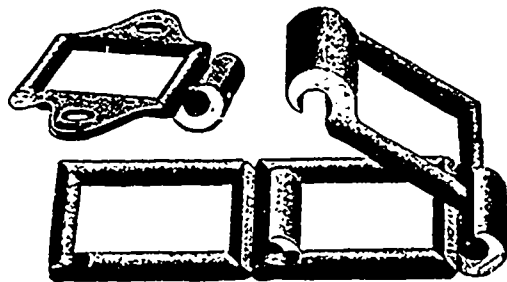
Messrs. Simeon & Hill, Warton, Ont., have placed in their furniture factory, a Stengel dovetailer, bought from the Cant Bros. Co., Galt.

John Perkins, proprietor Toronto Engine Works, secured the contract for building a lighthouse base for the Red Rock Lighthouse, Parry Sound. The base is 45 feet in diameter, made of heavy plate with angle irons top and bottom and weighs 40 tons.

The Fox Tie Plate Company are applying for incorporation with a capital stock of \$10,000. The applicants are A. Zimmerman, S. S. Ryckman, M. A. Hunting, John Bradley, of Hamilton, and W. H. Muir, of Detroit. The head office will be at Hamilton.

Messrs. J. L. Goodhue & Co., manufactures of leather belting, Danville, Que., inform us that in their business they have felt no indications of hard times, their last month's sales being the largest since they have been in business. They are running full time and had to do some overtime to keep up with orders.

EWART LINK CHAIN BELTING



Attachments and Sprocket Wheels. Large stock always on hand

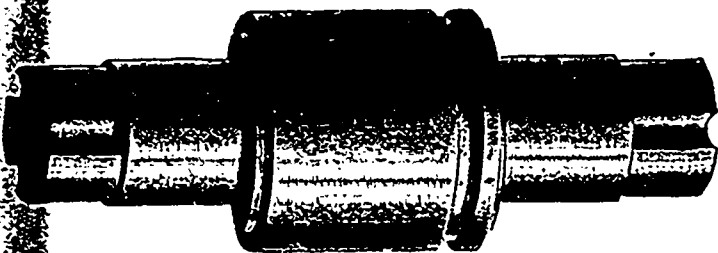
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WM. & J. G. GREY, 2 Church St., Toronto.

Also complete stock of General Mill Supplies and Furnishings. Orders Filled Promptly.

.....MANUFACTURERS OF.....

Superior Chilled Iron Rolls



Chilled Iron Roll, as used by Iron Rolling Mills. Various sizes.

Perfect Surface, Deep Chill, Hard, Tough, Durable, Guaranteed free from flaw

...FOR.....

Iron Rolling Mills, Rubber Works, Paper Mills, Flour Mills, Etc.

.....FOR ROLLING.....

Iron, Steel, Gold, Silver, Brass, Copper, Wire, Lead, Paper, Etc.

Extensive plant for Grinding and Corrugating Rolls

Wm. & J. G. Grey

2 CHURCH ST., TORONTO.

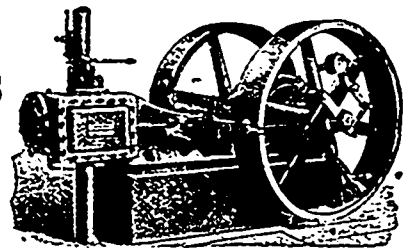
SPECIAL ATTENTION PAID TO.....

High Grade Power Plants

Robb-Armstrong Automatic Engines

Interchangeable Parts

Perfect Alignment. Large Bearings.



Robb Engineering Co., Ltd., Amherst, N. S.

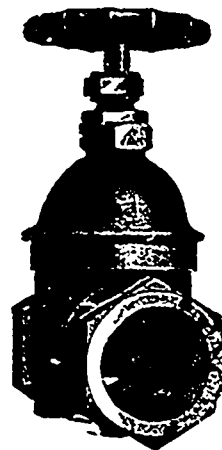
THE WEBBER PATENT

Straitway Valve

FOR

STEAM, WATER OR GAS

EVERY VALVE TESTED



THE KERR ENGINE CO. (LTD.)

WALKERVILLE, ONT.

Sole Manufacturers for Canada

Send for Price List

Bradford, Ont., will purchase a new fire engine to cost \$2,800. Mr. F. E. Argue is going to build a grain elevator at Carp, Ont. R. Heddle & Co., Nanaimo, B.C., have opened up their carriage works.

The G.T.R. workshops in Montreal and London started up again on 3rd inst.

The cheese factory at St. Mary's, (Kent Co.) N. B., commenced operations 25th June.

\$2,000 is to be spent by Winnipeg, Man., for sewer pipe, and \$9,000 for sewer construction.

Prescott, Ont., council will shortly introduce a by-law to raise \$75,000 for waterworks and sewerage.

Messrs. John Catto & Son, Toronto, will spend \$ 5,000 on improvements and alterations to their stores.

Tenders will be wanted for a new electric power station at Morrisburg, Ont., as soon as the site is selected.

The shingle and planing mill owned by James Hawley, and leased by Wm. Foster, was totally destroyed by fire June 15th. No insurance.

The Canadian Pacific Mining and Milling Co. are asking for tenders for 300 feet of tunnelling on their gold property Woodberry Creek, near Ainsworth, B.C.

The Cochrane Hill Gold Mining Co., Melrose, N.S., Guysboro Co., are putting up a 20 stamp mill: the mill will be equipped with an air compressor, drills, and hoisting engine. It is expected to have the mill in operation by the middle of this month.

Mr. J. A. Camirand, Sherbrooke, Que., recently discovered an exceedingly rich vein of mispickel on one of his farms. Samples of the ore have been sent to Montreal and New York for analysis and have proved fully as rich, if not richer, than the famous Hungarian mines.

The Brackmae & Ker Milling Co. have bought out the B.C. Milling and Feed Co., New Westminster, B.C., of which Messrs. Batchelor & Quine were the promoters. The purchase includes the mill building, plant, wharf and warehouse. The new owners will increase the capacity and then continue to operate the mills.

The Cant Bros Co., Ltd., of Galt, have received the following orders from their agent in Montreal, within the last two weeks:—An improved pony planer, a tenoning machine, an improved power mercier, a mitring machine, a sash and door sandpaperer, a fuzz planer, a sash and door clamp, a No. 2 threesided molder, a No. 1 sleeper, a scroll saw, and a bracket band saw.

E. LEONARD & SONS

LONDON - - - CANADA

MANUFACTURERS OF

ENGINES AND BOILERS

(NEW DESIGNS)

STEAM PLANTS EQUIPPED FOR ALL PURPOSES

Highest Economy, Regulation Perfect. Send for Circular. Interviews Desired.

THOS NOPPER, - - - Sales Agent

70 YORK STREET, TORONTO, ONT.

Armington & Sims

AUTOMATIC HIGH SPEED ENGINES

—FOR—
ELECTRIC LIGHTING

—AND—

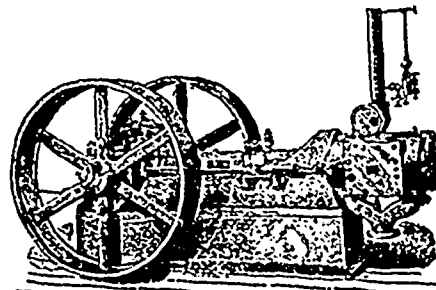
GENERAL FACTORY PURPOSES

Perfect Regulation and Highest Economy.

— Steam Pumps
SHAFTING, PULLEYS

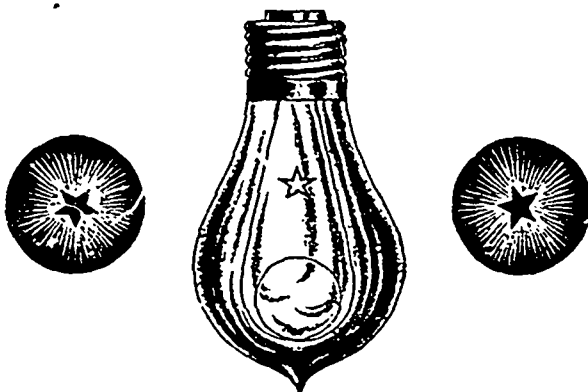
—AND—

General Machinery



Nie & Whitfield - HAMILTON, ONT.

“STARR” Incandescent Lamps..



Full Candle Power. Long Life. Low Price.

Made of any Candle-Power and Voltage, and with bases to suit the different sockets in use.

Unrivalled Quality. — High Efficiency.

Write for Quotations, stating Voltage and Base used.

JOHN STARR, SON & CO.

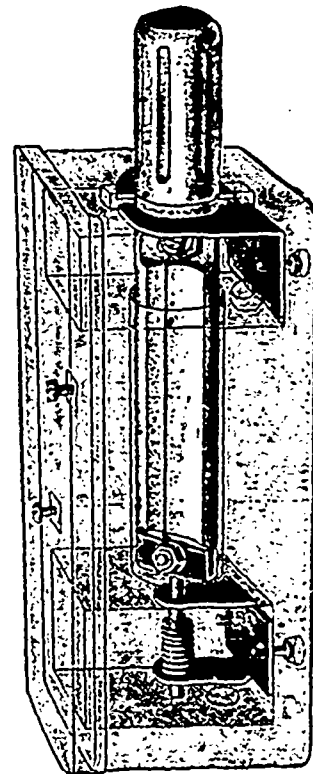
(LIMITED)

... Halifax, N. S. ...

Illustrated Catalogue of Electrical Supplies on Application.

The Packard Transformer

The Transformer can be cut out of circuit and a burned out fuse replaced without the use of any tool whatever.



Packard Transformer Fuse Box Complete (5 SIZE)

Packard Lamp Co., Ltd. - - - Montreal

Makers of Packard Lamp and Transformers.

The Methodists of Steveston, B. C., will build a new church.

The Cairo Polish Company, Pictou, N. S., are applying for incorporation with a capital of \$10,000. John W. Morrison, A. J. Craig, J. A. Russell, and Archibald McKenna, all of Pictou, N. S., are the promoters.

