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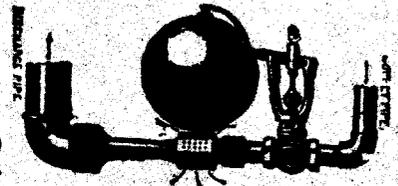
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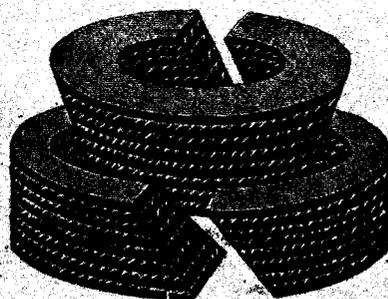
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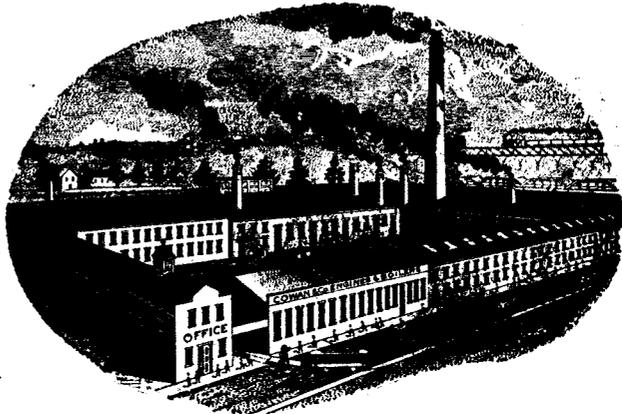
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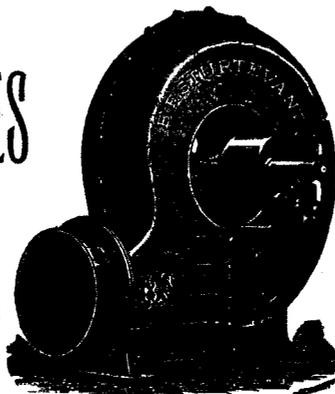
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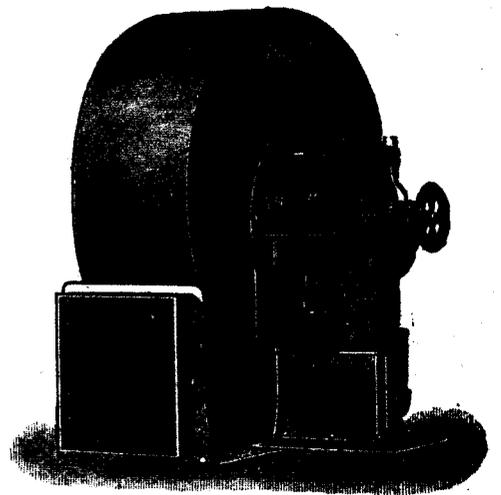
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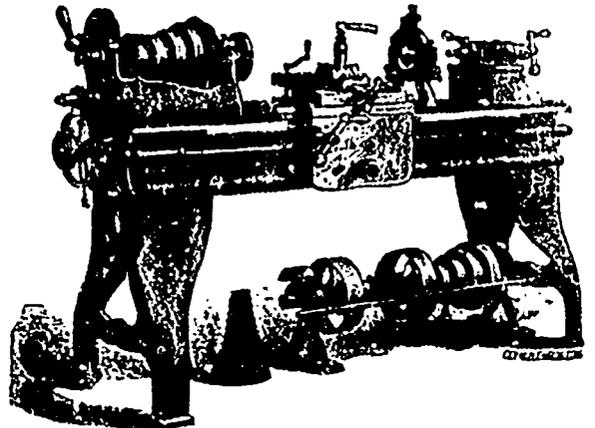
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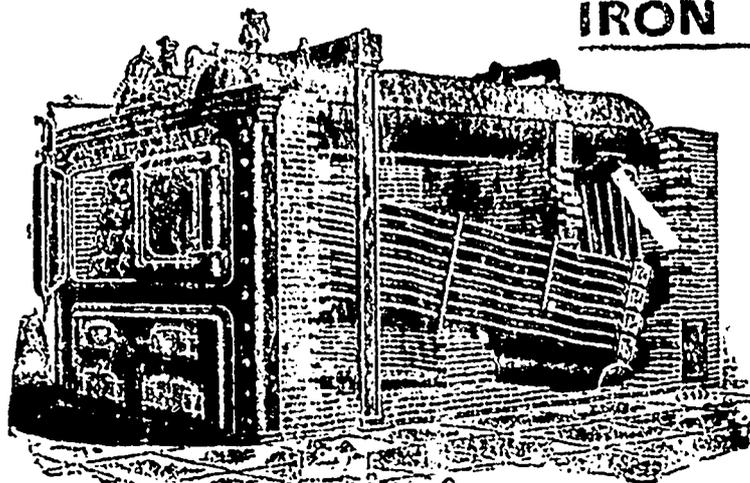
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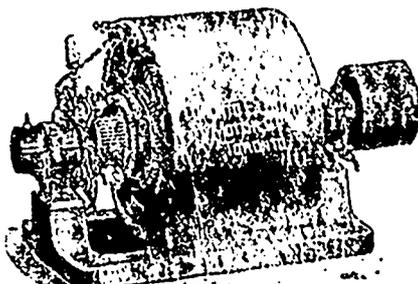
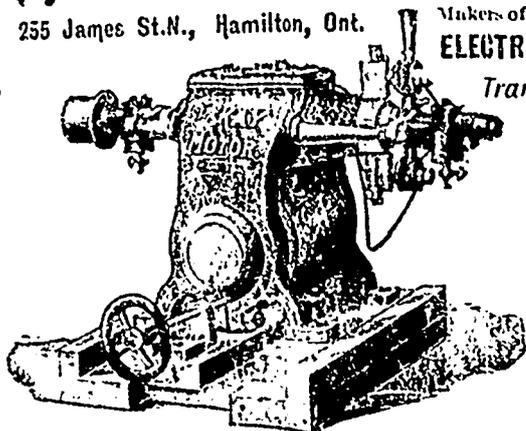
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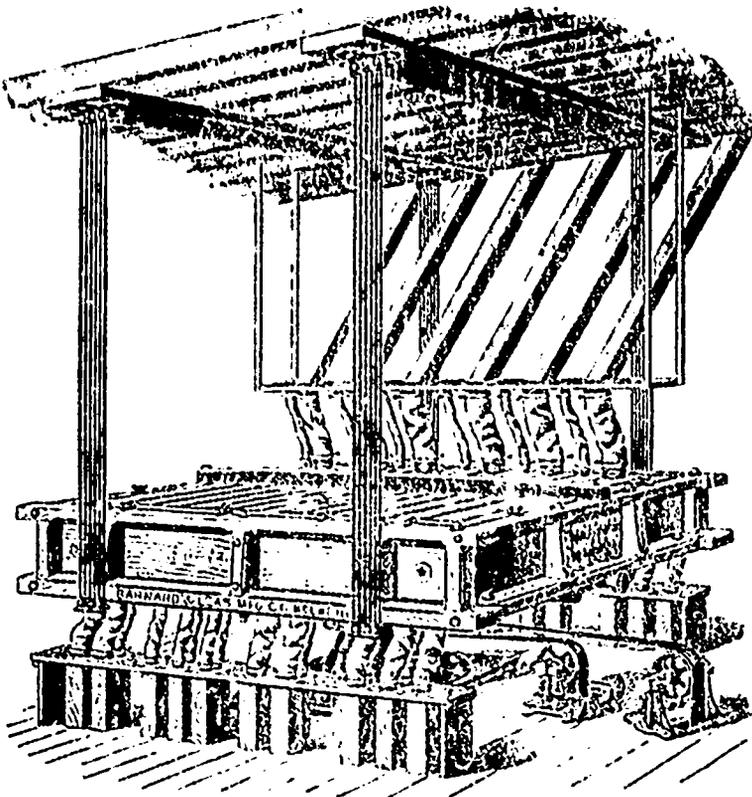
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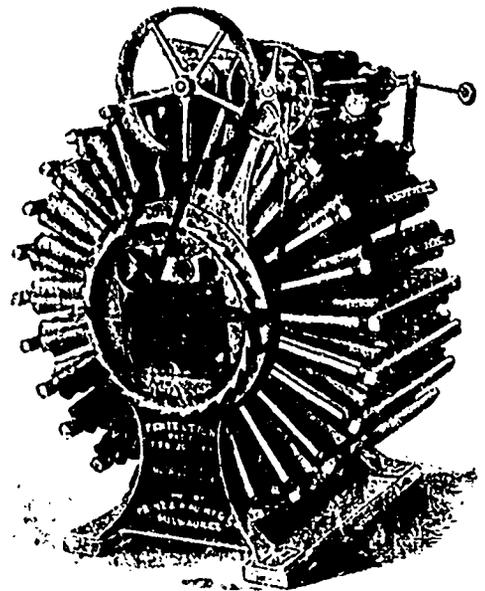
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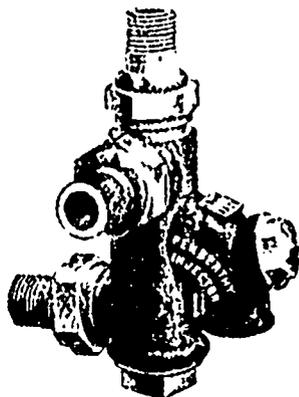
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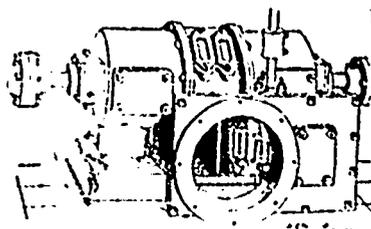
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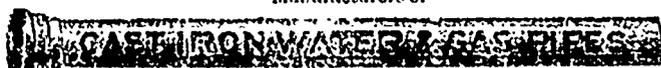
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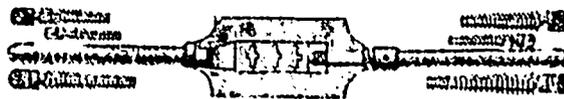
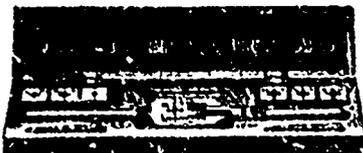


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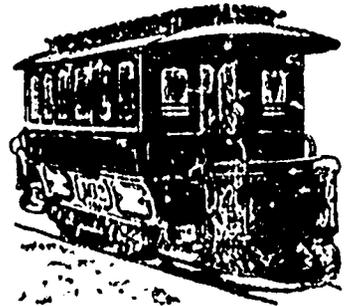
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THE

CANADIAN MANUFACTURERS' ASSOCIATION

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J. J. CASSIDY, Secretary.

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Secretary's Office. *McKinnon Building*

Cor. Jordan and Molinda Streets, Toronto

Tel. 1274.

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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 enterprises.

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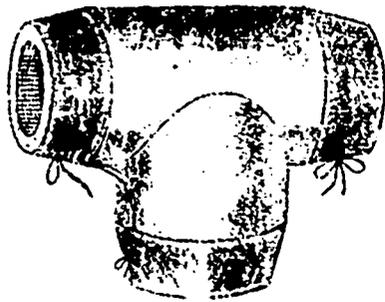
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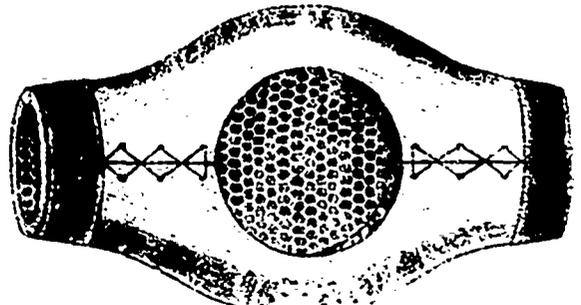
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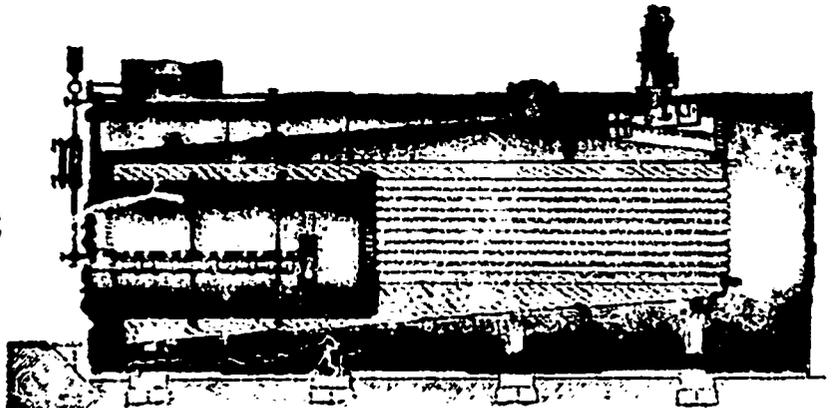
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WHEN WILL THE CLOUDS ROLL BY?

Before and pending the recent elections the Reform statesmen and orators declared that when they came into power the National Policy would be knocked in smithereens, and that an approach as near as possible would be made to free trade. Sir Richard Cartwright had time and again declaimed against protection as the sum of all villainies, or words to that effect, and Mr. Laurier said that his beau ideal of a financial system was closely akin to free trade such as they have in Britain. Of course The Toronto Globe sang a constant refrain to that effect, and this was the situation until, during

the election excitement, it was found that Cartwright was not ready for, and really did not desire such a change, and the word was given out that if the manufacturers and the industrial classes of the community would consent to a change of government, they need have no fear that their industries would be injuriously affected by the flip-over. It was never made known with any distinctness what sort of an operation it would be whereby the tariff was to be reduced to a revenue basis while at the same time no injury was to be done to the manufacturing industries, and the manufacturers are now as much at sea in this uncertainty as ever.