The factories making lace and braid at Berlin Ont., and Toronto Junction, have been brought under one management. The machinery of the Berlin factory has been taken to the Junction, where the works will be materially enlarged. Mr. Hartoun, formerly foreman at Berlin, becomes foreman of the new concern. Mr. Tuerk, the former proprietor of the Berlin factory, is a director of the company formed by the amalgamation.

There was a large meeting of mill men and others at Hampton, N. B., to see the testing of a new "Allis" band mill recently put in by the Flewelling Manufacturing company of that place. The first logs cut were the toughest spruce that could be found in the boom, which were cut as accurately and smoothly as were the clear pine logs which followed. Then some birch logs were brought in, and while they were of the largest size and of the toughest quality, they were cut with equal ease, and an accuracy that could not be excelled. To illustrate the saving made by a band saw the Messrs. Flewelling formerly had so much saw dust that they had to cart it away and were thinking of putting in a burner to get rid of this expense. But now, although cutting more per day, they have not enough to run their boiler on, and are using other refuse, which formerly had to be carted off. At a low estimate, the saving effected even in low grade lumber is equal to the running expenses of a mill. The Waterous Engine Works Co., of Brantford, who furnished the machinery, as well as the Messrs. Flewelling, are to be congratulated on their enterprise. The capacity of these mills is from 40 to 60 thousand feet per day. It will repay any mill men to visit this establishment and see for themselves that a properly built band mill can be run by ordinary intelligent men and give results that show well on the right side of the balance sheet. VanMeter Butcher & Co., Moncton, are general agents for the Waterous Engine Works Co., for the Maritime Provinces.—Moncton, N. B., Times.

Mr. John Farquharson will build a large biscuit factory in Montreal.

The Toronto Batting Co. have started again at Esplanade East, Toronto, where they will manufacture batting and mattresses.

Messrs. Shaw and Cassils, Montreal, have purchased D. W. Alexander's interest in the Huntsville, Bracebridge and Port Elgin railways. D. A. Burns is their Toronto manager.

Joseph Kidd, late of Tilbury, Ont., has accepted a bonus from the municipality of Prince Albert, N.W.T., for the purpose of constructing a roller flour mill of 100 barrels capacity. Work is being pushed on the building, and the contract for the roller mill machinery, including engine and boiler, is in the hands of Messrs. Wm. and J.G. Greey, Toronto, Ont.

EAGLE FOUNDRY † Established 1820.

...GEORGE BRUSH...

14 to 34 King and Queen Streets, - Montreal

.. Maker of ..

STEAM ENGINES, STEAM BOILERS,
HOISTING ENGINES, STEAM PUMPS,

Circular Saw Mills, Bark Mills, Shingle Mills, Ore Crushers, Mill Gearing, Shafting Hangers and Pulleys.

Safety Elevators and Hoists for Warehouses, Etc.

HEINE SAFETY STEAM BOILERS...
Blake "Challenge" Stone Breaker.

VALVES and -
Pipe ::
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Write for Latest Prices.

RICE LEWIS AND SON
(LIMITED)

Cor. King and Victoria Sts. - TORONTO.

Galvanized Iron, "Gordon Crown."
Tin Plate, "M. L. S."
Solder, $\frac{1}{2}$ & $\frac{1}{4}$, "M. L. S. Guaranteed."

M. & L. SAMUEL, BENJAMIN AND CO.

30 Front Street West, Toronto

ENGLISH HOUSE:
SAMUEL, SONS & BENJAMIN
184 FENCHURCH ST., LONDON. E.C.

SHIPPING OFFICE
1 RUMFORD PLACE, LIVERPOOL

PROTECT YOUR MOTORS

....By using the....

HILL PATENT

Self-Locking Starting Switch

27 No possible chance for an accident as the Switch cannot be closed until the resistance is all in.

CHEAP • COMPACT • DURABLE

....Made only by the....

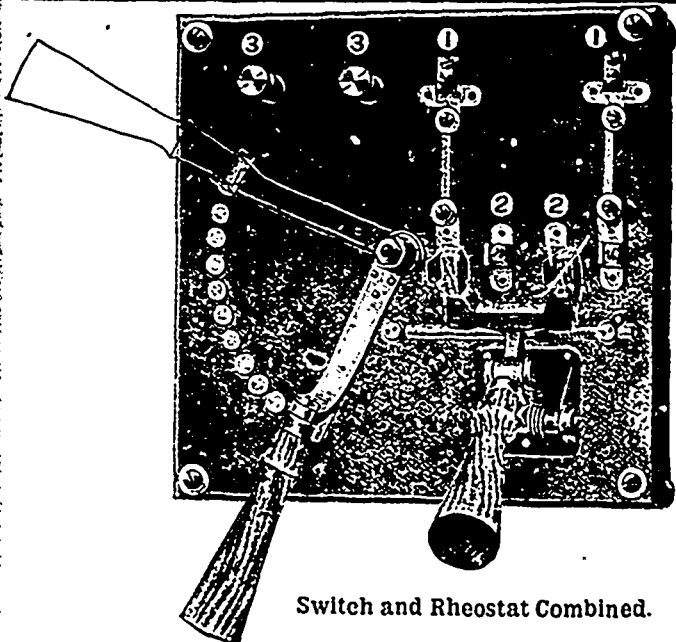
W. S. HILL ELECTRIC CO.

133 Oliver St., Boston, Mass.

SEND FOR CIRCULAR AND PRICE LIST.

NEW YORK
Elson & Brewster, 143 Liberty St.

CHICAGO
Central Electric Co.



Switch and Rheostat Combined.

Kamloops, B. C., intends to purchase an electric light plant. The Baptists at Sydney, N. S., will build a \$4,000 church this summer.

Union Furniture Co. are successors to Gilchrist, Green & Co., Wingham, Ont.,

It is reported that a Minneapolis and Duluth syndicate will shortly build a new elevator at Owen Sound.

The Comet Bicycle Mfg. Co., Toronto, Ont., are going to build a new factory on Temperance St. in that city.

Alexander Kelly & Co., Brandon, Man., will shortly make improvements and increase the capacity of their mill.

Messrs. E. F. Keene & Co., of Sherbrooke, Que., are going to put up extensive saw mills at Spaulding near Lake Megantic, Que.

The exclusive franchise will be granted to anyone putting in an electric light system in North Bay, Ont. Particulars can be had of Mr. Mackey, North Bay, Ont.

There is some talk of constructing an electric railway from Causo, N.S., to Hazel Hill, a distance of three miles, also one from Liverpool, N.S., to pulp mill at Milton, N.S.

Messrs. Dupont & Wilson have opened a factory at Kingston, Ont., for the manufacture of damask mats, rugs and stair cloths. These goods are new in Canada, but have had a large sale in the United States.

Plans for the new hotel Mr. Geo. Bernhardt proposes to erect on the site of the present "Victoria House," Main street, have been prepared, and show a handsome and commodious structure. It is likely that tenders will be asked for shortly.—Galt, Ont., Reporter.

The T.H. Taylor Company, Chatham, Ont., have completed rather extensive improvements to their woolen factory. They have substituted a 27 inch steel smoke stack, 76 feet in height, for the brick chimney which had to be taken down on account of the sliding of the creek bank.

Two paper manufacturers are said to contemplate building a paper mill in Winnipeg.

The contract for the electric Street Ry. at Belleville, Ont., was signed on 25th ultimo.

Mr. Preston has taken the foundry business formerly run by Isaiah Best at Mount Pleasant, Ont.

The Hankan Ferry Company, of Toronto, are applying for incorporation with a capital stock of \$100,000.

The Dominion Cotton Mills Co. will increase the capacity and add new machinery to their mills at Moncton, N.B.

It is reported that E. Broad & Son, edge tool manufacturers, St. Stephen, N.B., will shortly move their works to Montreal, Que.

The Lake Opinicon Phosphate Company, Kingston, Ont., are applying for incorporation, capital stock \$50,000. James Swift, Kingston, is one of the provincial directors.

Messrs. Ellis & Co., Vernon, B.C., are erecting a roller mill to supply the local trade of that point. The complete outfit of roller mill machinery is being supplied by Messrs. Wm. and J. G. Greey, Toronto.

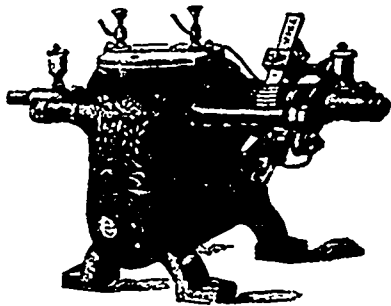
The boiler in the saw mill of Wm. Severson at Cayuga Station, Ont., exploded June 28th, killing John Cemmer, the engineer, and fatally injuring another man. The mill is a complete wreck. The boiler was thrown 200 feet.

The Canadian Pacific Railroad has arranged to build creameries at intervals along its lines in the same way that elevators have been erected. These creameries will be rented to farmers at a rate not more than 5 per cent. of the amount invested in them.

J. R. Booth's lumber mill at the Chaudiere Falls, Ottawa, was burned 26th of last month. The mill had been fitted up with the very latest machinery a couple of years ago, and was recognized as one of the finest in the world. The loss by the fire is estimated at \$250,000; covered by about \$145,000 insurance.

Kay Electric Co'y

MANUFACTURERS OF



DYNAMOS

FOR

ARC AND INCANDESCENT LIGHTING,

Plating Machines,

Medical Batteries

AND ALL KINDS OF

ELECTRIC APPLIANCES

HAMILTON, ONTARIO

THE PETERBOROUGH

CARBON AND PORCELAIN CO.

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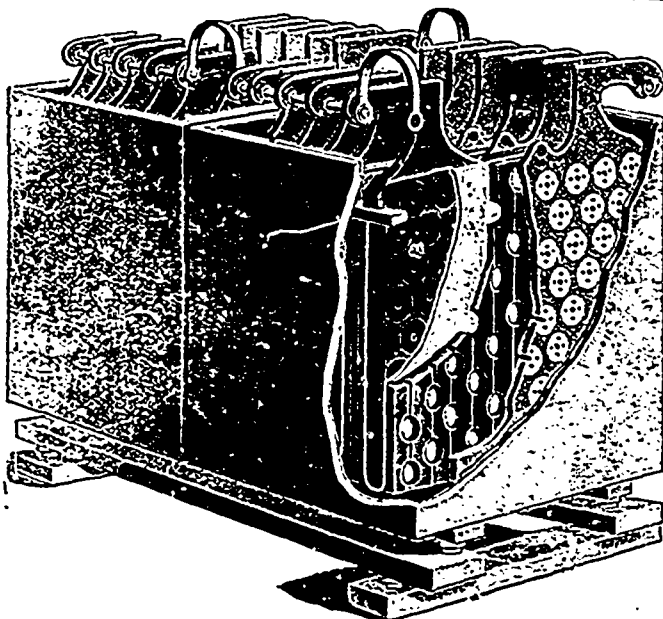
MANUFACTURERS OF

Carbon Points for All Systems of Arc Lights

BATTERY PLATES, CARBON BRUSHES, and all kinds of PORCELAIN for Electrical and Hardware Lines.

All goods guaranteed equal in quality to the best manufacturers in the world.

PETERBOROUGH, - - ONTARIO



THE CHLORIDE ACCUMULATOR

The Electric Storage Battery Co.

SOLE AMERICAN MANUFACTURERS OF

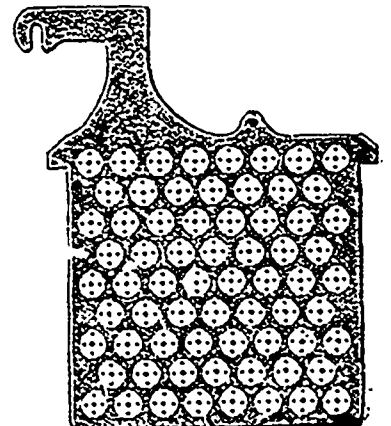
The Chloride Accumulator

Elements of all sizes, from 100 to 10,000 Watts-hours capacity each.

Traction Cells a Specialty

Electric Launch Equipment, Telegraph Photograph, Surgical and all Special Cells.

Drexel Building - Philadelphia



A new fire engine and appliances will be purchased for Winchester, Ont.

The Wellington Coal Company, Nanaimo, B. C., will install an electric plant in their mines.

Messrs. James McLaughlin & Son, Owen Sound, will build a three story addition to their biscuit factory.

The Dominion Paper Company will build mills at Sherbrooke, Que., to take the place of those burnt down at Kingsley Falls, Que.

Mr. W. J. Humphries, of Lang, Ont., whose flour mill was destroyed by fire recently is now rebuilding, and has placed his order with Wm. and J. G. Greey, Toronto, for a full outfit of the latest improved roller mill machinery. The new mill will be 50 barrels per day, besides chopping, and possibly oatmeal plant.

A new system of waterworks is to be put in at Stadacona, Que.

The Buctouche (N. B.) creamery started operations last week.

Orillia, Ont., will purchase a hook and ladder outfit for its fire department.

Kincardine, Ont., will vote on a by-law on 9th inst, to raise \$10,000 for an electric light plant.

The directors of St. Joseph's Hospital, Guelph, have decided to erect a new building costing \$20,000.

A by-law will be submitted in Collingwood, to raise \$12,000 for waterworks and electric light purposes.

Mr. Black, Iberville, Que., has been granted a bonus by that town, of \$600 per year for ten years, for the establishment of a pottery to manufacture porcelain baths, sinks, etc.

Low Rates for Insurance on Mills and Factories

I PROFESS TO DO BETTER

Than is commonly done with such risks situated in Ontario or Quebec.

Write for particulars,
Mentioning this paper.

C. R. G. JOHNSON
FIRE INSURANCE BROKER

42 St. John Street,
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McLaughlin Bros.

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Business Established in 1832.

The Canadian Canoe Co., Ltd.
BOX 107, : PETERBORO, ONT.



We build Canoes of CEDAR, BUTTERNUT, BASSWOOD and other woods, for Paddling, Sailing, Racing, Fishing, Etc. Skiffs of all sizes.

STEAM LAUNCHES to carry six persons, from \$175 up.

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A partner with \$10,000 in a business manufacturing patented specialties. Object, enlarging business.—Address

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IMPORTANT TO LIGHTING STATIONS

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Alternating Current Indicators

Are now ready. Before purchasing elsewhere send for our New Catalogue, which contains the prices and description of the above instruments, and also a list and prices of other new instruments of our manufacture.

WHITNEY ELECTRICAL INSTRUMENT CO'Y.

Sherbrooke, P. Q., Canada. Penacook, N. H., U. S.

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Henry F. Kellogg, General Selling Agent.

BOSTON, MASS. W. S. Hill.

BALTIMORE, M. D. The Poolo Electric Co.

CHICAGO, ILL. Electric Appliance Co.

CINCINNATI, O. Nowotny Electric Co.

HALIFAX, N. S. John Starr, Son & Co. Ltd.

NEW YORK CITY. Geo. L.

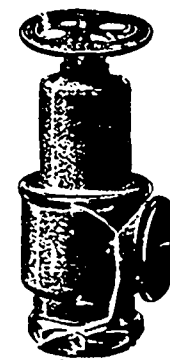
Chicago, 126 Aberty Street

SAN FRANCISCO, CAL. Cal.

Florida Electrical Works.

TORONTO, ONT. Toronto

Electrical Works.



CROSBY Steam Gage & Valve Co.

Sole Proprietors and Manufacturers of

Crosby Pop Safety Valves, for all kinds of boilers; Water Relief Valves, including the Underwriter, which is fully approved by the Associated Factory Mutual Ins. Cos.; Crosby Steam Engine Indicators, with Sargent's Electrical Attachment; Crosby Improved Steam Gages and Patent Gage Testers; The Original Single Bell Chime Whistles.

All kinds of Pressure and Vacuum Gages used in the various arts.

UNDERWRITER

Clark's Linen Fire Hose and Adjustable Couplings. Gold Medal, Paris Exposition, 1859. Ten Highest awards, Columbian Expos., 1893.

Branch Offices at New York, Chicago and London, Eng.

Main Office and Works, **BOSTON, MASS., U. S.**

Don't Miss Sending for Quotations

New Railway Generators and Station Equipments. Complete Railway Car Equipments. Direct Current Lighting Dynamos. Direct Current Power Motors.

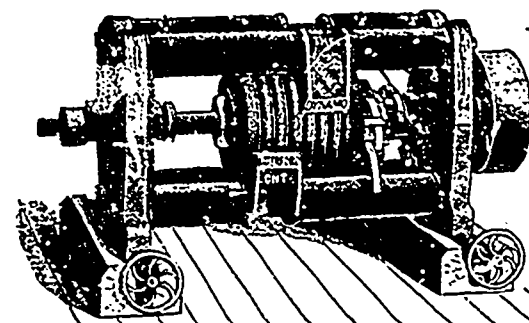
Alternating Single and Two Phase Current Generators, for Lighting and Power.

Full Lines of Lamps, Cut Outs Sockets and Switches

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Manufacturers of The Reliance System of Arc and Incandescent Lighting

and Power Apparatus. The Raco System of Electric Railway.

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WATERFORD, ONTARIO

Branch Offices:

TORONTO, ONT., 141 King St. West. MONTREAL, T. W. NISS, 719 Craig St

Messrs. Arnould & Calderon, architects, Ottawa, are about to prepare plans for the new Maternity Hospital which will be built in that city.

The Merchants' Dyeing and Finishing Company, Toronto, are meeting with such good success that they are getting out plans and specifications for building another storey on their present factory also an additional building 60x80 feet. When this is done they will add a quantity of new machinery of the latest and most improved type for dyeing and finishing. These improvements will double their present capacity.

FOUNDRY ::= **FACINGS**

Core Compound, Ceylon Plumbago Foundry Supplies and Moulding Sand.

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HAMILTON - - - Ontario

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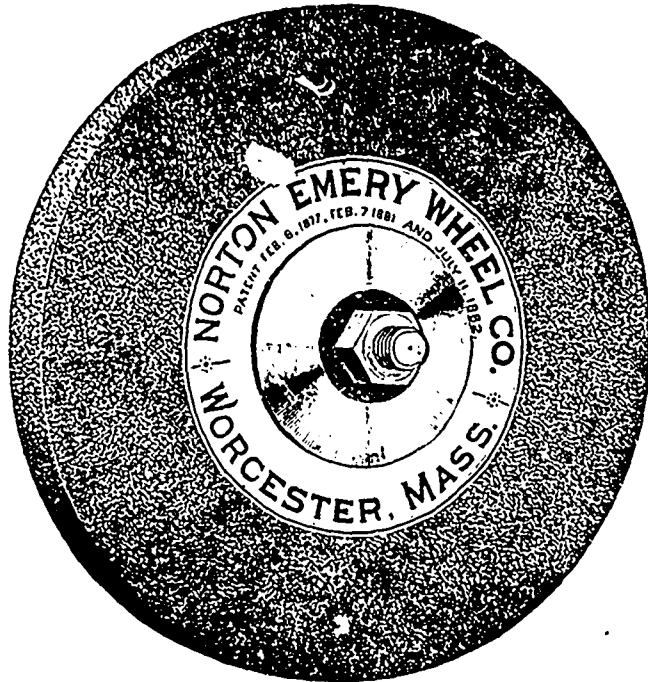
TO LET at low rent, for any term of years, a Brush Factory with a complete outfit of machinery and ready for operation. Suitable for other manufacturing purposes. Water, power, Steam Auxiliary power. Substantial stone building. Lighted with gas. Brick engine house. Apply to

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Emery Wheels AND **MACHINERY**

Standard Emery Wheel Co., Albany, N.Y.

Our Motto on EMERY WHEELS

"LARGE CONTRACTS, QUICK SALES and SMALL PROFITS"

For an A NO. 1 Wheel

ALSO THE LARGEST and BEST LINE OF EMERY WHEEL MACHINERY in the U.S. Catalogue furnished upon application.

The Springfield Emery Wheel Co. - - - Bridgeport, Conn.



TANITE MILLS

Emery, Emery Wheels,
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Quick Process and Large Stock.

Special Inducements suited to our Stock and the Times

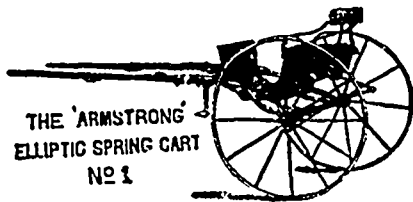
THE TANITE COMPANY, STRONDSBURG, Monroe Co., Pa.
NEW YORK, 161 Washington Street.
CINCINNATI, 1 West Pearl Street.