It is true that a reorganization of the tariff implies long and most serious consideration. Such an event is of entirely too much importance to be performed without due regard to all the interests involved; and those who undertake it should be allowed plenty of time in which to formulate a schedule that must of necessity have such great influence upon the welfare of the whole country. An esteemed contemporary of strong tariff reform proclivities, The Monetary Times, proclaims that we should not judge of what the powers that be may do as regards tariff changes by their pre-election declarations, but how else, pray, are we to judge of what they intend to do. It is evident, however, that whatever the gentlemen who now form the Government may have said while in opposition, or during the heat of an exciting election campaign, it is quite a different matter now that they are entrusted with power to formulate into law what they intend to do with the tariff. It is one thing to say in opposition that every vestige of protection should be eliminated from our laws, and that we should have, as near as possible, such free trade as exists in Britain, and quite another thing to make any such change. The revenues of Britain are not obtained to any large extent from duties levied upon imports, but from the differences of circumstances Canada cannot but thus obtain her means of support.

We cannot, then, join with those who demand that the Government should, without delay, announce the changes they propose to make in the tariff; nor are we in sympathy with attempts to force a showing of hands as that recently tried by Mr. Davin. But we cannot but think that while it may be inexpedient for the Government at this time to specialize the separate and individual articles regarding which they may propose to make tariff changes, they might, with great propriety and to the great relief to the manufacturers and to the whole community, intimate the general lines along which they intend to make tariff reductions, if, indeed, they are determined to effect any such changes. No doubt the Government are using much diligence in obtaining information regarding the matter, but the formulating of it into a complete and harmonious schedule that will take the place of that which we now have, is a herculean task which cannot be completed in a day, and which will probably never be completed as long as the revenues are realized by import duties.

The uncertainty regarding the changes that may be made in the tariff is having a most depressing effect upon the country. Business men cannot possibly know where they are nor what they are to do. Wholesalers, buyers and the larger dealers carry on their operations in a perfunctory and hand to mouth manner, to avoid being caught with large stocks of goods in hand the values of which may be depreciated when the new tariff is announced; and it is even worse

with the manufacturers, many of whom have no orders in hand, and are producing at a venture that may prove disastrous to them. When will the cloud be lifted?

THE MODUS OPERANDI.

If the Toronto Globe is authorized to speak for the Government we have some knowledge as to how Mr. Fielding, the new Finance Minister, intends to proceed in his revision of the tariff. The Globe tells us that Mr. Fielding does not intend that our manufacturers shall dance attendance upon him at Ottawa every year, as has been the custom, it says, in the past. He will probably visit the important commercial, industrial, farming and mining sections of the country, to become familiar with the courses of trade, to learn from those best qualified to give information just where tariff pressure is most severely felt, to discover how it may be removed with the minimum of disturbance, and to devise a system of tariff reform in the light of the information thus obtained. The Globe tells us that even believers in the theories of protection do not regard it as a permanent system, and that it involves a condition which is more or less detrimental to enterprise, but when a mistake in it has been discovered great care should be exercised in adopting the best means of rectifying it. We are also told that "the uncertainty which invariably attends the continuance of protection need not be increased, but may be lessened," while the reductions in the tariff are being effected.

As far as this latter postulate is concerned we would remark that whatever uncertainty may have heretofore attended tariff changes, under protection, no anxiety was ever felt that such change might involve an abandonment of protection, and we emphasize the fact that the changes now proposed do involve an abandonment of protection and an adoption of a policy looking ultimately to free trade. The result has proven that the most distressing uncertainty absolutely prevails and is increasing daily.

Mr. Foster, in his recent speech in the House of Commons, very forcibly pointed out the difference in the "uncertainty" that might exist in view of any proposed change in a protective tariff, and the uncertainty that is inevitable and unavoidable when it is known that the change is intended to be destructive of protection. There is a very marked difference in the qualities of the uncertainty, for it is to be remembered that a change in the tariff under protection stimulates trade, while a threatened reduction, even if it does not go to the length of obliterating the protective element, induces a cautiousness in business transactions that retards trade.

Perhaps, however, the Government's intention is to act on the suggestion of The Globe and adopt the British policy of a half century ago, which was, in the change from protection to free trade, to leave no business or industry in uncertainty as to the future. The duties upon imports were not immediately removed, but their repeal was made to extend over a term of years fixed by the peculiar circumstances of each case. Is this what Mr. Laurier's Government propose to do? Is the tail of the dog to be amputated by inches so as not to cause too much or too prolonged suffering? Are the manufacturing industries of Canada to be bled to death in this manner? Is the life blood to be drained away a little at a time while the political doctors stand by and observe the depletion of strength

and the inevitable approach of death? Exigencies and situations that may have existed in Great Britain fifty years ago are not present in Canada to-day, nor is it possible for them to be.

OVERPRODUCTION.

Speaking of the unfavorable outlook of the wholesale dry goods trade and the cause thereof, The Shareholder says:

The position of the dry goods trade to-day is simply owing to unsatisfactory payments, a lack of confidence, an overproduction of Canadian manufactured goods and the absence of the difficulty the retailer has hitherto had in obtaining any quantity of goods.

It is a patent fact that the unfavorable outlook of the wholesale dry goods trade is not confined to Canada, but is general throughout the world. It is also a fact that this unfavorable condition prevails not only in the dry goods trade, but also in all branches of commerce throughout the world. Having reference to Canada, however, it may be asked why is it that the payments of accounts of the retail dry goods merchants to the wholesalers are so unsatisfactory; why is there a lack of confidence; and why one of the causes of the situation should be attributed to an "overproduction" of Canadian manufactured goods. One might reasonably infer from the language of our contemporary that Canada is the only country in which there is an overproduction of goods. Why attribute this condition to Canada more than to any other country? As instance of the statement of The Shareholder to the effect that the facility afforded the retailer in the purchase of goods from the wholesaler is one of the causes of the depression, attention is directed to a recent Toronto dry goods failure when the list of creditors consisted of three hundred names; and from this fact our contemporary very properly concludes that until insolvents find it much more difficult to obtain settlements, no hope for real improvement in business can reasonably be entertained. It suggests that if one or two of the wholesale concerns were to take the lead in holding out against the persuasions usually brought to bear in this matter of too freely given credits to the retailers, the matter would very soon be set to right; but it cannot discover that there are a sufficient number of righteous men in Sodom, or wholesalers of the right stamp in Canada, to stand up and fight against the iniquity of the method; and that the wholesalers "really have only themselves to blame for the present position of credits." This conclusion strikes us as rather remarkable considering that in the same editorial The Shareholder lays quite a large part of the blame upon the shoulders of the manufacturers for their "overproduction of Canadian manufactured goods."

We are told, too, that while several wholesale houses have recently reduced their terms of credit, they are considerably handicapped by other houses who still continue to extend longer time to their customers; and it mentions one special reason why credits should be largely curtailed as being the enormous increase of expense in trading, while at the same time profits are cut down to the very lowest margin. "Houses," it says, "that formerly employed ten travellers now require twenty, and the addition in the bulk and value of samples carried has increased out of all proportion to the sales made therefrom." The Shareholder also tells us that "all this expense has been undertaken owing to the keen

competition from British houses, but at the same time the credits given by the latter are in most instances far short of their Canadian competitors."

It will be observed that The Shareholder, in its discussion of the business outlook, attributes the situation, in the first place, largely to an overproduction of Canadian manufactured goods, subsequently changing the blame to British competition, and finally fixing it upon the wholesalers themselves because of their recklessness in giving credit. And this finality reaches the root of the evil, for undoubtedly the blame lies primarily and finally with them. There is no consistency whatever in the arguments advanced, and the inevitable conclusion is that there are entirely too many wholesalers in business. Under previous conditions of trade, when communication with foreign countries was not as facile as it is in these days, and before the era of the National Policy when Canada had to depend upon foreign countries for a very, very large portion of even the necessaries of life, to say nothing of the luxuries, the importer and the wholesaler were essential characters in all commercial transactions. But since then other factors have appeared, and with these appearances the importance of these personages has dwindled away we might say almost to the vanishing point. Nearly all of the articles essential to the welfare and comfort of the people, previously brought from abroad, are now manufactured at home, and the presence of the Canadian manufacturer with his home made products is now a satisfactory guarantee against the extortionate prices that in the previous days the Canadian consumer was bound to pay. The Shareholder, unintentionally no doubt, explains this phase of the situation when it said in a recent editorial denouncing the National Policy, which so successfully built up our manufacturing industries, and which has, through competition, made it possible for Canadian consumers to obtain their goods at the very lowest possible prices, by showing that the wholesaler frequently finds that "when offering goods to the retailer, that the latter has already been supplied with similar goods at the same price as the wholesaler," and that "many lines of Canadian manufactured goods are now being sold by manufacturers, wholesalers and retailers at the same price." What, then, pray, is the benefit to the consumers of the country of the so-called wholesaler? If The Shareholder would visit Toronto and notice the course of business observed by many of our retail stores, it would learn that these so-called retailers are, many of them, much larger importers of foreign goods than many of the so-called importers and wholesalers. What, then, the necessity for these middle men? If the importing retailer, as is supposedly the case, gives the public, in cheaper prices, the profit that had hithertofore gone into the pocket of the importing wholesaler, what reason is there for the existence of this latter personage in our commercial life? The low price of Canadian goods, together with the facilities of the retailer for importing without the interposition of a middle man, is playing havoc with the old-time importer and wholesaler.

For some time past there have been rumors in Sudbury that all the chief nickel properties of that district were to be purchased by an English syndicate, and that \$750,000 would be needed to effect the purchase. The Sudbury Journal states that the English capitalists have despatched an agent to look into the prospects of the properties.

IMPORTERS AND WHOLESALERS VS. MANUFACTURERS.

All business men comprehend the fact that there is great stagnation in business throughout the country, in all branches of trade, and that in many of these branches absolute distress prevails. Of course interested ones are enquiring for the causes that have produced the situation, and some of the astute ones imagine that they have discovered the root of the evil. Among these latter we may cite the Montreal Shareholder, which can but attribute to the operations of the National Policy, which has prevailed in the country for the past many years, all the ills to which the community is now subjected. It has studied the question, and its conclusion is that the National Policy has been found wanting, and that tariff protection should give way to free trade, or as close an approach thereto as possible. It tells us that "one of the arguments advanced in favor of the adoption of the National Policy was that the keenness of competition between Canadian manufacturers would keep down prices, and that the consumer would not have been compelled to pay more for his goods than under the old system." It does not dispute the fact that such has been the case; and it does not deny that under protection the general public can purchase about any and all lines of merchandise that are manufactured in Canada at about as low price as they could be imported for, free of duty, from any other country. It is quite evident, then, that the keenness of competition between our manufacturers does keep down prices, and that consumers are not compelled to pay more for their goods than under the old system.

We are told, however, that combinations to restrict the output of our factories, and to keep up prices, were not taken into consideration at the time of the adoption of the National Policy, with the result that manufacturing industries were established all over the country, without the slightest regard for the question of supply and demand; that "shares in joint stock companies, which gave promise of a good return for the capital invested, were multiplied, and competition became so keen that prices of Canadian manufactures had to be reduced in order to obtain the necessary funds to carry on operations." Of course such a condition of affairs might prove quite unpleasant to the holders of shares in the unfortunate joint stock companies, but certainly the consuming public do not weep bitter tears when they find that they can purchase goods in their home market at quite as low prices as they could be imported for, duty free. In this respect the National Policy certainly has not been found wanting.

The Shareholder says that this keen competition among Canadian manufacturers "led to the formation of combinations, by which the output was restricted and mills were closed," and that by this arrangement "prices were raised to a much higher figure than would have been the case had the combinations not been entered into; and the consumer was punished for the greed of the manufacturers." We cannot undertake to reconcile the contradiction of itself and the inconsistency of The Shareholder in this argument, if such it may be called; and we can but point out that in one breath it tells us that a result of the National Policy has been to produce such keen competition among the manufacturers as to bring the price of their products down to the lowest possible minimum, regardless of the cost of production, and to such an extent as to

impair the capital invested in the industries ; and in the same breath it declares that the National Policy has fostered industrial combinations that have resulted in raising prices to an extent that has rendered it the duty of the country to punish the manufacturers for their greediness. It is strange that a staid and generally sensible journal as The Shareholder should thus conspicuously stultify itself.

But the Canadian manufacturers, whose keen competition among themselves has resulted in cheapening the price of goods to the Canadian consumers, are used by our contemporary as a stalking horse to introduce the grievance it has against them in behalf of the importers and wholesale and retail dealers in such goods as the manufacturers produce. To make entirely clear the position of The Shareholder we reproduce the following from a recent editorial anent this question :

If the present condition of affairs continue it can only end in disaster, due to the fact that there are twice too many manufacturers in the Dominion able to turn out more goods than the country can consume, while the demand is almost entirely confined to the lowest-priced articles it is possible to manufacture. The question will be asked, "What is the remedy for such a state of affairs? Will a reduction in the tariff improve matters?" We reply, that so far as the general trade of the country is concerned we think it will, for it is owing to the high tariff that there are too many manufacturers in existence, the result being that the keenest competition prevails among themselves. This results in a desire, on the part of each, to produce a lower-priced article than his rival. This exists to such an extent that the wholesaler, after placing his season's order, finds the same goods that he has purchased are offered by the same manufacturer to his competitor at a much less price. He also finds, when offering goods to the retailer, that the latter has already been supplied with similar goods at the same price as the wholesaler. Many lines of Canadian manufactured goods are now being sold by manufacturers, wholesalers and retailers, at the same price. "Then," it will be said, "the consumer gets the benefit of all this." This is true, but on the other hand, owing to the wretched state of trade, he has little money to purchase his demands with. Goods are too cheap, wages are low, seekers of employment are many, and credit is bad. This state of affairs is the outcome of the high tariff, and for years tariff protection has been bringing disaster to the country, while under a reduced tariff so many manufacturers as there are at present might not exist. We believe that under such a tariff trade generally will be benefited, fair profits will be possible, and a good demand for labor will spring into existence. We have had a trial of high protection and do not find the results satisfactory. With a tariff for revenue we shall have moderate protection, and with the latter we believe the country will develop ; immigration will not be as restricted, and high taxation will not frighten those seeking new homes, and business generally will expand more profitably, more satisfactorily, and in a healthier manner than it has done under the National Policy.