A by-law will shortly be submitted to the ratepayers at Beeton, Ont., to raise \$3,500 for a new town hall.

The annual report of the Ottawa Electric Street Ry., shows \$129,484.02 receipt and \$83,324.64 expenses. The company have 22 open and 31 closed cars and carried 2,797,231 passengers during the year.

Messrs. W. C. Snow and Ira Snow, of Moncton, have been in Buc-touche, N.B., placing the machinery in McLaughlin's new carding mill which is expected to be in operation within three weeks under the management of Mr. Ira Snow. A. Sheraton's carding mill will commence operations soon. Peter King's saw mill at Buc-touche started on Monday, and altogether the outlook for this section is very bright. —Moncton, N.B., Times.

The Clappison Pipe and Boiler Covering Co., Hamilton, Ont., in-form us that they have recently equipped a factory in that city, at 56 Alison street, with the latest improved machinery for the manufacture of asbestos-magnesia sectional steam pipe and boiler covering, and are prepared to meet all the demands of the trade. This covering, they tell us, is in great repute with steam users in the United States, being exceedingly efficacious as a non-conductor and handsome in appearance. The company have already been making some large shipments to the Maritime Provinces and elsewhere.



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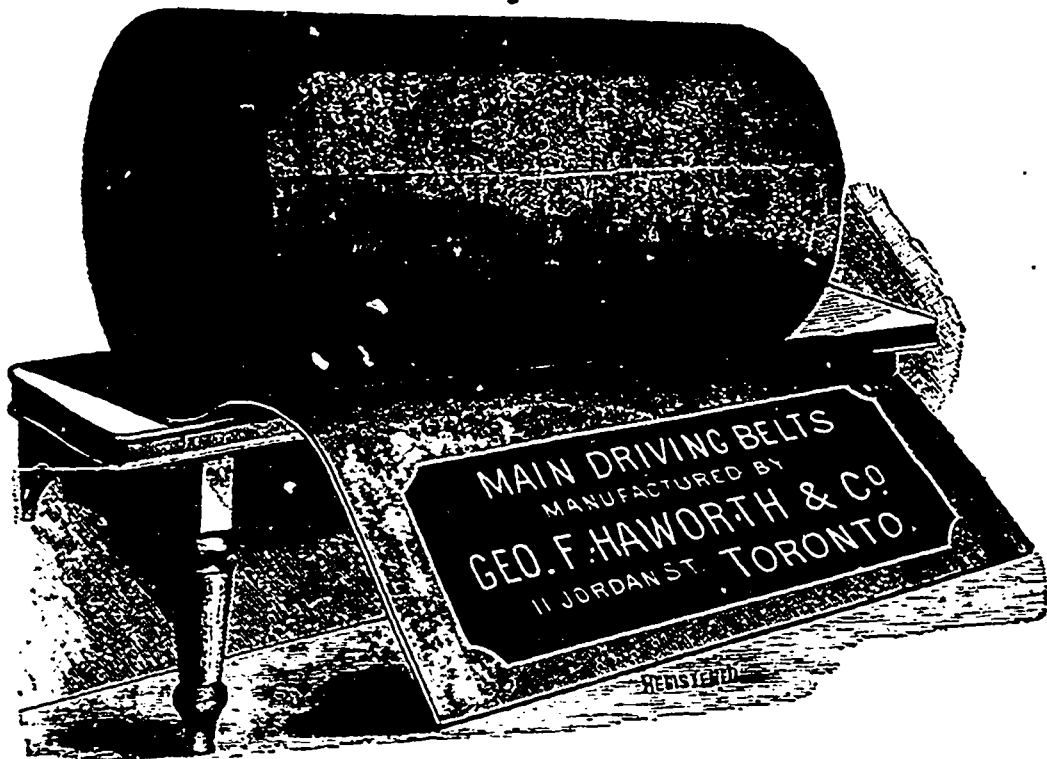
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Letters patent have been issued incorporating the Laurie Engine Company, Montreal, with a capital stock of \$250,000.

The Canadian General Electric Co. has just sold a 1,000 light alternating current dynamo to Mr. W.H. Frost for his lighting station at Fulford, Que., which was recently totally destroyed by fire together with Mr. Fessenenden's butter tub factory. Electricity is transmitted from the station, a distance of four miles, to the town of Waterloo, for street and house lighting, and in order to enable operations to be resumed with the least possible delay, the Canadian General Electric Co. contracted to deliver the dynamo in the remarkably short time of five days.

CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from April 12 to April 28, 1894, inclusive.

Information regarding any of these patents may be had on application, as follows:—

- | | |
|---|------------------------------|
| Fetherstonhaugh & Co., Bank of Commerce Building, | Toronto. |
| Ridout & Maybee, | 103 Bay street, Toronto. |
| A. Harvey, | Central Chambers, Ottawa. |
| J. A. Greiner, | Imperial Building, Montreal. |
- Copies of American patents corresponding to Canadian patents can be procured from these attorneys for the sum of twenty-five cents each.
- 45,788 Dress fastener, Rosalie Schaefer, Berlin, Prussia, Germany, April 12.
 - 45,789 Dredging and gold saving machine, Wilford A. Shahan, New Whatcom, Wash., April 12.
 - 45,790 Rotary engine, The Challenge High Speed Engine Co., Lexington, Ky., April 12.
 - 45,791 Road cart, H. C. Hogarth, Tilsonburg, Ont., April 12.
 - 45,792 Miner's squib, John R. Powell, Plymouth, Pa., April 13.
 - 45,793 Beer, Frederick W. A. Wiesebrock, New York, N.Y., April 13.

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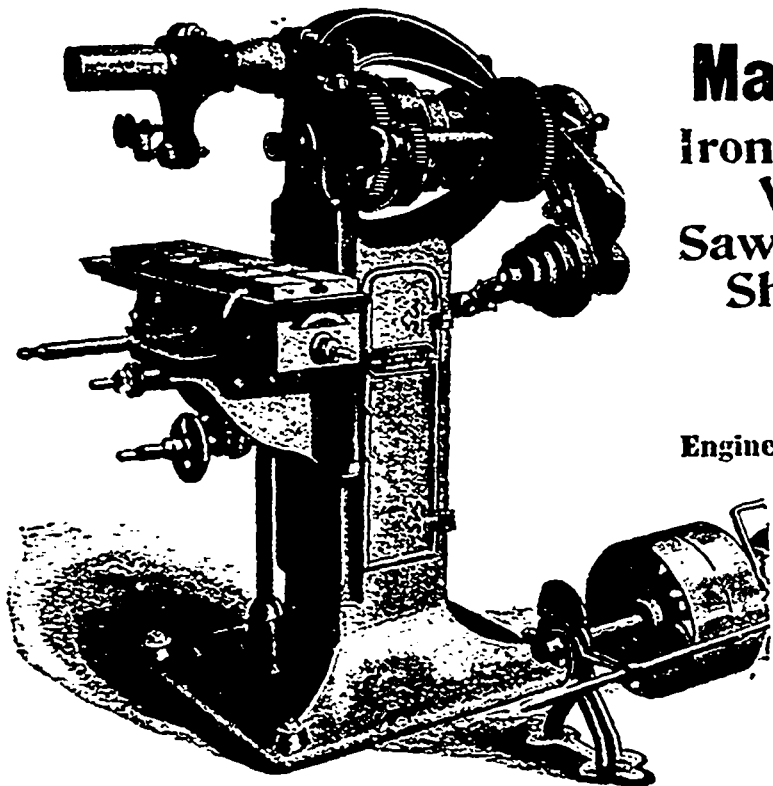
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- | | |
|---|---|
| 45,794 Mangle, John C. Poland, Boston, Mass., April 13. | 45,808 Washing machine, Eugene Beaulieu, Montreal, Que., April 13. |
| 45,795 Straw stacker, Frank F. Landis, Waynesborough, Pa., April 13. | 45,809 Fire Extinguisher, John Gardiner, Dundalk, Owen Sound, Ont., April 13. |
| 45,796 Churn, William F. Martin, Roxton, Texas, April 13. | 45,810 Valve for automatic fire extinguisher, Wallace Thurman, Chicago, Ill., April 14. |
| 45,797 Cultivator, James B. Uren, Clinton, N.C., April 13. | 45,811 Beef break, Thomas Prichard and James Colbeck, Saginaw, Mich., April 14. |
| 45,798 Injector, Parker P. Hogue, Cincinnati, O., April 13. | 45,812 Sprinkler head for fire extinguisher, Wallace Thurman, Chicago, Ill., April 14. |
| 45,799 Clasp, Charles La Dow, Albany, N.Y., April 13. | 45,813 Churn, Horatio N. Rathburn and John T. White, Belwood, Ont., April 14. |
| 45,800 Clasp, Charles La Dow, Albany, N.Y., April 13. | 45,814 Stylograph duplicator, William Baker, Stratford, Ont., April 17. |
| 45,801 Fertilizer, Stephen L. Goodale, Saco, Me., April 13. | 45,815 Cartridge filler, Lewis R. Smith, Portland, Mich., April 17. |
| 45,802 Ventilator for stove pipes, Joseph Greenfield and Henry W. Searle, Hamilton, Ont., April 13. | 45,816 Bolt heading machine, John White, London, Ont., April 17. |
| 45,803 Fred regulator for thrashing machines, George W. Hallett, Aberdeen, South Dakota, April 13. | 45,817 Attachments for electric cars, Issac H. Davis, South Butte, Mont., April 17. |
| 45,804 Electric burglar alarm, David C. Ferguson, Ottawa, Ont., April 13. | 45,818 Bath tub, George Booth, Toronto, Ont., April 17. |
| 45,805 Gear chain wheel, Thomas W. Van Tuyl, Petrolia, Ont., April 13. | 45,819 Wire tightener, William B. Fielding, San Jose, Cal., April 17. |
| 45,806 Fire escape, Margaret Killeen, Halifax, N. S., April 13. | |
| 45,807 Railway switch, Richard T. Gilliam, Chicago, Ill., April 13. | |

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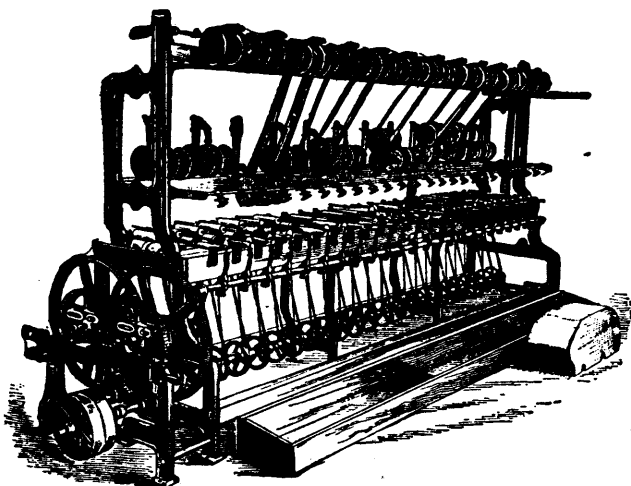
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- 45,820 Lense for Cameras, Erskine Decker, Cassopolis, Mich., April 17.
- 45,821 Motor, William H. Starr, Liberty, Neb., April 17.
- 45,822 Wrench, Edward B. Hyre, Elk Fork, W. Va., April 17.
- 45,823 Liquid dispensing apparatus, William M. Fowler, Milford, Conn., April 17.
- 45,824 Method of disinfecting, Eugene Hermite and Charles F. Cooper, Dalston, London County, England, April 17.
- 45,825 Tank for the storage of compressed air, William Timmis, Pittsburgh, Pa., April 17.
- 45,826 Clasp, Charles La Dow, Albany, N.Y., April 17.
- 45,827 Stocking, Benjamin W. Clarke, Toronto, Ont., April 17.
- 45,828 Nut lock, Leri H. Young, St. John, N.B., April 18.
- 45,829 Screw propeller, Alfred Wells Case, Highland Park, Conn., April 19.
- 45,830 Paper box, John J. Hoffman and Walter E. Durgea, Glen Cove, N.Y., April 19.
- 45,831 Method and apparatus for hardening harvester machine knives, etc., The Massey-Harris Co., Toronto, Ont., April 19.

- 45,832 Stirrer for mixed paints, The Massey-Harris Co., Toronto, Ont., April 19.
- 45,833 Fire escape, Frank J. Fairchild, Saginaw, Mich., April 19.
- 45,834 Milking machine, Alexander Shiels, Glasgow, Scotland, April 19.
- 45,835 Sailing vessel, Nathan C. Jessup, West Hampton Beach, N.Y., April 19.
- 45,836 Ore separator, Francis J. Bell, Kingston on Thames, Surrey, England, April 19.
- 45,837 Corn shocking device, Albert N. Russell, Mount Valley, Kan., April 19.
- 45,838 Lighting arrester, Hermann O. Henneberg, Berlin, Germany, April 19.
- 45,839 Lobster trap, Walter G. Davis, et al, Portland Me., April 19.
- 45,840 Police patrol system, John H. Ring and Michael H. Curry, Lowell, Mass. April 19.
- 45,841 Brush, Joseph Bingeman, Berlin, Ont., April 19.
- 45,842 Car coupler, Harold R. Hayden, Chicago, Ill., April 20.
- 45,843 Car coupler, Henry Vachon, Golden, B.C., April 20.

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Patent Bobbin Winding Machine, for Worsted or Cotton Yarns
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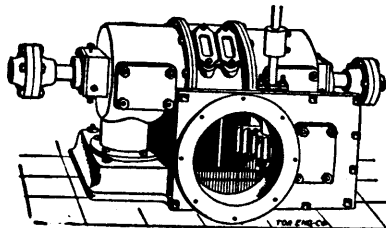
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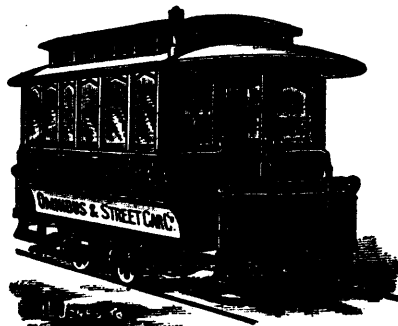
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Wagons and Vehicles
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- 45,844 Process of colouring stones, Pierre A. Moreau, Meung-sur-Loire, (Loiret), France, April 20.
- 45,845 Compound of cellulose and process of preparing the same, C. F. Cross, et al, London, Eng., April 20.
- 45,846 Door lock, Wilhelm Jung, Karlsruhe, Baden, Germany, April 20.
- 45,847 Valve, Alexander Turnbull, Bishopbriggs, Lanark, Scotland, April 20.
- 45,848 Method of manufacturing seamless metal tubes, etc., Oscar Friedrich and Wilhelm Schulte, Dinsburger Eisenund Stahlwerke, Dinsberg, Prussia, Germany, April 20.
- 45,849 Hernia truss, James McTavish Smith, Galt, Ont., April 20.
- 45,850 Can labelling machine, William G. Trethewey, Mission, B.C., April 23.
- 45,851 Ticket punch, Job Dudley and Ralph E. Gibson, Toronto, Ont., April 23.
- 45,852 Electric lamp attachment for ticket punches, John M. Black, London, England, April 23.
- 45,853 Explosion engine, James E. Weyman, et al, Guildford, Surrey, England, April 23.
- 45,854 Buckle, Albert E. McClure, Sedalia, Mo., April 23.
- 45,855 Cash carrier, George P. Kenney, Watertown, N.Y., April 23.
- 45,856 Safety paper for checks, etc., William Hoskins, La Grange, and Joseph B. Weis, Chicago, Ill., April 23.
- 45,857 Self-sealing bottle, Henry P. Roberts and William Hayes, Boston, Mass., April 23.
- 45,858 Nasal cup, Benjamin Stern, New York, N.Y., April 23.
- 45,859 Truck, George L. Walker, Detroit, Mich., April 23.
- 45,860 Educational cabinet, Charles L. Ellis, San Francisco, Cal., April 23.
- 45,861 Construction and fixing of linotypes for cylinder formes, Georges A. Dubeux, Torriano Ave., London, Eng., April 23.
- 45,862 Flat metal strips, Hermann Ganswindt, Schoeneberg, Berlin, Germany, April 23.
- 45,863 Powder blower, atomizer, etc., Benjamin Stern, New York, N.Y., April 23.
- 45,864 Attachment for dividers, Warren S. Smith, St. Johnsburg, Md., April 23.
- 45,865 Flood gate, Asa Dean, Willis, Texas, April 23.
- 45,866 Game table, William E. Andrew, Atlantic Highlands, N. J., April 24.
- 45,867 Book carrier, Hugo Tollner, Brooklyn, N.Y., April 24.
- 45,868 Digester, Eugene Meurer, Palmer Falls, N.Y., April 24.
- 45,869 Weather strip, Ephraim Dunsmore, St. Paul, Ont., April 24.
- 45,870 Weather strip, Samuel Dunsceith, Jeannette, Pa., April 24.
- 45,871 Cigar, Luther M. Harris, Summerville, Mass., April 24.
- 45,872 Stencil printing machine, Thomas H. Stackhouse, Philadelphia, Pa., April 24.
- 45,873 Wood cutting machine, William F. Hutchinson, Passaic, N. J., April 24.
- 45,874 Machine for rolling glass, Niles M. Miller, Philadelphia, Pa., April 24.
- 45,875 Wrench, William Dicks, Buffalo, N.Y., April 24.
- 45,876 Piano, Loreaz Matt and Joseph F. Matt, Buffalo, N. Y., April 24.
- 45,877 Centrifugal extractor, John C. Poland and Edward F. Poland, Boston, Mass., April 24.

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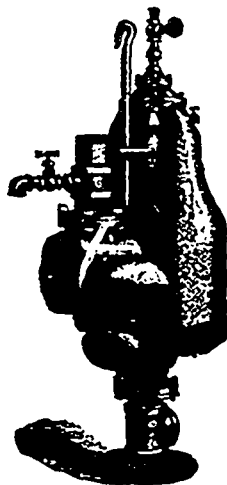
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- 45,878 Underground conduit for electric conductors, James B. Brand, et al, Milwaukee, Wis., April 24.
- 45,879 Window sash, Napoleon Matte, Quebec, Que., April 24.
- 45,880 Kiln, Walter P. Murphy, Ridgway Pa., April 24.
- 45,881 Cigar holder, Ryerson D. Gates, Oak Park, Ill., April 24
- 45,882 Scale and bristle detaching machine, John Tobin and Paul J. Daemicke, Chicago, Ill., April 24.
- 45,883 Buckle, Jean B. Girard, St. Aime, Que., April 24.
- 45,884 Metallic and elastic packing, John M. Ellicot, Hamilton, Ont., April 24.
- 45,885 Valve, William A. Drewett, Brooklyn, N.Y., April 25.
- 45,886 Valve stopper for bottles, Nathaniel, F. T. Hunt, Braintree, Mass., April 25.
- 45,887 Check hook eye, Charles H. Shultz, Ainswort Neb., April 25.
- 45,888 Clothes reel, John Brown, Weston, Ont., April 25.
- 45,889 Device for attaching clothes to clotheslines, Owen McShane, Montreal, Que., April 25.
- 45,890 Vehicle running gear, Clarence C. Holley, Presque Isle, Me., April 25.
- 45,891 Saw filer, Marshal L. Smith, Hamilton, Ont., April 25.
- 45,892 Bicycle saddle, James H. Sager, Rochester, N.Y., April 25.
- 45,893 Bicycle, James H. Sager, Rochester, N.Y., April 25.
- 45,894 Mower, Marion Szukalski, Newton, Wis., April 25.
- 45,895 Metallic packing, Frederick A. Ives, Grant's Pass, Ore., April 25.
- 45,896 Street car jack, George F. Pearson, Lowell, Mass., April 26.
- 45,897 Steam trap, John O. C. Searle, Chicago, Ill., April 26.
- 45,898 Nut Lock, William W. Owens, Peterboro', Ont., April 26.