It is quite evident that with The Shareholder the interests of the manufacturing and producing classes of Canada are or must be brought into subserviency to the interests of the middle men, to wit, the importers and the wholesale and retailers whose business it is to go between the producers and the consumers. The manufacturers, then, are a thorn in the side, and a hindrance to the methods of those who can see more profit to themselves in the importation of foreign goods, and the distribution of them to Canadian consumers, than they can observe in handling the products of Canadian industry. Why does The Shareholder say that "there are twice too many manufacturers in the Dominion?" Does it pretend to say

that no such goods as are made in Canada are imported into the country? Why does it say that the Canadian demand for Canadian-made goods "is almost entirely confined to the lowest-priced articles it is possible to manufacture?" Does it not know that in making such an assertion it is hurling a vile slander upon our manufacturers? It is true that our manufacturers do not produce every variety of goods imported into this country. They may not make silks and satins, laces and finery, but what they do make is of as excellent quality as similar goods be they made anywhere else, and they are sold at quite as low prices as the foreign articles could be sold at even if they were allowed to come in duty free. Can The Shareholder successfully dispute this proposition? Can it mention the country which produces better furniture, musical instruments, knit goods, agricultural implements, mining machinery, steam engines and boilers, cements, bicycles, hardware and a hundred other articles, than those made in Canada? Does it pretend to say that the Canadian demand for the products of Canadian factories is confined to the lowest priced articles it is possible to manufacture?

The trouble with The Shareholder and with those whose cause it is fighting for, endeavoring to array worthy classes against each other, is that it and they do not observe the signs of the times, and note that the march of events is making it day by day less important in the economy of the country that the middle man shall exist. Why should there be such a character as a "wholesaler" who must have a profit in distributing the products of the manufacturer to the retailer, when the manufacturer can perform that service to better advantage himself, and to the profit of all concerned.

Instead of there being too many manufacturers, as our contemporary asserts, it would be nearer the mark if it had said that there are entirely too many middle men, and that it would be well for the country if nine-tenths of these gentlemen were to seek some other occupation.

PROFITABLE BEET SUGAR-MAKING.

This journal has on frequent occasions shown the advantages that the growing of sugar beets and the manufacture of them into sugar in Canada, especially in the province of Ontario, would be specially to the farmers, and generally to the whole country. Millions of dollars are sent out of Canada every year for sugar that might just as well as not have been produced at home ; and this money should have gone into the pockets of our farmers and those employed in and about the factories, and to those who would have invested their capital in the enterprise, instead of to foreigners in far off countries. As another evidence of the value of the industry to those who are interested in it, we reproduce in part a recent editorial in the American Agriculturist, having reference to the industry that is now so successfully established in Nebraska. Our contemporary says :

The sugar-making season has now begun at the Oxnard factories at Grand Island and Norfolk, Neb. These two factories will probably work up 75,000 tons of beets. The harvest thus far is running from ten to fifteen tons per acre, the latter being the result of good cultivation. Up to the present date, everything indicates that the quality of the beets will be above the average. Last year, the beets proved to be quite poor in quality, owing to heavy rains in the fall, which started the beets to a second growth, and then before they could re-ripen, a killing frost occurred. So far this sea-

son, this trouble has not occurred, and the 2,000 farmers who are growing beets for these factories expect excellent results. Nearly twice as many farmers have grown the crop this year as was the case formerly, as they have learned how to raise the beets. The plants are thinned out largely by children, and the rest of the cultivation by horse-power with improved implements.

As the crop comes to maturity, samples are taken to the factory for analysis, and as soon as it was ascertained that a sufficient quantity of beets were ripe to keep the factory going, it was started up, and will be operated constantly until the last beet has passed through. It is exceedingly important that the factory should have a long run, for after the campaign is over, it has to close down until the next crop comes in, which makes the dead season an expensive one.

The beets increase in tonnage mostly in September and the fore part of October in ordinary seasons, so that harvesting is delayed as long as possible without danger from frost or rain. The harvesting is done with a two-horse puller, which loosens the beets, but leaves them in the ground. After this, the beets are pulled by hand and topped with a corn knife.

When beets arrive at the factory, an average fifty pounds is taken from each load, these being thoroughly washed and examined to see if properly topped then weighed again, the loss determining the tare. Samples from these beets are also analyzed in the laboratory, to test their per cent. of sugar. The growers have a tare man and chemist of their own to see that no errors are made. Beets containing less than twelve per cent. of sugar, or of purity under eighty per cent., are not accepted, or are taken at a discount. Beets are shipped to the factory as fast as harvested, until the factory has received all it can handle for the time being, and has filled its own silos. Then, farmers are obliged to put them in silos at the farm, to be held until the factory can take them.

Nebraska experience during the past six years has arrived at the conclusion that seven tons of beets per acre pay for all the work on the field, at thirty cents per hour per team, and seven-and-half to fifteen cents per hour for hand labor, also for seed, rent of land, machinery and freight. All of the yield above this tonnage should be clear profit, after paying a fair price for all the work bestowed on the crop. The average yield this year will probably be ten to twelve tons per acre, but some experienced growers on richly manured bottom land will have from eighteen to twenty-five tons per acre, and even more. Growers of beets for these factories are more or less scattered over the state, and much of the crop has to be hauled by rail. The freight is thirty cents per ton for distances of twenty-five miles or less, fifty cents for twenty-five to forty-five miles, and eighty cents for forty-five to 100 miles, the rate being a little higher on another railroad, which exacts an additional charge of \$2 per car for switching. The cars are loaded to their visible capacity.

The range of prices paid for beets delivered at the factory from 1890 to 1895 was as follows: Lowest price \$4 per ton, for beets containing twelve per cent. sugar, with purity co-efficient of eighty. The price was then graded up to \$7 for beets containing twenty per cent. sugar, and a purity co-efficient of eighty. It was afterwards found to be more satisfactory to have an average price for all beets above twelve per cent. sugar with eighty purity, and this was placed at \$5 per ton, which is the price this fall. If the beets run below twelve per cent. sugar of eighty purity, they are accepted at one-half price. The 1894 crop in many cases was ruined by the unprecedented drouth, but what beets were made yielded an average of 216 pounds of refined sugar to the ton, compared to 176 pounds the year before. Last season, on the other hand, late rains and a warm fall started a second growth that increased size and weight at expense of sugar, which averaged only 150 pounds refined to the ton.

A statistical table exhibited by the Agriculturist shows the increase in the extent and value of the industry as developed in Oxnard and the Grand Island factories in Nebraska as

follows: As between the years 1891 and 1896 the increase in the number of tons of beets worked up was, in 1891, 19,047 tons against 75,000 tons in 1896; the quantity of granulated sugar produced in 1891 was 2,734,500 pounds against 15,000,000 pounds in 1896; and the number of farmers growing beets for these factories was, in 1891, 612 as against 2,000 in 1896.

Our contemporary promises that at an early date it will publish a statement showing what the farmer gets out of the business, which we will have pleasure in reproducing when it appears. It tells us that "last year the farmers sold an average of fifteen tons per acre of dressed beets net weight from forty acres. This crop netted them \$1,682, or \$42 per acre for team work on it, use of land and profit. It is safe to say that \$12 per acre would fully cover these items, leaving \$30 per acre absolute net profit," and offers the following figures to prove it:

RECORD OF A CROP THAT PAID \$30 PER ACRE NET PROFIT.
EXPENSES.

Seed	\$ 107.00
Hand work at \$13 per acre	480.00
Topping beets at \$3 per acre	120.00
Freight at 80c. per ton	538.40
Extra hand labor	154.00

Total

PROCEEDS.

577 2-3 tons at \$5	\$2,888.32
46½ tons at \$2.50	115.83
Siloed	77.34

Total

Less expense

Balance for team work, use of land and net profit 1,682.10

Diversity of crops is the salvation of agriculture, in Canada as well as any where else, and the importance of the beet industry cannot be over-estimated.

THE PAPER PULP INDUSTRY.

There seems to be some uneasiness in the minds of the Customs authorities of the United States regarding the method of valuation of paper pulp entering that country from Canada, and also the proper allowance for the quantity of water contained therein. Usually the valuation of pulp is made upon the market price of the article in the country from which it is exported, but the difficulty now seems to be that there is no regular and reliable price in Canada for pulp offered for export. The Paper World tells us that some time ago there was a great range of valuation at American import ports, the extremes being as low as \$6 and as high as \$18 per ton. Some months ago a conference was held in Toronto between United States Customs officers and certain Canadian manufacturers of pulp at which an understanding, or agreement was arrived at to the effect that a uniform valuation at all American ports of entry for Canadian pulp should be \$12 per ton. This arrangement gave satisfaction for but a short time, difficulty arising from the fact, as our contemporary says, that the Sault Ste. Marie Pulp and Paper Company, probably the largest concern of the kind in the country, being unwilling to invoice their pulp at more than \$10 per ton; and attention is directed to the fact that if the entire output of this company, when their new pulp mill now being constructed is put in operation, were to be sold in the United States, the difference in the American duty between the valuation of \$10 per ton and \$12 would be about \$40 per day, or some \$12,000 per year.

The Toronto correspondent of The Paper Mill, discussing the matter says:

After the settlement effected last May it was supposed that we would hear no more of that vexed question. It will be remembered that a United States Customs Commissioner visited this country at that time for the special purpose of bringing about an understanding upon this and one other point touching the importation of mechanical pulp from Canada. The other point was as to the allowance that should be deducted for moisture. It was agreed that 60 per cent. of the weight should be exempt from duty, as that portion would be lost in the drying. This arrangement appears to have been a finality. It closed one source of dispute.

The arrangement as to the other point, namely, the valuation for duty, was supposed to be equally conclusive, and for some time it worked as if it were. It fixed the valuation for duty at \$12 a ton. Before that, Canadian pulp was entered at the various customs ports through which it passed into the United States, at the greatest diversity of prices, ranging all the way from \$6 to \$18 a ton. This of course was unsatisfactory to the United States Customs Department, and did not suit those Canadian shippers who had in consequence to pay duty on the higher values. However, \$12 dollars was agreed upon as a uniform value. That valuation was decided upon as the result of conferences between the Customs Commissioners and all the Canadian manufacturers concerned. It was a question that had to be settled by conference to be settled fairly, because there was really no Canadian market for pulp, and therefore no general commercial value on this side that customs collectors could take as a standard. Especially was the absence of a market felt in appraising pulp from the Sault Ste. Marie Mills, which at that time sold practically all their output to paper makers in the United States.

But the \$12 valuation is not proving itself such a happy settlement as the 60 per cent. allowance. The reason seems to be that prices have gone down since that valuation was struck. This appears to be specially the case in regard to the pulp shipped from the Sault Mills, which is said to be invoiced at \$10 a ton. If they are actually selling at \$10, they naturally will not be disposed to pay an ad valorem duty on \$12. Since they have evidently worked down the price to come within reach of as much of that trade as possible, they cannot but feel the over valuation as a material drag on their American business. In the East, however, our exporters are satisfied with the \$12 arrangement.

The question, we understand, is receiving the attention again of the United States Customs Department, an officer sent by that department having been in Toronto recently. It is understood that he met most of the pulp manufacturers. To strike a rate that will be uniform and at the same time just to all parties, will be no easy task.

It looks that the incident is strongly illustrative of the fact of the survival of the fittest. No doubt many of the pulp mills in Canada are advantageously located as to their sources of supply of raw material, and are excellently well equipped as to the best and most effective machinery, but some of them do not possess all these advantages, while the maximum of them is enjoyed to a very superior extent by the new and enterprising rival at Sault Ste. Marie.

TEACHING BY EXPERIENCE.

A large woolen manufacturer residing in Boston points out to The Home Market Bulletin the moral to be deducted from the effects of the past four years of tariff tinkering and the tariff for revenue policy of the United States. The picture he draws should be viewed as an object lesson not only in that country but in Canada.

Four years ago, he says, the American people voted for a change, approving by their vote of the theory that has been so persistently advocated by the Democratic party and free traders of the country, that protection was fundamentally wrong, and if the American people would adopt a free trade tariff, or on those lines, a greater and more general prosperity would be the result. By sad experience the people of the country have been taught the error and sophistry of that pernicious theory, as applied to the United States. The expense of this education has been terrific and it has been general. The error of the theory has been keenly realized by every class of citizens.

As expensive as this education has been, it is that kind of an education, in the severe impartial school of experience, that is most lasting and permanent in its results. The penalty the country has paid, he believes, will prove eventually to have been a good investment, notwithstanding its cost.

The most pernicious part of the campaign, as carried on by the opponents of protection, is that of trying to create a class prejudice against citizens occupying different social conditions in life. The social divisions are as natural as the different intellectual conditions of man; but in this country, while there may be distinctions in social arrangements of people into so called classes, no economic principles of government can be enacted that do not affect every class of American citizens.

One of the most striking illustrations of this is in New England, where thousands of operatives are now idle, and whose families are suffering for the necessities of life.

While the manufacturers are parting with their accumulations, and living on resources of the past, their suffering is only of a mental type, while the suffering of the operatives is not only of a mental, but of a physical nature, which deprives them of all the essential requisites of life. Enforced idleness means less food, less clothing, less education for their children, less social relaxation and enjoyment; in fact, while the manufacturer is losing some of his previous gains, the honest, industrious, temperate, deserving mechanic, if long continued in idleness, suffers from the absolute necessities of life, brought upon him by the false education of the political demagogue on the one hand, and the impracticable theorist on the other.

This condition is forcibly brought home by the fact that for the first time in the history of American mills, there are a thousand operatives idle, and a large stock of manufactured goods on hand which in ordinary times would have been readily disposed of.

The American people were constantly told that under free wool all the woolen mills would run to their utmost capacity.—that the decreased cost of wool to the manufacturer would aid them in securing the markets of the world, and give to the American people a better class of clothing for less money. What are the facts? Under the operation of the present tariff the American woolen looms have almost ceased to run, while the country has imported about sixty millions of foreign manufactured goods made under foreign cheap labor, and composed very largely of shoddy. The American wool growers have lost their market, the American manufacturers their customers, American wool operatives are idle. The American people are wearing more inferior woolen clothing than ever in the history of the country. If the in-

creased importation of foreign woollens of the last eighteen months had been manufactured in the United States, it would have kept every American loom busy. What is true of this industry is true of many others under the present tariff of ad valorem duties.