- 45,899 Pneumatic tire, James W. Smallman, 61 Chancery Lane, Middlesex, England, April 26.
- 45,900 Sub-aqueous rock breaker, Peter S. Ross, Newark, N.J., April 26.
- 45,901, Wash board, David C. Juleson, Chicago, Ill., April 26.
- 45,902 Bag holder, Finley G. Wade, Holley, Mich., April 26.
- 45,903 Digester, Eugene Meurer, Palmer Falls, N.Y., April 26.



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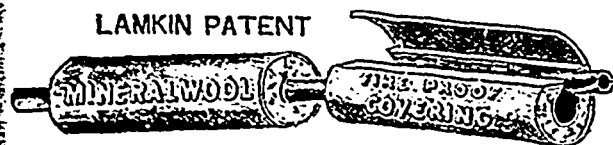
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- 45,904 Pneumatic tire, Joseph G. Mooney, Erie, Pa., April 26.
 45,905 Ruling machine foregravers' use, Edwin Fanshaw, Sheffield, York, England, April 26.
 45,906 Furnace, George A. Watson, Toronto, Ont., April 26.
 45,907 Propelling machine, Samuel Russell and Robert C. Russell, Dundalk, Ont., April 26.
 45,908 Upright piano action, Louise A. Guild, Boston, Mass., April 28.
 45,909 Radiator, James E. H. Paddon, Montreal, Que., April 28.
 45,910 Clamp, The Chicago Clamp Co., Chicago, Ill., April 28.
 45,911 Vehicle, William H. Thompson and George Morris, Hamilton, Ont., April 28.

UNITED STATES PATENTS.

GRANTED TO CANADIAN INVENTORS.

The following patents were issued from the United States Patent Office, on June 12th, 19th and 26th, 1894, and reported especially for the CANADIAN MANUFACTURER by Glascock & Co., patent attorneys, Wash-

- ington, D. C. Printed copies of these patents can be obtained from them for 25 cents each.
 Herman Bunker Barrie, Ont., assignor of one-third to W. P. Chapman, Hamilton, Ont., clutch pulley.
 Adoniram Henderson, Toronto, Ont., cinder sifter.
 Samuel Hughes, Lindsay, Ont., ventilating railway carriages.
 James C. Orr, Winnipeg, Man., machine for bending pipe.
 George M. Aylesworth, Collingwood, Ont., design for buckle.
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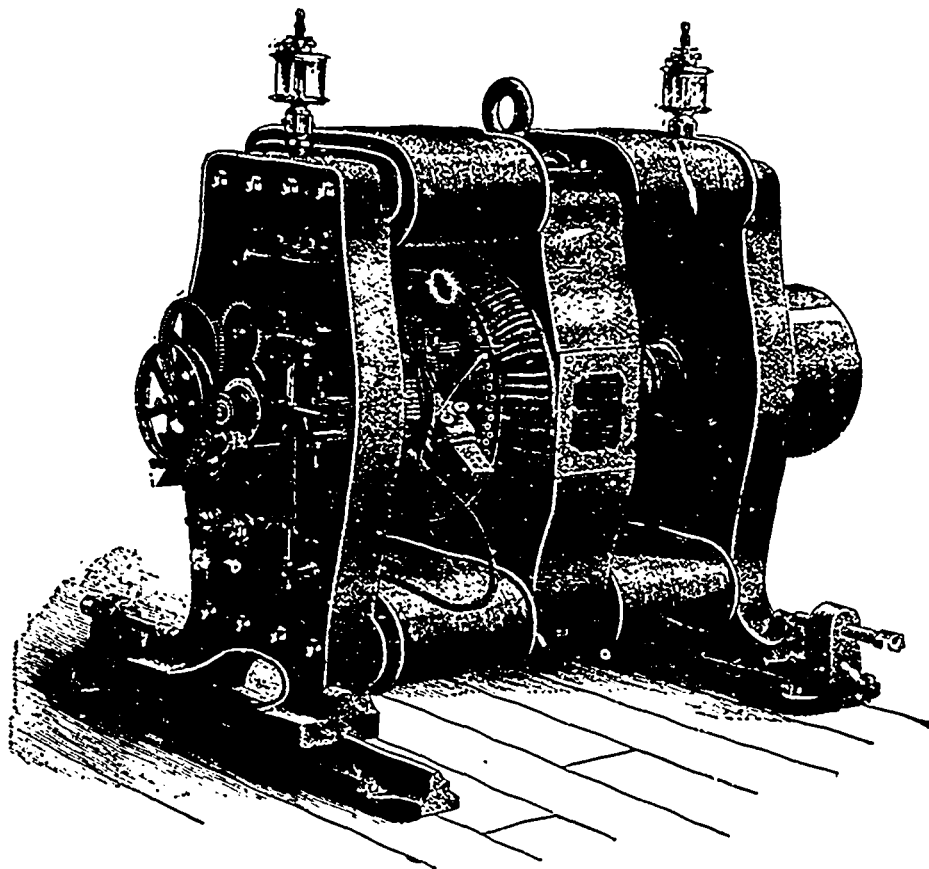
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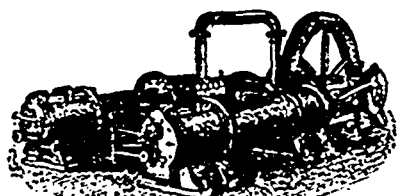
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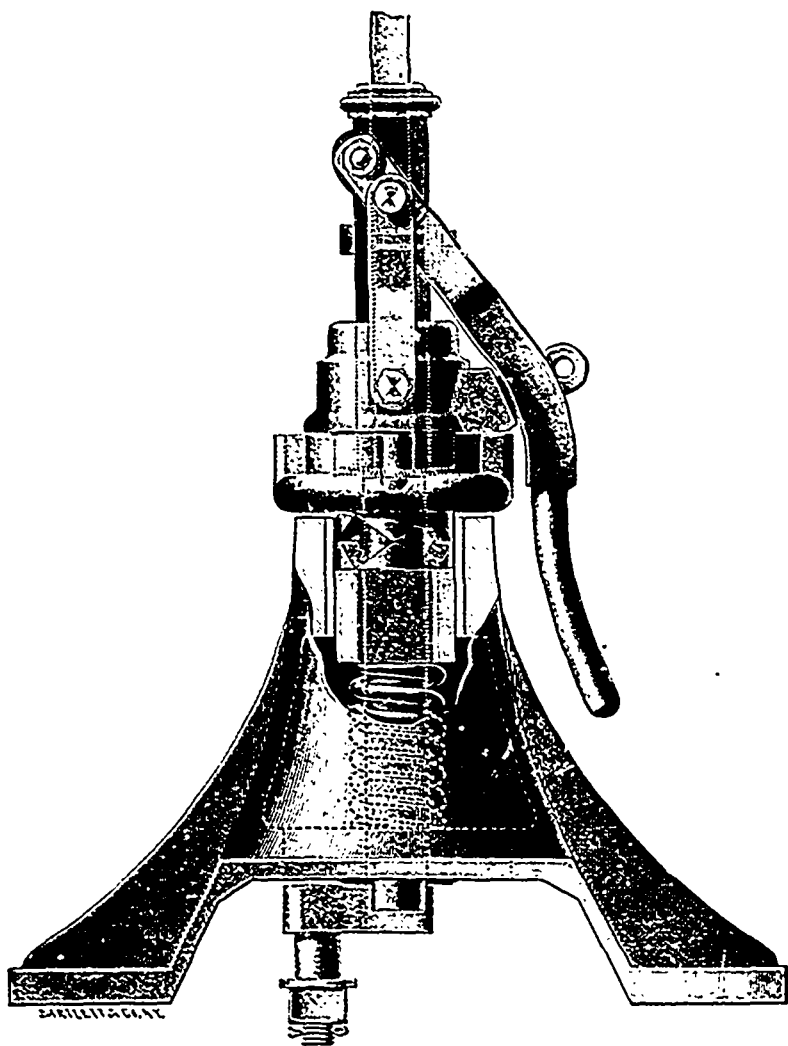
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1 1/2	1 1/2	5.94	"	3 1/4	3 1/8	26.60	"
1 3/4	1 3/4	7.46	"	3 1/2	3 1/2	30.94	"
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2 1/2	2 1/2	15.55	"	5	5	66.13	"

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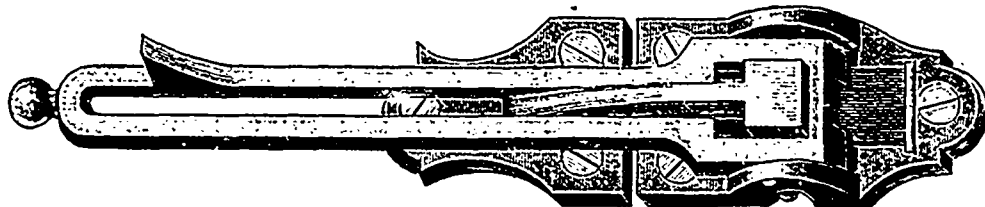
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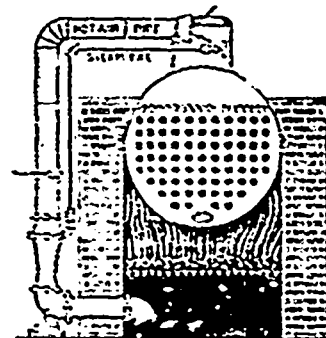
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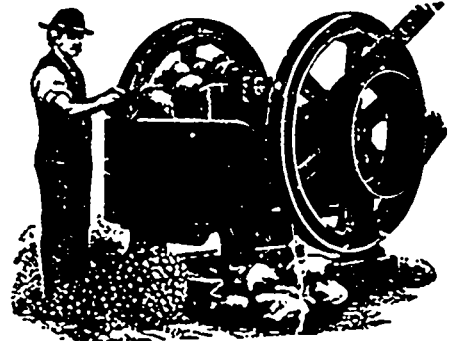
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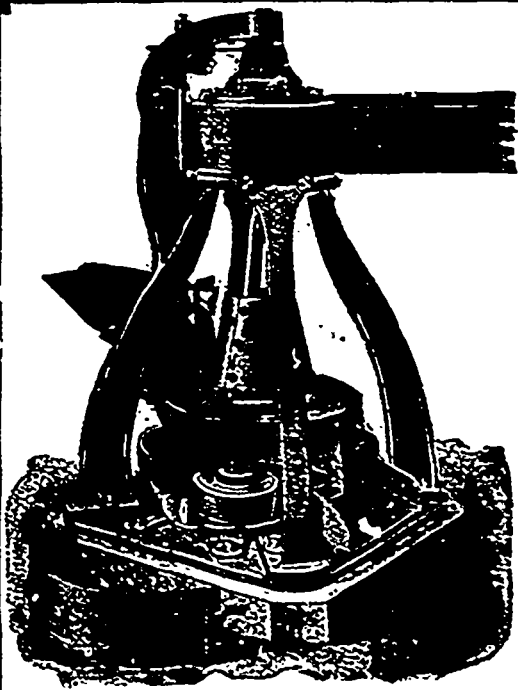
OUR COMPOUND WHEEL is the most powerful in the world, and if we can't be of actual value to you we don't want your money. No CUSTOMS DUTIES on our Fans.

Send for Circular and information **Barney Ventilating Fan Co.,** 54 Oliver St., Boston, Mass., U.S.

Have Had More to do

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The Only Perfect Pulverizer of all Refractory Substances.

Will work either wet or dry, and deliver a finished product. Capacity, 3 to 4 tons per hour of Phosphate Rock; 1 1/2 to 2 tons per hour on Portland Cement, Quartz, or Ores, depending on hardness of material to be pulverized and fineness of product. Grinds from 30 to 250 Mesh with equal facility.

NO JOURNALS IN GRINDING CHAMBER. BALL WHEEL ON SHAFT HAVING DIRECT POSITIVE ACTION ON MATERIAL. MINIMUM POWER PRODUCES MAXIMUM AMOUNT OF PRODUCT. IT IS ABSOLUTELY GUARANTEED IN EVERY RESPECT, BOTH AS TO CONSTRUCTION AND CAPACITY. FIRST COST, WEAR, AND OPERATING EXPENSE MUCH LESS THAN STAMP MILLS. LARGE NUMBER OF MILLS IN USE ON DIFFERENT MATERIALS WITH POSITIVE SUCCESS IN EVERY INSTANCE.

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POWER TRANSMISSION

The Dodge Patents Our Specialty

Pat. Wood Split Pulleys.

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Rope Transmission of Power.

... ALL WORK FULLY GUARANTEED ...

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Second-Hand Engines and Boilers for Sale by the
Goldie & McCulloch Co., Ltd., Galt, Ont.

125-h.p. Brown Engine.
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100-h.p. Return Tubular Boiler.

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The above Engines and Boilers have been replaced by Wheelock Engines and New Boilers of greater power, and will be rebuilt and sold at very reasonable figures.

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J. J. CASSIDY, Secretary.

Office, Room 66 Canada Life Building

KING STREET WEST, TORONTO

TELEPHONE 1274

THE OBJECTS OF THIS ASSOCIATION ARE:

To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprise.

To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.

To maintain Canada for Canadians.

Any person directly interested in any Canadian manufacturing industry is eligible for membership.

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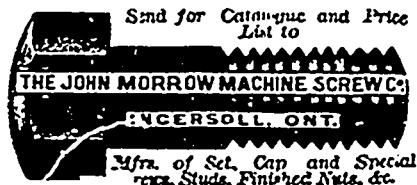
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Are superior in many respects to most in the market. Made by

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ELECTRIC HYDRAULIC
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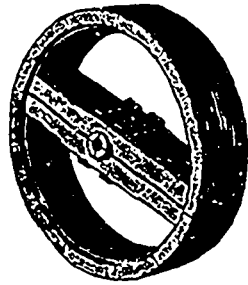
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Lettered or Plain.

Write for Catalogue and Price List.

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LIMITED

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Wood Split.. Pulleys

"The Reeves" is the Lightest and Strongest Wood Split Pulley on the market.

If you use Pulleys and want the BEST, write us.

REEVES PULLEY CO.
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OAKEY'S Flexible Twilled Emery Cloth.
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OAKEY'S Emery Paper, Black Lead, etc.

Prize Medal and Highest Award Philadelphia, 1876, for Superiority of Quality, Skillful Manufacture, Sharpness, Durability and Uniformity of Grain.

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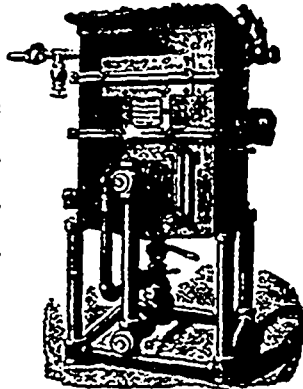
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Guaranteed to heat the feed water to 219 to 212 degrees and relieve the back pressure on the Engine



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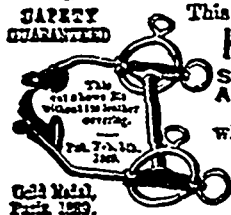
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NOTICE is hereby given to all persons desirous of practicing the invention in the manufacture of Aluminum and Alloys thereof, for which certain letters patent of the Dominion of Canada were granted on June 7th, 1888, to Chas. Martin Hall, assignor to the Pittsburg Reduction Co., to wit: Nos. 31,512, 31,513, 31,514, 31,515, 31,516, 31,517; and also the invention in aluminum alloys and manufacture thereof, for which certain letters patent of the Dominion of Canada were granted on July 20th, 1892, to John W. Langley, assignor to the Pittsburg Reduction Company, to wit, No. 29,492, that the undersigned is prepared to grant licenses upon reasonable terms under each and all of same letters patent, and otherwise place the patent invention in possession of the public in accordance with the provisions of the above recited act.

Communications to the undersigned may be addressed to 701 Ferguson Building, Pittsburg, Pa., U.S.A.

(Sgd) The Pittsburg Reduction Co.
ASSIGNEE

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A. T. Paterson & Co.

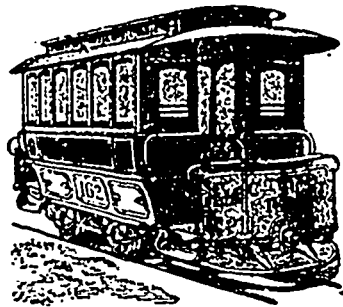
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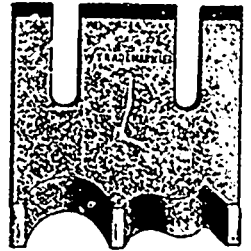
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Knives for Mowers, Reapers, Binders, Root Pulpers
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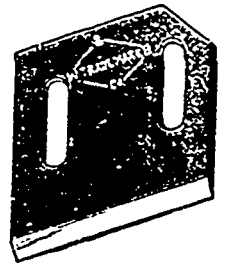
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Parties wanting Special Knives
get our figures.

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Quality Warranted.



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Radial Drills.

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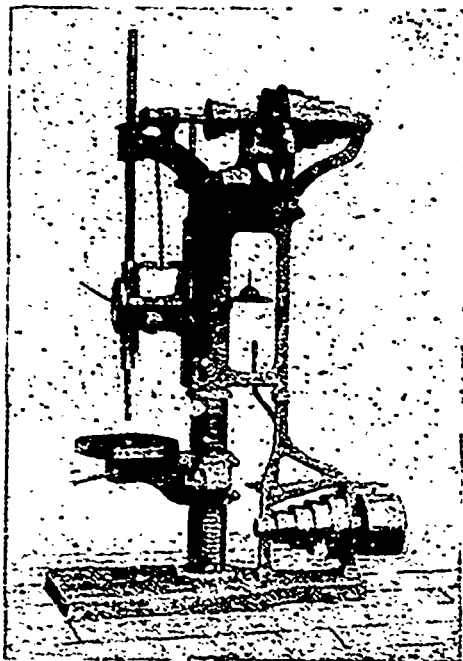
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.. Special Machinery ..



20 inch Drilling Machine.

Intending purchasers should write us for prices.
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Highest Awards at the World's Fair, Chicago.

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**Lubricating,
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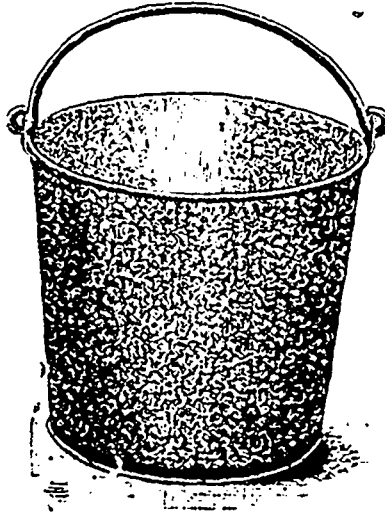
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They are superior to the ordinary flaring English bucket, being of greater capacity.

They are stronger in shape, consequently more durable.

They will not slop over, nor tip over, owing to the wide bottom.

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The rim is in one piece with the body, consequently cannot get knocked off.

They are galvanized, and not lead coated.

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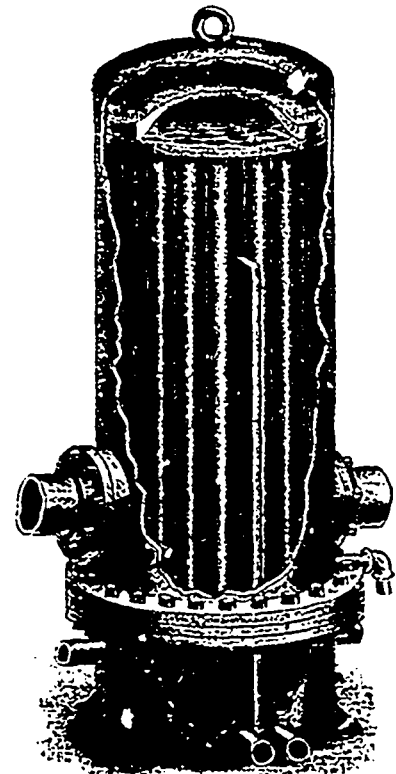
HYDRAULIC,
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.. and ..
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.. For ..
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The Jacobs Patent Water Tube
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GREAT EFFICIENCY, SIMPLICITY OF CONSTRUCTION and LOW COST. Has a Cast Iron shell, which will never wear out, with seamless drawn brass tubes expanded into tube-plates at top and bottom, with double blow-off.