FREE TRADE FETISH.

Under the heading "The Fetish of Free Trade," the London Saturday Review discusses Mr. Ernest E. Williams' book "Made in Germany." The Review says:

"The facts set forth are of the highest importance to the nation; they are arranged with lucidity and precision; the conclusions drawn from them are sound, and indeed irresistible; and throughout the hundred and seventy-five pages of which this unpretentious volume is composed, the style is earnest, without being didactic, and though always animated, is never inaccurate or exaggerated. The book is eminently practical in tone and purpose. Sensible advice—the most difficult thing in the world to give without offence—is administered to the British manufacturer with rare tact. Mr. Williams drives nail after nail into the coffin of free trade without indecent chuckling, and reaches the mind of his reader by conviction rather than by clamor. Yet, when we have said all this, we are bound to add that everything Mr. Williams tells us we have been told before. Mr. Williams has but collected skillfully and industriously, information that has been published piecemeal for many years past. It is true that the birch rod produces more effect than the switches of which it is composed. But Mr. Williams has not even been the first to bind these switches together. Mr. James Lowther and Mr. Brookfield and Lord Masham have been preaching his sermon up and down the country for a long time, and in the various publications of the Fair Trade League we have seen something very like "Made in Germany." Mr. Williams, however, has had the cleverness to hit upon a telling title, and—there is where the luck comes in—he published at a moment when the Emperor of Germany had succeeded in exciting all the latent prejudice of Englishmen against a trade rival."

Of the Cobdenite fetish, of which the book is a crushing exposure, the Review says:—

"It was, indeed, high time that some one attacked, boldly and resolutely, and with the necessary equipments of facts, the fetish of free trade. The abolition of the corn laws and the introduction of the system of free imports constitute quite the most remarkable transaction in modern history. In the first place the question was never really argued, either in Parliament or out of doors. In his speeches on the corn law, Mr. Disraeli complained bitterly that no agricultural statistics, as to the productive capacity of Great Britain or to the effect of free importation, had been laid on the table of the House of Commons. The elaborate tables now published yearly by the Board of Trade, and the Board of Agriculture were unknown at the time when Sir Robert Peel, with the assistance of the Whigs and Radicals, revolutionized our tariff system. In the second place, as Mr. Lecky points out, in the whole history of political imposture there is no more striking instance of success than the way in which the manufacturers managed to persuade the public that their agitation was a national and unselfish one, and that they had always been on the side of a liberal and unrestricted policy. As a

matter of fact, there is not a manufacture in Great Britain that has not been defended in the narrowest spirit of the most brutal and selfish monopoly. Burke lost his seat at Bristol for advocating a very moderate measure of free trade. The abolition of the corn duties was a mere conspiracy on the part of the commercial class to lower the wages of their operatives at the expense of the landlords."

The Review continues:—

"In their greed for a thousand per cent., and in their hatred of a class of which they were socially jealous, the manufacturers did not stop to enquire whether the ruin of the landlord did not ultimately mean the ruin of the farmer and the laborer. But even Peel and Cobden, with the assistance of the new voters of the Black Country, could not have broken down protection without the powerful co-operation of circumstances. Half a century ago England really did enjoy industrial supremacy. We banked and manufactured and carried for the whole world. At such a moment the theory of free imports wore a very plausible appearance. We knew that other nations must come to us for our manufactures; we on our side were rather short of corn for the time. Opening our ports meant admitting corn not manufactures. The fatal blunder lay in imagining that this state of things would continue. In the fifty years that have intervened between 1846 and 1896 foreign nations have borrowed our money to make their railways and telegraphs, they have copied our processes of manufacture, and they have built their mercantile fleets, until London has ceased to be the bank of the world, until there is not a market where foreigners do not run us neck and neck, and until by means of subsidies the carrying trade is rapidly passing from British to foreign bottoms. The British manufacturer now sees himself hoist with his own petard. Adversity has softened his heart. He is now beginning to see that what was sauce for the landlord is sauce for him, and that after all there was a great deal of truth in what Disraeli and Bentick said when they defended agriculture against the great treason of Sir Robert Peel.

"It is indeed time that some one should say the word which most men are thinking. It is, indeed, time that something should be written on our fiscal policy."

The Review says in conclusion:

"To sum up, all the arguments on which the policy of free imports was based have been destroyed by the events of the last fifty years. Unless we wish ourselves to be destroyed for the sake of a theory, we must re-write our political economy and revise our tariff. Mr. Midshipman Easy consoled himself for being mastheaded by the reflection that he had the best of the argument with the captain. How long will our manufacturers and farmers console themselves for being ruined by reading the triumphant arguments of Sir Robert Giffen and Lord Farrer?

"A book like 'Made in Germany' must do much to awaken the public to the grave peril to which our national industries are exposed by foreign competition. We cannot reproduce here the figures and calculations of Mr. Williams; his book must be read. One instance we will give of what he calls 'the wrecking' that has gone on in the 'Black Country.' Between 1796 and 1841 the number of South Staffordshire's blast furnaces increased from fourteen to 163. In the latter year she attained her zenith. Her decline since then has been

practically continuous, till in June, 1895, the number of furnaces in blast stood at nineteen. . . . The net fall is tremendous, the total output of iron in 1871 being 725,716 tons, while in 1894 it was only 315,924 tons.' We cannot, as we said, go into details, for which we refer our readers to Mr. Williams, as a witness who has been unshaken by the severest criticism.

"Broadly, the position is this: We admit imports from every nation in the world duty free. No other nation in the world imports from Great Britain duty free. The only articles which we tax in our tariff are those which we cannot produce at home, and therefore which do not compete with home products—French and Spanish wines and spirits, and tea, coffee and cocoa, the latter almost entirely shipped from our own colonies of India and Ceylon. We have bound ourselves by treaties with Germany and Belgium to prevent by our Imperial power our own colonies from granting more favorable tariffs to ourselves than to Belgium and Germany. Nearly all foreign governments, by means of subsidies and bounties on exports, help their own manufacturers to beat the British manufacturer, not only in neutral markets, but in his own home market. The carrying trade is literally being filched from British ships by bounties.

"Norway is one of the poorest countries in the world, yet the Norwegian Government has just granted a subsidy to a line of steamers between Newcastle and Stavanger, which seriously threatened Messrs. Wilson's line between Hull and Gothenburg. Messrs. Wilson, with no hope of success probably, asked the British Government, the richest in the world, for a corresponding subsidy to keep their ships afloat. Of course the request is refused, and immediately an angry correspondence bursts forth in the papers. How selfish of the Messrs. Wilson! How impudent! Why should we help them to earn a living? etc. Well, but the Norwegian Government see a very good reason why they should help their steamers to take the trade away from ours. And so it is with one British industry after another—silk, sugar, iron and steel, leather, stationery, toys. We have lost many markets, as Mr. Williams points out, by our own stupid conservatism. But we have lost many more owing to the action of foreign Governments, which, if we are to be saved, must be counteracted by the action of our own Government. The only really protected class in this country are the rentiers, or drones who live on the interest of capital. How long will it be before we learn that the workers are equally, or even more entitled to protection."

EDITORIAL NOTES.

Senator Ferguson, who recently died in Toronto, is to be regarded as one of the pioneers in the Canadian paper pulp industry. In company with H. C. Symms he built the first pulp mill, at Sherbrooke, Que.

In Russia, last year, according to the American Agriculturist, the area of land cultivated to beets approximately 850,000 acres, an increase of 3½ per cent. over the previous year, yielded something like 6,000,000 tons beets, and the sugar from the campaign of '95-6 is estimated at 717,000 tons, or 19 per cent. over the previous year. Germany's sugar production continues to increase, and the same is true of France. The beet sugar industry grows wherever it gets a foothold.

The electric railway is only ten years old in the United States, yet it is said there are 1,000 such roads in the country, using 12,000 miles of track, operating 25,000 cars, and involving an investment of about \$750,000,000; moreover, this investment is increasing annually, at the rate of \$100,000,000 for new roads and new equipment.

With me Protection is a conviction, not a theory. I believe in it and warmly advocate it, because enveloped in it are my country's highest development and greatest prosperity; out of it comes the greatest gains to the people, the greatest comforts to the masses, the widest encouragement for manly aspirations, the best and largest reward for honest efforts; and a dignifying and elevating citizenship, upon which the safety and purity and permanency of our political system depend.—William McKinley.

All the Liberals in Parliament yesterday voted against a proposition to put agricultural implements, binder twine and coal oil on the free list. Thus is another lot of hopes blasted. A few months ago every agricultural implement and binder twine user, and every coal oil consumer could have been certain that Mr. Laurier had only to be made Premier to see the villainous Tory duties on these articles removed. Mr. Laurier and his friends were telling them so from the election platforms.—Montreal Gazette.

The World and The Ottawa Citizen are worrying about The Globe's "paternalism." The Globe begs to say that it is opposed to "paternalism" that takes money out of one citizen's pocket and puts it into that of his neighbor, but it is not opposed to "paternalism" that develops public resources for the benefit of the whole people. The first kind is protectionism, the second is not.—Toronto Globe.

Why should The World or The Citizen, or any other journal object to The Globe proclaiming itself in favor of protection in any degree? We welcome The Globe to the glorious army of protectionists.

Claus Spreckels, who has been in Germany for two months investigating German methods and machinery for making beet sugar, is now on his way home. He announces that he has secured several valuable patents and on arrival in California will commence work on three of four factories which will consume 3,000 tons of beets and turn out 450 tons of sugar per day.—American Economist.

If this means anything, it means that from every 13,000 or 14,000 pounds of beets the California farmers may raise and deliver at the Spreckels Sugar Works in California, 2,000 pounds of sugar will be produced.

The Toronto Globe supports the suggestion that the Ontario Government should establish smelting works for the purpose of testing the commercial value of the iron ore deposits in the Province. This idea has been practically acted on in the case of butter and cheese factories and has resulted in good. It is questionable, however, if it would not be going too far to apply it to iron-making. The cost of the suggested works would be very heavy, and their operation might not do all the good hoped for. Government works are never carried on as cheaply as private enterprises, nor are the results attained, as a rule, so satisfactory. It will require much argument to show that it is not best in Ontario, as elsewhere, to leave the business of iron-making to iron-makers, and confine the Government to the work of governing.—Montreal Gazette.

Andrew Carnegie, the protected millionaire and author of "Triumphant Democracy," seems a remarkable believer in the effects of systems. While political events were auspicious in the United States and the English political skies were clouded he wrote fluently on the advantages of the republican form of government. Now that the free silver agitation is giving him uneasiness he sees that the "stability of the British system" is preferable to republican institutions. A few more changes may convince him that any and every system is good or bad as it is well or ill administered.—Toronto Globe.

We congratulate The Globe upon its ability to see that there may be good even in the system of tariff protection. Our esteemed contemporary does occasionally have lucid moments.

After years of protection the people of the United States have paid some millionaires \$5,000,000 for manufacturing sugar inside their territory. It is the last payment, as the absurdity of it has reached the humorous stage. With the abolition of the bounty the agitation for bringing Hawaii within reach of a share by annexation has ceased.—Toronto Globe.

Wrong again. The bounty paid went into the hands of the farmers who produced the beets from which the sugar was made. Absurdity or not, when the United States promised to pay a bounty on the production of sugar in that country the promise became a contract under which the farmers, many of whom are shareholders in the sugar factories, were induced to enter upon the growing of crops of beets. The contract was made by a government pledged to protection, but it was deliberately violated by the would-be free trade government of Mr. Cleveland. The Globe seems to think that the payment of a just debt is both absurd and humorous.

The object of free trade is to remove every obstacle from the path of those who choose to buy goods abroad. Two results from such a policy are plain to the most superficial observer. First. Employment for American labor will be lessened, for the products of foreign labor will take the place of American products, and American laborers will be deprived of just so many hours' work as these imported goods represent. Second: We must send out of this country either gold or goods to pay for the things we buy. We can't pay in goods, except farm products, when our factories are forced to shut down, because even our home market has been given over to foreigners. We must pay in gold, as experience, both past and present, has proven under the incipient free trade of the Gorman bill. Factories have been shut down, people thrown out of work, and wages decreased from one end of the country to the other. We have a deficit at the Treasury instead of a surplus. It is time, surely, to call a halt and to right about face toward protection, prosperity and a surplus that will decrease the Democratic gift of debt.—American Economist.

At a recent meeting of the Montreal Hardware Association the matter of tariff changes was discussed. A committee was named to draw up a petition to the Government, urging that in the event of tariff changes, such changes should not become a law until at least two months after their adoption, which would afford merchants an opportunity to see to their stocks.

The recent action taken by the Dry Goods Association of the Montreal Board of Trade is both significant and reason-

able. At their meeting last week "Tariff Reduction" was calmly and thoroughly discussed, not only from a wholesalers' standpoint, but also from those of retailers and consumers. It was pointed out that the duties on imported dry goods, hats and caps, fancy goods, etc., constitute a large proportion of the receipts of the Montreal Custom House and the magnitude of the dry goods business in Montreal is shown by the following figures: Total value of importations, December, 1893, and January, 1894, \$1,652,139; duties thereon, \$178,591.81. December, 1894, and January, 1895, \$1,486,620, and duties thereon, \$157,916. December, 1895, and January 1896, \$1,724,439 duty thereon, \$509,660. With these figures it is easy to see that if changes in the tariff be made in February next a very serious interruption will be made to the importation of these goods, whereas, if the petition to the Government, "that any changes relating to dry goods and millinery, which may be made at the next session of Parliament, should not come into effect prior to June 1, 1897," be adopted, the general volume of business will not be much interfered with and the threatened loss will not be suffered by the trade. Hon. Mr. Laurier has repeatedly said, "that no hasty amendments of the tariff would take place." This is, doubtless, his intention, and by agreeing to the resolution passed by the Board of Trade, he will at once confirm his previous statement. In the meanwhile, it is well known that contracts are awaiting confirmation, and buyers are hesitating. Other branches of the trade are also discussing the propriety of fixing a date for a change in the tariff, if changes are to be made, and, as the Government has caused it to be understood that a careful inquiry is to be made during the next few months into all branches of industry, it would seem both justifiable and desirable that all changes come into force at a time when they effect the least disturbance. This seems to be the unanimous conclusion arrived at amongst importers, and they look anxiously to Ottawa for a confirmation of their expressed conclusions.—Bradstreet's.

THE CANADIAN MANUFACTURER is in receipt of two different enquiries for the names of concerns in Canada who manufacture machines for making nails; one for wire nails of different sizes, the other for horse-shoe nails; one enquiry coming from a party in the Province of Quebec, the other from the State of Georgia. Are there any concerns in Canada who make such machines? If there are, why do they not make it known? How do they expect to obtain business when they refrain from letting it be known that they make such articles? It is poor policy to hide one's light under a bushel. If we possessed the proper information we would take pleasure in introducing the makers to the possible purchasers.

The town of Walkerville has an exemption by-law which has worked so well for the stated term of years which it has been in existence that it has been re-enacted. The by-law, in order to encourage building, provides that houses worth not less than \$700, erected for the use of the owner, shall for the next six years be exempt from all taxes excepting school tax, and that on the assessed value of the land. This is an adaptation of the Henry George system for raising public revenues, though it is said that the originators of the scheme were not students of the works of that political economist. They took the common sense ground that a tax on improvements is a discouragement to promoting the erection of buildings or of making additions to those already in existence, and thereby a discouragement to the employment of labor. The practical men of Walkerville have managed to keep the taxes down to seven mills, whereas in the neighboring city of Windsor the rate is twenty-four mills.—London Advertiser.

We are pleased to observe that our contemporary has come to taking a very common-sense view of the taxation of improvements question; we cannot but believe that it is radi-

cally wrong to punish a man for spending his money in improving property that enhances the value of all the other property in his vicinity.

A retailer when purchasing goods in a well-known Toronto warehouse recently, asked the manufacturer to remove his name from a certain line of fine shoes. The manufacturing house is one of the most prominent in Canada, and, by its long experience has established a good name for its footwear. The request led to a question of reasons. After attempting to evade the question, the retailer admitted that it was his intention to sell the goods as the "latest American" shoes. There is in every country a certain class of people, more especially women, who are inclined to look with disfavor at domestic-made goods. Although this applies more especially to raw countries where industries are not firmly established, there is the same tendency in England, Germany, and other countries whose manufacturers are foremost in the world's markets. The objection to Canadian-made shoes must be purely sentimental, as they compare favorably in durability, comfort and style, to those made in any other country. Retailers can do a great deal to educate the public to a thorough knowledge of the merits of Canadian-made shoes. It is in the interests of the trade and the country that they should do this, and, without sacrificing anything, Canadian consumers are able to assist in building up domestic industries and add to the general prosperity of the country. *Monetary Times.*

In our opinion Canadian manufacturers really need, to guard them against the misrepresentations of dealers, as above indicated, a law that will require as far as possible that all goods made elsewhere than in Canada shall be stamped or marked in a plain and unmistakable manner indicating the country where they were made. This would be a protection not only to the manufacturer but also to the consumer.

Mayor Elliot and Alderman Montgomery, of Brantford, Ont., waited upon the Ontario Government last week asking that it discontinue the manufacture of binder twine at the Central Prison. They stated that as prices for twine were now so low and the stocks on hand so large the Continental Binder Twine Co. of Brantford would have to shut down if the twine machines at the prison were kept running. They thought it would be far better to give the convicts a rest than to allow the people working for the Continental Company to lose their employment. Premier Hardy promised to give the matter his careful consideration.

In these days, when every person who can do so has a point or an island up in Muskoka or some other desirable place in Canada where the summer vacation may be enjoyed with perhaps greater comfort and pleasure than anywhere else in the big, round world, the aforesaid person feels that one of the greatest drawbacks thereunto attached is the lack of many of the necessities of life, such as are always on tap in all the cities and towns of the country, such as electric lights, flowing water in residences, light power for all sorts of domestic purposes, etc. Why not have all these conveniences afforded as they may be at the initial cost for power of a good wind engine? Such a machine, while not expensive, and is easily managed, harnesses the breezes that sweep over the land in such shape that the power is always at hand for the purposes indicated. It can be used for driving a dynamo from which, by the use of storage batteries, electricity may be always available for the use of lighting purposes, for pump-

ing water, sawing wood, or doing any other work that requires the use of power and simple machinery. A good and effective windmill is not an expensive machine; can be erected by any intelligent workman, costs nothing for power to drive it, can be managed by any sensible man, woman or lad and will more than pay for itself in one season. This is a good time to plan for having your windmill in operation next season.

As one remarkable result of the change of Government at Ottawa, the Stratford Beacon chronicles the wedding of Mr. Edward Boyd, a venerable resident of Elma. Mr. Boyd had reached the degree of grandfatherhood before the noteworthy 23rd of June, but he was so rejuvenated by the result that he felt fifty years younger, went on a courting expedition, succeeded, and is now once more a happy benedict. He has renewed his youth with the eagle's - and the Government at Ottawa. - *London Advertiser.*

Mr. Boyd is very much in evidence that there is life in the old land yet. As a patriotic citizen he comprehended that the change of Government, as was unfortunately decreed by the people on June 23rd last, meant an exodus from Canada, and that it was his duty, as no doubt it would be his pleasure, to fill the gap as far as he was able, and to the extent of his ability not allow the population to decrease. He feels that it would be better to remain at home even if there is a change of Government, than to abandon hope and migrate to Brazil as so many of the disgusted habitants of Quebec province are doing.

OVERPRODUCTION OF FARM PRODUCTS.

An official connected with the Post-office Department, who, in his official capacity, has travelled in every section of the United States where the mails are delivered, has recently voiced his belief born of the observations he has made, as to the cause of low prices of farm products and consequent discontent of a large proportion of agriculturalists. Such statements as these, which manifestly are justified by facts, cannot be given too wide a publicity at a time when political demagogues are trying to convince the farmers that their cause for discontent lies entirely outside of themselves and can be remedied only by legislation. The official in question says:

"I have observed that the principal cause of the distress among farmers is overproduction. They blame other things for all their ills, but it has never occurred to many that the real reason for the decline in the price of their product is the lack of a market for the crops they raise. Travel through the great corn, oats, and hay raising districts and you will find the farmers producing the same quantity, if not more, of horse feed that they did a few years ago when the cable cars and electric street railways were quite untried. The same may be said of the farmer who for years has carried on a profitable business of raising horses to be sold to the street car companies in the various cities of the nation.

"Have you ever stopped to consider the magnitude of the blow dealt the farmer by the recent improvements in street car facilities? Before we had cable and electric street cars the farmer found a steady and firm market for good, sound draught horses. He also sold at a fair price enormous quantities of the products which enter into the feed and bedding for horses. Now there is but little demand for car horses and the car companies, instead of buying horse feed, buy coal and other material to operate and move their cars. It seems that in many instances the farmers have not reduced or diversified their crops, but have gone on planting thousands and thousands of acres of corn, oats and hay, for which there is no demand. In other words, the farmer, who formerly furnished the horses and horse feed for the street railways of the community, have been superseded as the producers of the motive power of these corporations by the coal mine and the manufacturers of the material that is used in the construction of the new system of railroading.

"Will the general public be willing to return to the old methods of street car travel and relinquish all the new improvements in street railroading to gratify the farmer, who is unwilling or unable to restrict the production of certain crops for which the demand is not equal to the supply?" - *Stoves and Hardware Reporter.*

A NICKEL STEEL BOILER.

On September 23rd, a seventy-two inch by eighteen foot horizontal tubular boiler was shipped from Pittsburgh to the Orford Copper Company. There was nothing peculiar about the boiler aside from the fact that it was the first nickel steel boiler ever successfully built. Some time ago the Government asked bids from some of the leading steel makers on about 20,000 pounds of steel to contain not less than three per cent. of nickel, to be used in the construction of new boilers for the United States ship "Chicago." In The Iron Age, of May 16, 1895, referring to this, we said: "Owing to the very rigid requirements only two concerns bid on the work, these being the Carbon Steel Company and the Carnegie Steel Company, both of Pittsburgh. The Carbon Steel Company were ready to guarantee an elongation of twenty-five per cent. in two inches instead of eight inches, and on account of their bid being informal it was not considered." After repeated attempts the Carnegie Company, by permission of the Government officials, were allowed to fill the order of carbon steel instead of nickel steel. The steel for the boiler above mentioned was made by the Carbon Steel Company, who are to be congratulated on their success and enterprise. The boiler is an experimental one, and its tests will be watched with great interest both by steel makers and boiler makers.—The Iron Age.

WOOD FIBRE AS A BUILDING MATERIAL.

At the exposition of manufacturers at Strasburg, Germany, in the middle of the principal building of the machinery hall were exhibited samples of building material of wood fibre. The materials were invented by Otto Henry Schwartz, an architect of Munich, Germany, and manufactured for Alsatia and Loraine and the grand duchies of Baden and Hesse by M. Heydt, a contractor for buildings, who has the license for those countries.

These new building materials are well worth the attention of all who are interested in building and architecture. They are made of wood fibre impregnated antiseptically in combination with a mortar stucco, manufactured according to a new patented process, or in combination with a mortar of Roman cement.

This new kind of partition material of wood fibre is especially useful in modern buildings for the middle partitions, which ought to be light, insensible to the influence of atmosphere, able to be worked by saw and chisel and fixed with nails, screws and clasps, and finally be bad conductors of heat, cold and sound.

The necessity of constructing partition walls in the upper stories when they do not exist on the lower floors has produced inventions and processes for supporting these walls either with cast-iron pillars or with iron beams. Very light materials for partitions are also used, such as walls of iron, wire, laths of cane, etc.

But to all these materials, the planks, the slabs and the wainscoting even, the wood fibre material of Mr. Schwartz is superior, as has been proved by practical experiments. Furthermore, they are incombustible, which was proved by an experiment which took place at Strasburg, Aug. 9, 1895, before a company of experts assembled to verify the claims of the inventor.

The necessary machines for manufacturing this new composition are already being constructed at Fleusburg, Germany.

BRITISH FREE TRADE AFTER FIFTY YEARS.

Both at home and abroad the fiftieth anniversary of the repeal of the Corn Laws, which is to be celebrated toward the end of this month, is exciting a good deal of controversy. In England neither party is quite sure about what it should say on the subject; they have both practically abandoned the old *laissez faire* attitude, and are inclined to nibble at protection in small things. But their leaders are afraid to admit it in so many words, although on the back benches of the government side a very distinct protectionist group is forming itself. It has no definite policy, but it is full of blind wrath at the steadily approaching ruin of the "agricultural interest," and tries in vain to discover some means of reviving corn growing without alienating the town workman, who is said to be growing a good Tory, but who will not hear of the "dear loaf." The problem is a difficult one, but it is, from the political point of view, worth making an attempt to solve it, for the man who discovers a means of uniting the rural and the industrial protectionists, will find an enormously strong party at his back, with demands to which neither Radical nor Tory can turn a deaf ear. Trade unionism, as Cobden saw, is in its essence rigidly protective, and there are marked symptoms, both in the iron and in the coal industries, of a feeling with regard to German and Belgian competition very similar to that existing among the farmers and their advocates. If this should develop, and if the two armies of discontent should join hands, the Cobden Club

will have to pull itself together and face a fight much bigger than that of fifty years ago.

If the prospects of free trade at home are not particularly bright, the situation abroad is such as would have driven Cobden to despair. The system of rigid protection which was established in Germany by Prince Bismarck in 1879-1887, and which was somewhat relaxed under Count Caprivi, is now more exclusive and aggressive than ever. The strongest protectionist in France has just been made Prime Minister, while in the United States the triumph of Mr. McKinley seems assured. Even Mr. Courtney, when he comes to address the Cobden Club at its jubilee dinner, will not deny that free trade is a forlorn hope over three-fourths of the world.

Cobden was the sublime type of what the Continental democrat loathes most of all—the "bourgeois." He was against trade unionism, against factory legislation, against everything that the workingman swears by, except, of course, the "cheap loaf," and that he and his friends advocated most of all because they thought it meant cheap labor. Cobden was hated and his meetings broken up by the real democrats of the time—the Chartists—and he swells with glory in describing his meetings, composed of "earnest, energetic men of the shopkeeping class." The fact is, of course, that a great deal of Cobden's work consisted in forcing an open door. Peel was at heart like Pitt, a free trader, and he only waited his opportunity, which came with the agricultural crisis of 1845, and "the rain that rained away the Corn Laws." The question was not settled by the legislation of fifty years ago and, as we have hinted, it may come up for reconsideration sooner than most people think.—London, Eng., Saturday Review.

THE ELECTRIC AGE.

The Electric City is the new name for the settlement on the American side of Niagara Falls, and the name is a bit of true description. Thanks to the harnessed might of the great cataract the community enjoys electricity at a price low beyond precedent. In addition to its long familiar duties of furnishing light, it manufactures on a prodigious scale aluminium and a wide variety of chemicals. Every fifteen minutes cars run through the Main Street for Buffalo, twenty-five miles distant, bearing the attractive legend: "Buffalo and return; fifty miles for fifty cents." The round trip occupies three hours, and takes the passengers through delightful suburban streets and avenues as compared with the dust-ridden air and unsightly surroundings of the steam road. On both sides of the Niagara River are electric lines, bringing before the eye some of the most bewitching scenery in the world. For views of the Falls the Canadian route is the better; for views of the river and its rapids the new American line is to be preferred. Cut as it is in many places into the very side of the rock, as a narrow shelf under frowning cliffs, it gives one a sensation comparable only to that of the very steepest kind of tobogganing. In a car whose joints have been welded by electricity, whose metallic ornaments are of electric production, whose freight at times is the chemical product of the current, whose motors, lamps and winter heaters are electric, is not "Electric City" an appropriate name?