The tubes being surmounted by a cap forming a chamber at the top, and being fastened rigidly only to the lower tube plate, free play is given for expansion, thereby preventing rupture and leakage of joints.

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ROOFING**

It is superior to any other Roofing, and unequalled for House, Barn, Factory, or Out-Buildings; it costs half the price of shingles, tin or iron; it is ready for use, and easily applied by anyone; it is the best Roofing in the market, in durability, to all others.

Send for estimates, and state size of roof.

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The best known Paint in the world for Tin, Iron, or Shingle Roofs, Fences, Sides of Barns and Out-Buildings. It costs only 60 cents per gallon, in barrel lots, or \$1.50 for a 5 gallon tub. Color dark red. It will stop leaks in tin or iron roofs that will last for years. It is guaranteed not to peel, crack, scale, nor wash off, and is fire-proof against sparks. TRY IT.

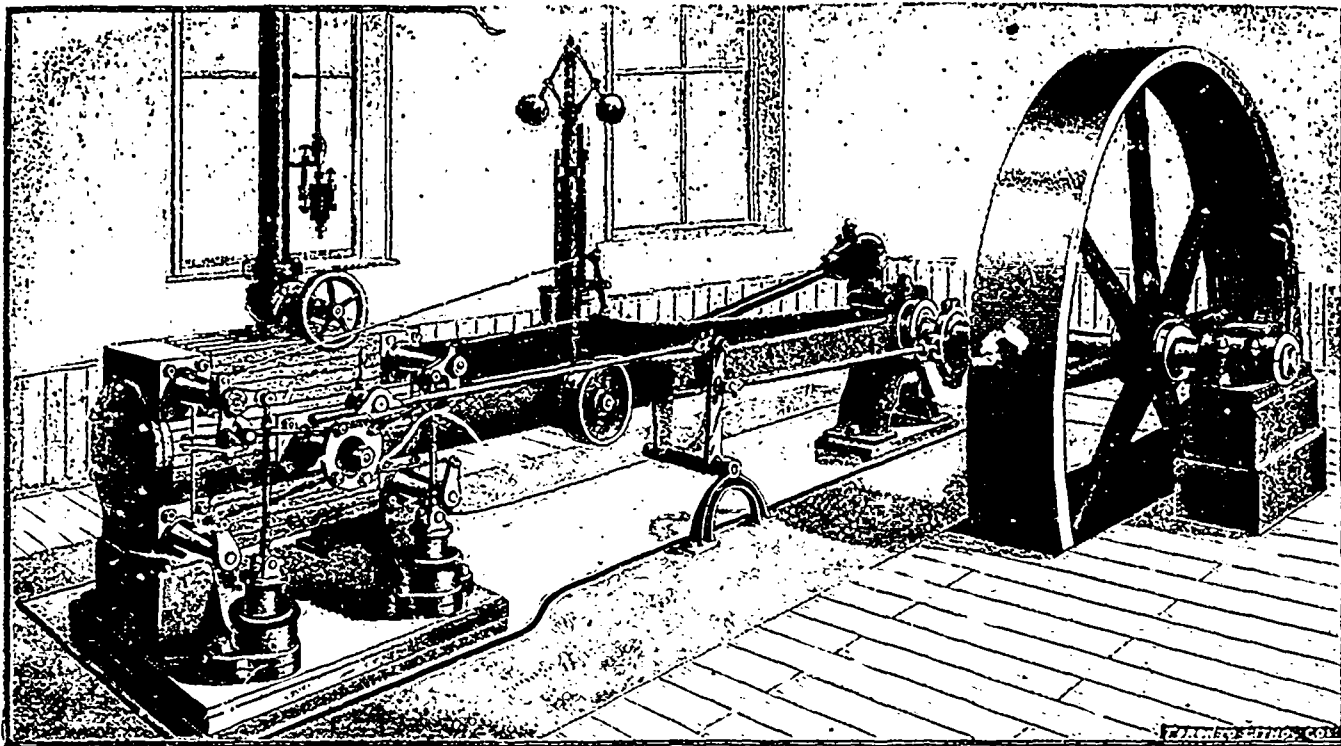
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900 square feet, 33: keeps building cool in summer, warm in winter.

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J. D. M
Mr. J. D. M
Dear Sir,
you put in la
comfortable.
500 lbs. of w
of setting.
would be mu
steam well d
to dry mo
would make



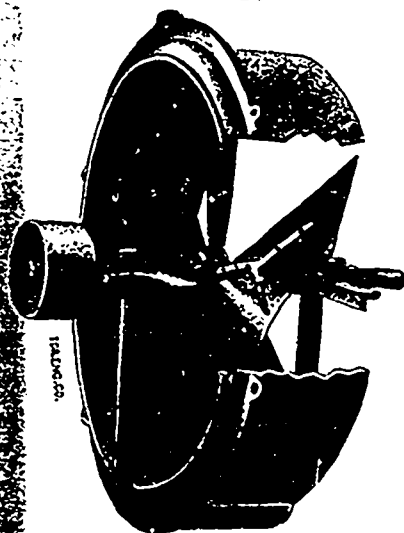
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Manufacturers of..... **Corless Engines, Slide Valve Engines,**
Boilers and Wood-Working Machinery of Every Description.
Send for Our Illustrated Catalogue.

McEachren's Improved Fan

PATENTED 1893

For Ventilating, Heating, Drying, Etc.



Specially adapted to
HEAVY WORK

Will handle more air
 at a *GIVEN PRESSURE* with a *GIVEN POWER* than any other Fan in the market.

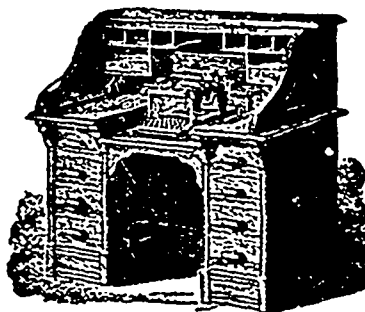
For particulars address

J. D. McEACHREN - - GALT, Ont.

Rockwood, March 16th, 1893.

Dear Sir,—In reference to the Drying and Ventilating Fans that you put in last fall they are working well, keeping the rooms dry and comfortable. The wool dries with cold water coil; is drying 500 to 600 lbs. of wool per day WITHOUT HYDRO EXTRACTOR, on 6 x 12 feet of netting. If the room was larger we are sure that the capacity would be much increased. The Fan in end of dye house keeps the steam well drawn off, and the alterations on cloth drier have enabled us to dry more than double the goods than we could formerly. We would make special note of the small amount of power required.

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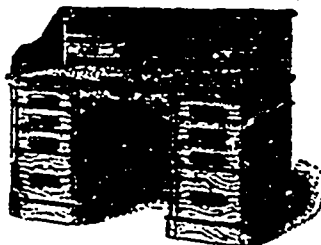
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THE SAFEST
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Capital and Funds over \$13,000,000

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M'grs for Toronto and Eastern Ont.

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... **JOINT INSURANCE FOR PARTNERSHIPS**
Important to Manufacturing Firms

MEDLAND & JONES, General Agents

MAIL BUILDING, TORONTO.

**Manufacturers
Life Insurance Company**

RESULTS FOR 1893

New Business Issued - - - \$2,490,210
(Increase over 1892) - - - \$407,960
Assets 31st December, 1893 - \$673,738
(Increase over 1892) - - - \$137,671

Gross Cash Income - - - \$287,340
(Increase over 1892) - - - \$45,525
Surplus on Policyholders' act. \$164,598
(Increase over 1892) - - - \$30,922

Insurance in Force 31st December, 1893, = = \$8,937,834

GEORGE GOODERHAM,
President.

JOHN F. ELLIS,
Man. Director.



THE STANDARD DRAIN PIPE CO., St. John's, P.Q.

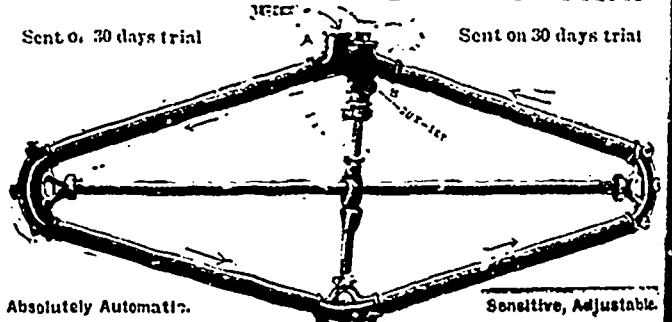
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Sent on 30 days trial

Sent on 30 days trial



Absolutely Automatic.

Sensitive, Adjustable.

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FINE BRASS CASTINGS.

A Trial Order Solicited.

There is no Business so small that advertising will not help it, none so prosperous that it can afford to ignore its aid!

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IMPROVED DUPLEX SYSTEM, for
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FURNACES DESIGNED AND BUILT FOR EVERY PURPOSE. ESTIMATES MADE, AND WORKS EQUIPPED COMPLETE.

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THE BELL ORGAN AND PIANO Co., LIMITED

CABINET and CHURCH Pipe Organs
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TAYLOR'S FIRE and BURGLAR SAFES

HAVE MANY PATENTED IMPROVEMENTS NOT FOUND IN OTHER MAKES
 That will well repay an investigation by those who desire to secure

THE BEST SAFE

J. & J. TAYLOR, Toronto Safe Works,
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GALT MACHINE KNIFE WORKS

Planing..
 Machine..
 Knives...

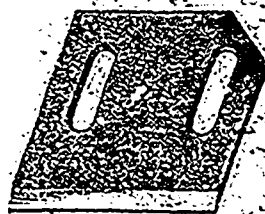
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Stave Jointer Knives

Send for Price List

All Work Warranted



Moulding,
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Shingle - - - -
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AND OTHER IRREGULAR SHAPES

Cheese-box and Veneer, Paper Cutting, Leather Splitting, and any special Knife made to order.

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GIVES TO A BUSINESS HOUSE IS A FACTOR WHICH HAS A MATERIAL BEARING UPON ITS CREDIT.

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.. 100 SIZES ..



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Greatly Reduced Prices

Is a grand success. Try it and see
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Saves Time, Saves Belts, Saves Money
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Waterbury, Conn.

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**Malleable..
Iron....
Works..**



Capacity
2,000 Tons..

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