In one minor particular Niagara Falls might learn of Cleveland. In that enterprising city each passenger on an electric car has a push button adjoining his seat, so that without rising he may stop the car. How much better this is than an unsteady plunging about in the attempt, often futile, to reach an elusive bell-rope! But in another improvement Niagara Falls has something worthy of imitation in Cleveland and Montreal and all other cities in the world,—an ample and strong leather loop which a passenger may grasp as he swings himself on or off an electric car.—Montreal Herald.

SALMON PACKING INDUSTRY.

The packing of salmon on the Columbia River consumes annually large quantities of tin plate. The methods pursued in catching and packing the fish are very novel, and are interestingly described by Henry Russell Wray. The principal canneries and the salmon catching wheels are located about thirty-five miles beyond Vancouver, in the State of Washington. The trip to the wheels may be made by river steamer or by rail, both affording ample opportunity for viewing the marvellous scenery of the grand old river.

A bend in the river reveals the famous Cape Horn, and beyond rocks from one to two thousand feet rise out of the water and tower overhead, while around their bases the river races at a rate of from eight to eighteen miles an hour. The sudden narrowing of the river has caused the famous cascades, through which it seems next to impossible for the steamer to go. The engineer refuses to reveal the pressure of the engine, and once entering these rapids one is too excited to care. Just beyond one sees the two score

wheels revolving slowly by the action of the current and making fortunes for their owners. The cost of one of these wheels is from \$10,000 to \$20,000. They are made of steel and picked wood, are forty-four feet in diameter, and constructed in three divisions. Each division is covered except at the mouth with a heavy wire four-inch mesh. At the bottom of each division is a slanting trough. The wheel revolves with the current, and the salmon, swimming up stream, go into the open mouth of one of the divisions, and as the wheel revolves and leaves the water the salmon is dropped by its own weight into the trough, and the angle at which the trough is built slides the fish off into the open doors of the huge bin. It is not an uncommon sight to see as many as six thirty-pound salmon caught in one-third of a revolution. From the wheels the fish is shipped by rail or boat to the nearest cannery, and those intended for the canneries twenty miles down the river are gilled and attached to a heavy barrel and are allowed to drift on the current. Tiny steamers pick them up below. The owner of one of the principal wheels on the Columbia, that known as No. 2, will clear about \$160,000 profit this year.

Each wheel pays a license of \$250 a year, and this sum goes to a general fund, now \$17,000, for propagating and for hatcheries. During the heavy runs wheel No. 2 for three weeks averages eighteen tons a day. During two weeks in July this wheel caught 374,437 pounds. An inspection of the cannery just below wheel No. 2 is well worth the time expended. Steamers are unloading the raw salmon and loading the thousands of cans. Hundreds of Chinamen are working like beavers. First the salmon is taken and placed upon long platforms, where with several flashes of the knife its head, tail and fins are off, and with another it is cleaned. It is pushed along onto a moving platform and washed enroute to the sharp edge of an automatic knife which cuts it into seven pieces. These bits are then moved on to the packers and in turn again to the weighers and the can cappers, who run the can through the soldering machine and out onto the moving cars which go to the boilers and furnaces.

After boiling the salmon the cans are run back, and the tester watches with his little almond eyes for the slightest leak or imperfection. A small hole is then made in the top of the can and the pent-up steam escapes. Again the can is sealed, and once more it goes to the furnace and comes out to be hammered by the inspector. From his hands it goes to the lacquer, label and shipping departments.—Tin and Terne.

CHEMICAL ANALYSIS NOT CONCLUSIVE.

That all the secrets of nature can not be penetrated by chemical analysis unaided, a fact which chemical students are the first to acknowledge, is stated as follows in The Iron and Coal Trades Review: "Has chemical analysis, like other dogs, had its day? Or is chemistry about to enter upon a new phase? Analysis certainly does not tell us enough. Nearly, if not quite, all the prominent steelmakers of the United States, for example, have made steel springs to the specifications of the Pennsylvania Railroad. These specifications require that the steel shall show a certain chemical analysis, and yet it is stated to be a fact that one certain maker who makes steel which conforms to the requirements, so far as chemical test can determine, yet not more closely than the other makers conform to it, gets in the open market a considerably higher price for his springs than any other maker. And the railroad company in question has demonstrated to its satisfaction that it can afford to pay this higher price because the springs, notwithstanding that chemical analysis shows them to be precisely identical with the others, give enough better results in service to more than justify the higher price. It is the same with fine irons. Take Swedish iron as an example. It is well known that this iron possesses certain qualities not possessed by any other iron known; yet irons have been produced elsewhere which, so far as the most exhaustive chemical tests can show, are precisely identical with the Swedish iron. It seems, therefore, that a chemical test will not tell us all we must know about such matters. Where chemical analysis fails to show the difference between two specimens of steel or iron, the microscope as now used will show a very decided difference between them, and the difference thus shown seems to bear some relation, more or less exact, to the differences that are shown by the same specimens under physical tests. We are therefore likely to see a much larger use of the microscope in the future. Will metallurgical chemists, therefore, be at a discount?"

MACHINERY VS. MUSCULAR POWER.

Speaking of prime movers before the Association for the Advancement of Science, at London several years ago, Sir Frederick Bramell drew an interesting picture of the puny thing that muscu-

lar power, whether animal or human, really was when compared with the vast efforts exerted nowadays by machinery. Contrasting a galley, for example—a vessel propelled by oars—with a modern Atlantic liner, and assuming that prime movers were non-existent, and that this vessel was to be propelled after galley fashion, he proceeded thus: Take the length of the vessel as 600 feet, and assume that place could be found for as many as 400 oars on each side, each oar is worked by three men, or 2,400 men, and allow that six men under these conditions could develop work equal to one horse-power. We should then have 400 horse-power. Double the number and we should have 800 horse-power, with 4,800 men at work, and at least the same number in reserve if the journey is to be carried on continuously. Contrast the puny result thus obtained with 19,500 horse-power given forth by a large prime mover of the present day, such a power requiring, on the above mode of calculation, 117,000 men at work and 117,000 in reserve, and these to be carried in a vessel less than 600 feet in length. Even if it were possible to carry this number of men in such a vessel, by no conceivable means could their power be utilized so as to impart to it a speed of twenty knots an hour.

This illustrates how a prime mover may not only be a mere substitute for muscular work, but may afford the means of attaining an end that could not by any possibility be attained by muscular exertion, no matter what money was expended or what galley slave suffering was inflicted. Take again the case of a railway locomotive, in which we have from 400 to 600 horse-power developed in an implement which, even including its tender, does not occupy an area of more than fifty square yards and that can draw us at sixty miles an hour. Here again the prime mover succeeds in doing that which no expenditure of money or of life could enable us to obtain from muscular effort.—Cassier's Magazine.

STATE-AIDED INDUSTRIES ABROAD.

A Parliamentary paper recently published gives the reports by Her Majesty's representatives abroad on bounties, other than those on shipping and navigation, paid by the States in the countries in which they reside. Of the thirty-seven States replying, nineteen declare that they grant no bounties at all. The twentieth—Japan—gives the same answer, but adds: "What this country may do when the new tariffs come into force it is impossible for the present to forecast." Belgium heads the more important of the bounty-paying countries with the largest list. It grants drawbacks upon the exportation, or warehousing in bond, of no fewer than eight articles, which are subject to the payment of excise when consumed at home. These include brandy, spirits, liqueurs, beer, vinegar, acetic acid, sugar and native tobacco. The Dutch list embraces only beer, vinegar and sugar. In France, the State fosters by this means, sugar, silk, hemp and flax. The estimated bounties to the silk trade for 1895 reach a total of over 8,000,000 frs., being a steady increase from preceding years. Germany allows drawbacks to its tobacco industries, as well as to sugar, salt, spirits and beer. In the same country "a bounty is given on the exportation of grain, in quantities not less than 500 kilog., in the form of Customs permits to the amount of import duty which would be due on the same quantity of grain if imported." The United States pays bounties alone to sugar grown and refined in its territory.—British Trade Journal.

As much heroism is shown in the pursuits of peace as in the treacherous cruelty of war. The "scab" laborer is a peculiar development of the nineteenth century hero. He stands for individual liberty, opposed to public opinion, firm in the knowledge of his right to work where he will, when he will, although he foresees his liberty of conscience may cause him loss of means for the future maintenance of his family through industrial black-lists; he possesses heroism in a marked degree.—President Eliot of Harvard.

As celluloid displaced glass in the manufacture of a large range of articles, ivory, ebony, and many of the semi-precious stones, now comes a substance said to be much cheaper than celluloid, which promises not only to further replace glass, but to take the place formerly occupied by celluloid, says an exchange. The new substance is gelatin, which treated with formaldehyde, becomes absolutely insoluble in water, the acids and alkalies, while retaining perfect transparency. The material can be moulded into any shape, and in its dry state can be returned and cut, polished, etc., like glass, and with far greater ease. The aniline or other colors can be combined with it, thus giving a wide range and play of color. Another great advantage that it has over celluloid is that it is inflammable, being attacked very slowly by fire. The cost is from one-third to one-half that of celluloid. The patent is German.

CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this into not extending to supply houses also.

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

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

Harvie & Co., box manufacturers, Toronto, who were burnt out on 19th inst. have started up at 90 Gladstone Ave. into their factory on Esplanade is rebuilt.

The Wolland county gas wells, it is feared, are giving out. The region is said to be overworked by prospectors. Now they are hoping to discover oil. Two years ago, while exploring new territory for gas, the Provincial Company found traces of oil. This was kept a profound secret for some time, while the company were leasing all the property in the vicinity. Since that time they have expended over \$30,000 in search of oil in paying quantities, but have not succeeded in striking it rich enough, though many wells show the presence of the illuminating liquid. The search for oil in the Northwest Territories has not, as yet, been

more successful. Mr. W. A. Fraser, the oil expert, who has been boring on behalf of the Government at Athabasca Landing, has been there all summer. The boring has been carried to a depth of 1,700 feet, and a steel casing put down to that depth. The intention is, if possible, to go about 200 feet lower, in the hope of striking a flow of oil. Gas has been freely piped since the casing was put down, but no oil. If the experiment then does not prove to be a success a new location will be tried. It is believed that there is plenty of oil in the region if it could only be struck.—London Advertiser.

Goldie & McCulloch, Galt, Ont., have been awarded the contract for putting in the engine in connection with the artesian well at the Ontario Agricultural College at Guelph, Ont.

"Chainless bicycles, in which two pairs of bevel gears are used instead of the chain, are reported to have proved their superiority over the present style of wheel in a test, in which a wheel was run 33,000 miles without adjustment or appreciable wear," says Engineering News. "Dynamometer tests also show that the bevel gears run with less friction than the chain. It is stated that one of the largest manufacturers will soon put these wheels on the market. An obstacle to their rapid introduction is the time required to construct the machinery necessary for turning out the bevel wheels, which must be mathematically accurate in form."

Paper boats will soon be put on the market by Messrs. Warren and Guernsey, of Dover, N.H., who have just made a trial trip in their little paper boat. It weighs thirty-seven pounds, is three feet wide and eleven feet long, and is perfectly seaworthy. After these young men had made their model they commenced to paste layer over layer of newspapers together until a thickness of twenty-one newspapers had been stuck together. They allowed this to dry, and then the paint was applied. Their boats amidships resembles a canoe, yet the bow and stern are built in the shape of a duck's breast, which they claim is a great advantage in paddling.—The Paper Mill.

The Pittsburgh Reduction Company has put into successful operation the new rolling mill at Niagara Falls, N.Y. At this mill the company is able to roll aluminum sheets seventy-two inches wide, and are now working on some orders for sheets sixty inches in width. Heretofore their mills near Pittsburg had a capacity for sheets of thirty inches only.

ROBIN, SADLER & HAWORTH

Manufacturers of

OAK TANNED LEATHER BELTING

TORONTO AND MONTREAL

Orders addressed to our Toronto or Montreal Factory will have prompt care.

Goods will be forwarded same day as order is received.

The Hawk Bay Gold Mine Company, Hamilton, Ont., is being incorporated with a capital stock of \$150,000.

The Victoria Mining Company, Toronto, is being incorporated with a capital stock of \$500,000.

The Colcleugh Gold Mining Company, Rat Portage, Ont., is being incorporated with a capital stock of \$1,000,000.

Mr. J. M. Moore, superintendent of the London, Ont., waterworks has been instructed to prepare an estimate of the probable cost of an auxiliary pumping plant.

The Kingston, Ont., Council has under consideration the installation of a plant for electric street lighting, and unless an agreement is reached with local companies, steps in that direction will be taken at once.

The Granby, Que., Last Works are making an addition to their buildings and adding two machines to their plants, having secured a considerable United States contract, which makes the additions necessary.

One of the items in the Dominion Government estimates is \$2,000 to establish a tannery on the Blackfoot Indian reserve in Alberta. There is also an item for an instructor in tanning.

The Bain Waggon Works Company, Brantford, Ont., will probably move to Woodstock, Ont., and will occupy the building now used by the James Hay Co. The latter concern is building a new factory in the same town.

The Montreal Street Railway Company are building a number of new cars of an improved pattern at their own shops.

The Royal Crown Soap Co., Winnipeg, Man., have increased the capacity of their factory by adding a boiler room, and box factory both for wood and paper boxes.

The discovery of a large deposit of asbestos is reported from North Kootenay, B.C.

The city engineer of Hamilton, Ont., has advertised for tenders for the building and machinery for the interception works. He will get figures as to the cost of operating the machinery by electricity and steam.

Messrs. Harlow & Kempton of Milton, N.S., have built an addition to their mill to make accommodation for a planer, and will put in a Buchanan wheel to drive the rotary, also an iron wheel in their factory.

The Amherstburg Electric Light, Heat and Power Company, Amherstburg, Ont., has been incorporated with a capital stock of \$20,000.

Mr. John Davidson, of Smith's Falls, has invented an electric heater, which, it is said, will prove of great value and importance.

The residents of Merlin, Ont., and neighborhood have subscribed about \$1,200 towards the new company which has been formed to put down a well and see what is beneath them. They feel confident of getting gas or oil.

At Dent village, near Merlin, Ont., on October 3rd, George Peters' mill was wrecked by the explosion of the boiler.

The agents of the Cataract Power Company, Niagara Falls, N.Y., are making contracts with power users in Hamilton, Ont., and these contracts call for a supply of electrical energy by March 1, 1897.

Mayor Fleming has received a letter from C. E. Beauchemin of Montreal, who asks if there is any chance for the installation in Toronto of a new telephone system on the lines of the Merchants' Telephone Co. of Montreal. That company provides for a stock of \$100,000 capital, with \$100 shares. In case the Mayor thinks there is any chance of such a system being tried here, Mr. Beauchemin will come to Toronto and promote the scheme.

The following foreign mining companies have been registered in British Columbia: Alberta Gold Mining Company, Spokane, Washington, capital stock \$1,000,000; Chicago Gold Mining Company, Spokane, Washington, capital stock \$500,000; Old Glory Mining Company, Seattle, Washington, capital stock \$1,000,000; The British Columbia Mining Company, Suffolk House, Lawrence Pountney Hill, London, England, capital stock £20,000; The B.C. Exploring Syndicate, 103 Cannon St., London, England, capital stock £20,000.

The following mining companies are being incorporated in British Columbia: Hercules Gold Mining Company, Rossland, capital stock, \$2,000,000; London Hill Development and Mining Company, Kaslo, capital stock \$150,000; The Electrical Reduction and Refining Company, Rossland, capital stock \$25,000; The Exchequer Gold Mining Company, Nelson, capital stock, \$1,000,000; Northern Light Gold Mining Company, Victoria, capital stock, \$250,000; King Solomon's Mines, Vancouver, capital stock \$500,000; Alf Gold Mining Company, Rossland, capital stock \$1,000,000; English and French Gold Mining Company, Grand Forks, capital stock \$2,000,000.

The Royal Electric Co'y

MONTREAL, QUE.

Western Office.... TORONTO, ONT.

S.K.C. Two-Phase Alternators

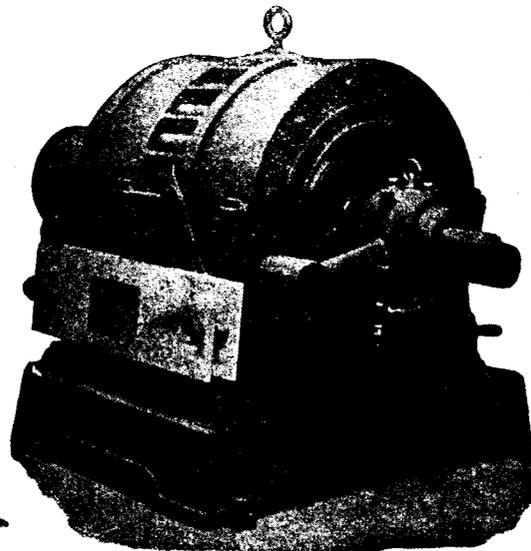
Incandescent Light, Arc Light and Power from same Dynamo and Circuit.

Highest Efficiency

Best Regulation

Slow Speed

Least Attention



S.K.C. 50 Kilowatt Two-Phase Generator

No Collector

No Moving Wire

No Exposed Parts

No Compounding

The mills, dwelling and barns at Tracadie, N.S., belonging to the Trappist monks have been destroyed by fire. Loss about \$40,000.

The Jackson Cochrane Company, Berlin, Ont., recently received an order from the Bennet Furnishing Company, London, Ont., for twenty of their famous wood-working machines. Seven are to be shipped to London, Ont., nine to London, Eng., and four to Glasgow, Scotland. The order is worth in the neighborhood of \$2,000.

The Westville, N.S., Free Lance is authority for the statement that Mr. George E. Munro, of that town, and Donald Grant, of New Glasgow, have purchased the Bridgeville, N.S., iron mines for \$16,000. This mine has been opened and running for the past five years, and the quality of ore is said to be getting better every year, and is probably the richest property along the East River.

Harvis & Co.'s box factory, Toronto, was burned Oct. 11th. Loss about \$6,000.

The T. H. Taylor Milling Company's mill, at Chatham, Ont., was badly damaged by fire Oct. 11th. Loss about \$10,000.

The High and Public School building at Newcastle, Ont., was destroyed by fire Oct. 10th. It will be rebuilt immediately.

T. Reid, Hamilton, Ont., has secured a Canadian patent for a gasoline motor for horseless carriages.

The Modstock Mining Company, Antigonish, N.S., has been incorporated.

Messrs. Marsh & Brown's tannery at Newmarket, Ont., was destroyed by fire Oct. 7th. Loss about \$6,000.

Some weeks ago it was reported that what was supposed to be anthracite coal had been discovered in Algoma, but the department of mines doubted the fact. It is again reported that the find is a good quality of coal which is now in general use in the village of Chelmsford for both industrial and domestic purposes. The deposit is said to be a large one.

The Kemptville Lumber Manufacturing Company, Kemptville, N.S., propose to manufacture doors, sashes, mouldings, furniture and wooden ware of all kinds.

Samuel May & Co., manufacturers of billiard and pool tables, Toronto, have removed to 74 York street, where they have every facility for carrying on their extensive business.

The Waterous Nail Works, Brantford, Ont., which began operations in March last, are turning out 300 kegs per week, and are running overtime to fill orders. Plans have been prepared for a wire-drawing and cooperage plant.

The Packard Electric Company, St. Catharines, Ont., is sending a circular to their customers asking them to have their orders for lamps in early to avoid the rush that comes later in the season.

Tenders will be asked for shortly for installing an electric light plant in Listowel, Ont.

Lyman Bros. Co.'s chemical works, Toronto, were damaged by fire Oct. 5th. Loss, about \$9,000.

Mr. A. R. Burrows, of Guelph, Ont., proposes to establish a factory in Galt to manufacture carpet, chenille, etc.

James Coristine & Co.'s hat factory at Montreal was burned a few days ago. Loss, about \$40,000. Their fur factory adjoining was damaged to the extent of about \$10,000.

The Heather Bell Mining Company, of Toronto, is being incorporated with a capital stock of \$1,000,000.

Willson Carbide Works, of St. Catharines, Ont., is being incorporated with a capital stock of \$200,000, to take over the patents and works of Thos. L. Willson, the discoverer of the new process of making calcium carbide.

The Sudbury Gold Mining Company, Sudbury, Ont., is being incorporated with a capital stock of \$100,000.

The Otto Higel Company, Toronto, has been incorporated with a capital stock of \$50,000, to manufacture pianos, etc.

The Ottawa Specialty Manufacturing Company, Ottawa, has been incorporated with a capital stock of \$45,000, to manufacture wooden and metal ware, etc.

The Toronto Basket Manufacturing Company, Toronto, is being incorporated with a capital stock of \$24,000, to manufacture all kinds of woodenware, boxes, baskets, etc.

Ernest Haywood has just built a new steam saw mill at Mill River, P.E.I.

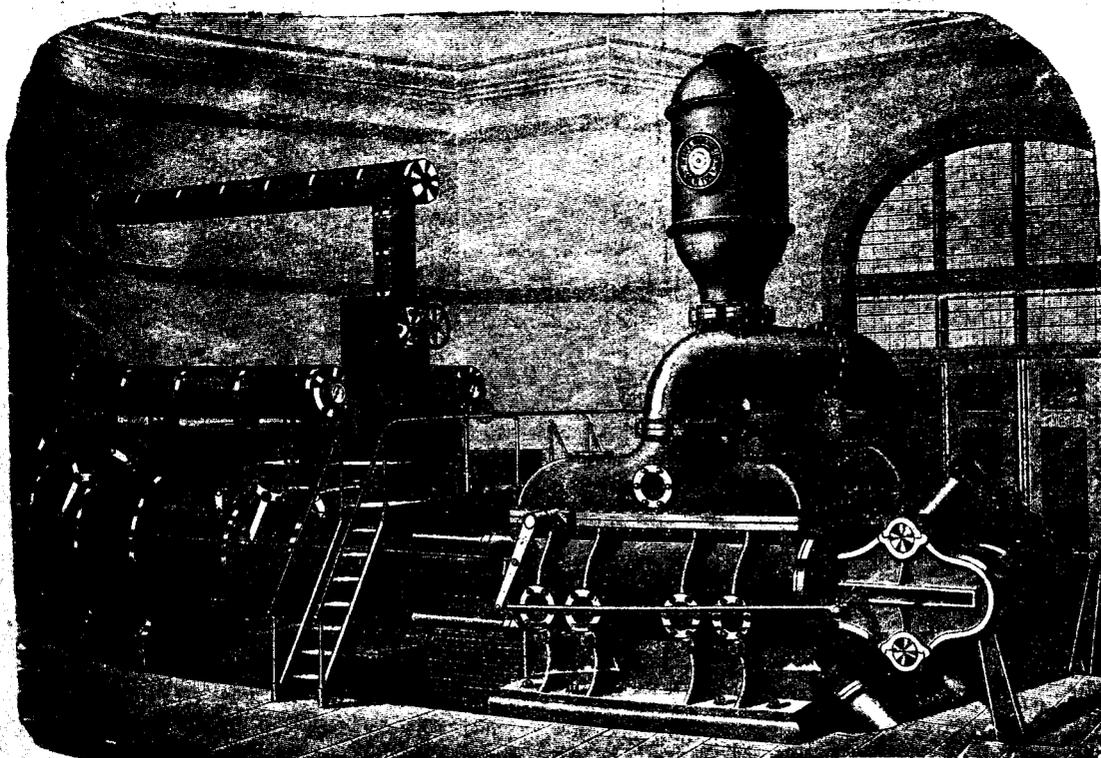
The McMillan & Haynes Company, St. Catharines, has been incorporated with a capital stock of \$30,000, to manufacture saws, axes, scythes, etc.

E. Leonard & Sons, London, Ont., supplied the engine and boiler for the Windsor electric light plant.

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WORTHINGTON PUMPS ARE UNEQUALLED FOR EFFICIENCY AND ECONOMY

Messrs. W. Tobey & Company's tannery at Collingwood, Ont., was totally destroyed by fire Oct. 14th. The tannery had been undergoing repairs, and new boilers were only put in a few days ago. Loss estimated at between \$40,000 and \$50,000.

The St. Anthony Lumber Company will build a dam and bridge across the Madawaska river near their mills.

The Canadian Hammock Company, Paris, Ont., will soon remove to larger and more convenient premises.

The supposed gas well on the farm of J. H. Scheel, Fredericksburg, Ont., near Napanee, is to be tested by a firm of capitalists who have placed machinery on the ground.

Messrs. Cawthorpe & Son, Ridgetown, Ont., will rebuild their mill, recently destroyed by fire.

The Chesley Chair Company, Chesley, Ont., is being incorporated with a capital stock of \$20,000, to manufacture chairs.

Arnprior, Ont., proposes to establish a system of sewage involving an expenditure of \$21,000.

The council of Dundas, Ont., have decided to have the town lighted by electricity.

The buildings and equipment of the new car shops of the Grand Trunk Railway at London, Ont., foundations for which have recently been laid, will, when finished, be most complete in every respect. The collection of buildings comprises the following shops: Passenger car shop, 238 x 80 feet; paint and varnish shop, 238 x 80 feet; cabinet shop, 60 x 80 feet; wood working shop, 275 x 80 feet; freight car truck shop, 536 x

80 feet; blacksmith's, iron, machine and wheel shop, 237 x 80 feet; tinsmith's shop, 125 x 32 feet, 6 inches; upholsterer's, 125 x 32 feet, 6 inches; oil and paint shop, 115 x 32 feet, 6 inches; dry lumber house, 300 x 50 feet; fire engine house, 30 x 32 feet, 6 inches. In addition to these buildings, scrap sheds, dry kilns, stores and offices will be erected, the whole to have a total floor area of 165,000 superficial feet. The walls will be built of light colored brick, and the roofs will be of slate. A special feature has been made of the arrangements for light and ventilation. Continuous sky-lights along the apex of the roofs and at intervals along the sides, in addition to the extra large windows, will provide an abundance of light to every part of the buildings. The latest systems of ventilation have been adopted, and the shops will be heated throughout by steam. The arrangements for handling material in the shops are as nearly perfect as circumstances will permit. In the wood machine shop the rough material will be unloaded from the cars at the door, and passed on from one machine to another, until, when the article is finished, it will be turned out at the entrance to the erecting shops, without unnecessary handling. A system of overhead track has been arranged, by means of which one man will be able to transfer the heaviest timbers to any part of the shop. The shavings, etc., will be drawn direct from the machines by an exhaust fan, and delivered through an iron tube into the boiler rooms. The wheel shop will be equipped with three wheel-borers, two axle lathes, two hydraulic wheel presses and two wheel lathes for turning tires of wheels up to forty-three inches diameter. The iron machine shop will be fitted with all the

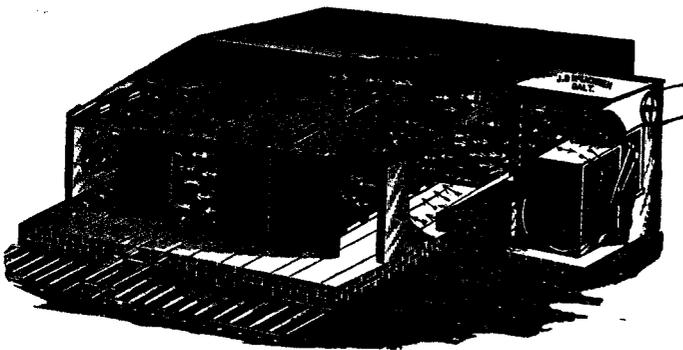
appliances and machinery necessary to turn out all the iron work required at the shops and out-stations on the Midland and Northern divisions. A complete service of narrow gauge tracks for small push-cars, with switches and turntables, will be laid throughout the shops to facilitate the economical handling of material, etc. The comfort of the employees will be considered in a number of ways; lavatories and other conveniences will be erected in each separate shop, and, in addition, a general dining-room thirty-two feet by thirty feet will be provided for the exclusive use of the men. The number of hands engaged in this modern freight and passenger car construction and repair shop will be between five and six hundred.

The Dodge Wood Split Pulley Company, office, 74 York street, Toronto, have gone into the hanger and shafting business. Their numerous patrons throughout the Dominion, who have for the past ten years enjoyed the many benefits of the Dodge pulley, and the ever prompt methods of the Dodge Company in executing orders, etc., will be glad to know that the Dodge Company are now in a position to execute any order at once from stock, for any style or size hanger, with standard or self-oiling bearings, in any quantity. All styles of clutches, counter shaft attachments, shaftings, floor stands, all of entirely new design, and strictly up-to-date. A handsome catalogue, fully illustrating and listing a complete line of power transmission specialties, is now in press, and will be mailed to all power users.

Chatham, Ont., will put in an electric fire alarm system.

McEachren's System of Drying, Heating and Ventilating

Under Recent Patents.



In construction an process of drying this Kiln differs widely from all others in use. They have given entire satisfaction where all others Dry Kilns have failed. They will season More Lumber in a Given Time, with a given heating surface and a given quantity of steam than any other Kiln now in the market. Their construction and mode of operating is such as to season lumber without Case Hardening, Checking or Warping. They work equally well on Lumber Right from the Saw and on Air Seasoned Lumber, the only difference being that one takes a little more time than the other. By a Peculiar Arrangement Found Only in Our Dry Kilns we extract the moisture from the heated air, return it through the heater again and thus preserve the heat passing from the Kiln instead of wasting it as is the rule with all other Blast Kilns.

Ventilating Fans, Shaving Fans, Pressure Fans, all sizes.

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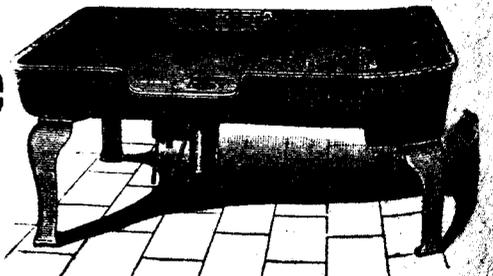
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THE LARGEST

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Thirty-Eight other Designs of Portable and Stationary Types.



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Blowers, Blacksmiths' Tools, etc.

Sold in—Toronto, Ont. by H. W. Petrie.

Brantford, Ont. by Canadian Machinery & Supply Co.

Montreal, Que. by Canadian Machinery Agency.

Chicago Store, 22 and 24 West Randolph Street

New York Office—26 Cortland Street,

The Sturgeon Falls (Ont.) Pump Company are about to erect a new pulp mill.

By reference to the business card of the Wm. Hamilton Manufacturing Company, Peterborough, Ont., it will be seen that they are manufacturers of the "Reliance" mining, milling and smelting machinery for the Dominion of Canada, under license from the E. P. Allis Company, of Milwaukee, Wis. This line of machinery includes crushers, rolls, jigs, concentrators, screens, stumps, pumps, compressors, hoists, boilers, engines, water-wheels, and about everything else necessary in the mining industry. The Wm. Hamilton Company maintain a branch office at Vancouver, B.C.

The new pulp mill of the Sault Ste. Marie Pulp and Paper Company is expected to be running by about the beginning of the new year. Then the company will have two mills in operation, capable of turning out daily 200 tons, dry weight.

The D. S. Cluff Company, composed chiefly of Goderich, Ont., capitalists, will operate a new furniture factory at Aylmer, Ont.

Midland, Ontario, is likely to have a pulp mill, as the town and the Manitou Wood Pulp Company are in a fair way of coming to an agreement. There is an abundance of material near the town, and fine natural facilities for transportation.

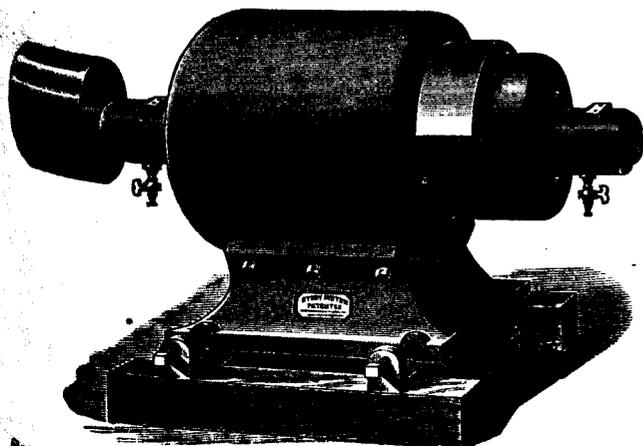
One of the numerous resources of East Kootenay, British Columbia, still awaiting development is the petroleum found in the Flathead Valley. The crude petroleum was first discovered through the Indians who used it for all sorts of medicinal purposes. Two different qualities of oil have been obtained. At Kishneena Creek, a short distance north of the international boundary line, a black oil, similar to the Pennsylvania and Ohio oils, is found, but on Sage Creek, some eight miles north, there is found an oil that is nearly pure, of a light yellow color, which will burn in a lamp, as it comes from the ground. Close by there is natural gas escaping from the bedrock which burns freely on ignition. Some of the oil sent to the Geological Museum at Ottawa caused considerable excitement and comment, and was pronounced a fraud on account of its purity. Dr. Selwyn, head of the department, made a special trip to the valley, and was surprised

to find the oil genuine, and also that this oil was found in the Cambrian formation, which was something unknown, as all the oil fields recently discovered have been in Trenton limestone. Directly due east of Sage Creek, and on the eastern slope of the main ridge of the Rocky Mountain, in Alberta territory, there are plenty of surface indications of crude oil. And the finding of these indications over such a large area, and in the same formation, would go to show that there is a large oil field awaiting capital to develop it.

The Diamond Machine and Tool Company, Toronto, have accepted a contract for building all the machinery for a new nail company starting in Ontario, west of Toronto. They have already completed a new Improved Diamond Nail Machine, and are at work on the other machines. The machine already completed is built of cast steel parts and will turn out 350 three-inch nails per minute.

The Beatty Gold Dredging and Mining Company, is being incorporated with a capital stock of \$50,000, to acquire from M. Beatty & Sons, Welland, Ont., the lease of the Boston Bar in the Fraser River, B.C.

The STOREY MOTOR and DYNAMO



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The STOREY MOTOR and TOOL CO.

John St. North, Hamilton, Can., and Philadelphia.

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ALMONTE, ONT.

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Selling Agents: D. MORRICE, SONS & CO., Montreal and Toronto.

Grading for the Sherbrooke, Que., electric street railway has been begun and the road will be in operation by next spring.

Messrs. Rainville & Son have moved their steam mill from Barford to Coaticook, Que.

The Deseronto Car Works are building ten electric cars for the Montreal and Island Park Railway Company.

The Wrought Iron Range Company, Toronto, has been incorporated to take over the assets and business of the Wrought Iron Range Company, unincorporated, that have been doing business in Canada for several years.

One of the paper making arts not hitherto fully developed in this country, says the Toronto correspondent of the Paper World, was that of making tissue. Varieties have been produced, but not to any considerable extent. Outside of manilla tissue our output was insignificant. Only to a very limited degree was the making of white tissue a success. Consequently we imported largely from the United States. Now that the E. B. Eddy Company have entered upon this line of manufacture with a machine of the highest efficiency and with expert workmen, one of them brought from Belgium, and two or three others from the United States, it is likely that much of this former import business will be kept at home. Already, it is understood they have booked a number of heavy orders for the season now opening.

The Toronto Electric Motor Company have enlarged their premises, which now includes Nos. 103, 105, 107 Adelaide Street, West. During the month of October to date this concern have sold electric motors aggregating 150 h. p.

The Martin Veneer Company, Toronto, have given an order to the Diamond Machinery and Tool Company, Toronto, for an automatic eight-foot slicer.

The Canadian Mining and Development Company, Ottawa, is being incorporated with a capital stock of \$200,000.

Hon. A. R. Dickey, Messrs. D. W. Douglas, N. Curry, N. A. Rhodes and Samuel Baird, of Amherst, N.S., have bought a lumber property at Sheet Harbor, N.S., and will operate on it extensively this winter. The property comprises 45,000 acres and has a well equipped mill, good harbor and all facilities for lumbering.

The Methodist church at Simcoe, Ont., was burned Oct. 13th. Loss about \$12,000.

Messrs. Curry Bros. & Bent, proprietors of the Bidgetown woodworking factory, Bidgetown, N.S., will move their factory beside the railway and put in a siding.

Robt. McMasters, Kingston, N.S., has during the past summer thoroughly overhauled his mills and equipped them with first class machinery.

NEW DYE STUFFS.

Benzo Fast Black.—This new product is admirably suited for dyeing greys, fast to light, on cotton. The shades are also fast to alkali, acid, ironing and do not rub. The color has also the advantage of dyeing in one bath.—A great variety of shades can be obtained by combining with chloramine yellow, chloramine orange, chrysophenine, benzo-chrome brown and other colors dyeing with salt.

Benzo-Chrome Black B., is used as a substitute for aniline black, being cheaper and faster to light and has the advantage over

aniline black of not turning green. It can also be used for half woollen goods, the wool being afterwards topped in an acid bath. Dark navy blues on cotton can also be dyed with benzo-chrome black B.

Benzo-Chrome Brown.—This new aniline brown is placed upon the market in three shades:—

The "G." gives light tan shades.
The "R." gives a red shade.

The "B." gives a dark plum shade. By combining the B. and R. shades good shades of seal brown can be obtained. A combination of B. and G. produce shades similar to catch browns. Benzo-chrome brown is especially suited for dyeing cotton, and cotton and wool mixed, and also for dyeing half silk. By topping the shades on cotton in a fresh bath with bichrome potash, the shades are made much faster to light and washing.

Alizarine Cyanine Green (Paste).—A bright alizarine green has hitherto been wanting in alizarines. With regard to fastness alizarine cyanine green is equal to coeruleine, it is also fast to alkalis and acids. The mordant used is the regular one, viz. bichrome potash, but it can also be dyed in one bath with sulphuric acid.

Alizarine cyanine green can further be dyed with acid and chromed afterwards in the same bath with bichrome potash or fluorochrome. One special advantage of the product when dyed in this manner is that the after-chroming causes no alteration in shade. This new alizarine green has just been placed on the market by The Farbenfabriken, vorm. Friedr Bayer & Co., Elberfeld. The other products mentioned are also manufactured by this firm.

For further samples, etc., address the Dominion Dyewood and Chemical Co., Toronto, sole agents for Canada.

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Brewing Kettles, Boiling Coils,
Beer Coolers, Attempartors
Spargers, etc., etc.

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**Engineers
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PULP AND PAPER MILL

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MINING MACHINERY

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Manufacturers of Fancy Tweeds, Etc.

Selling Agents, D. MORRICE, SONS & CO., Montreal and Toronto.

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Manufacturers of

Underwear, Hosiery, Wheeling, Fingering and Worsted Yarns

EIDERDOWN FLANNEL, ETC.

Selling Agents: Donald Fraser, Montreal E. H. Walsh & Co., Toronto.

ELECTRIC TRANSPORTATION IN CANADA.

The latest development in Canadian electric railway work is the equipping of the Aylmer branch of the Canadian Pacific Railway with electric service. This line extends from Hull, a suburb of Ottawa, to Aylmer, where it connects with the Pontiac Pacific Junction Railway, extending sixty or seventy miles up the north side of the Ottawa River. The section from Hull to Aylmer has been leased by the Hull Electric Company for a term of thirty-five years, the understanding being that, besides passenger and mail traffic, they are to handle all through and local freight delivered to them by either the Canadian Pacific Railway or the Pontiac Pacific Junction Railway. As they are the only connecting link with the Pontiac Pacific Junction road, it can readily be understood that the quantity of freight is considerable, amounting usually to fifty or seventy-five cars per day. This freight is mostly handled at night, leaving the road free during the day for passenger traffic. Regarding this enterprise the Electrical Engineer says:—

At the Aylmer end of the line the company owns sixty acres situated on Deschene Lake, a sheet of water three miles wide by twenty-seven miles long; an ideal spot for sailing and boating, thus forming a strong attraction for the Ottawa citizens. Indeed, the traffic has been far beyond expectations and the train service had to be increased until they are now running thirty-six regular trains each way per day, besides special excursion trains.

The power is obtained from Deschene Rapids, where the lake of the same name empties itself into the Ottawa River, at a point midway between the termini of the road. The turbine wheels are of the "New American" type, manufactured by William Kennedy & Sons, Owen Sound, Ont., and operate under a head of nine feet. Four sixty-inch wheels are now installed and space is provided for two more.

The electrical equipment of the power-house consists of two M. P. 4-200-425 generators. For controlling the output of these machines there is a white marble switchboard, consisting of two generator panels, two feeder panels and a total output panel. Be-

sides these, there are three panels containing the "Barbour" water wheel regulator, by which the current output of the generators is automatically kept constant by cutting in or out dead resistance as the load varies on the line. By this means the speed of the machines is kept constant and the variation in voltage is held within a very close limit.

The car sheds and repair shops are also at Deschene, and are fully equipped with all modern appliances for handling and inspecting the rolling stock which at present consists of five closed cars and five open cars, besides a mail, baggage and express car and a locomotive. All the cars are mounted on double trucks, and are each equipped with two G. E. 1,200 motors with K. twenty-one controllers. They are said to be the finest electric cars in Canada. The closed cars are forty-two feet long overall, and finished in mahogany throughout, the outside sheeting being also solid mahogany finish, in the natural wood. These cars have extra large vestibules at each end provided with seats for the accommodation of smokers, and divided from the main part of the car by double sliding doors. The open cars have thirteen benches, with reversible backs, and their finish and solidity are unsurpassed.

The locomotive is of particular interest, being the first of the kind operated in Canada. It weighs something over twenty tons, and is provided with double trucks, each axle being equipped with a motor. As all the wheels are driven, full traction advantage is obtained from the total weight, and a drawbar pull of 10,000 pounds can therefore be exerted, equivalent to the power of the average thirty-five or forty-ton steam locomotive.

In equipping this road the Hull Electric Company have evidently constantly kept before them the maxim that the best is the cheapest in the end, and will no doubt reap the advantage by long life in their apparatus and small repair bills. The president of the company is Alexander Fraser; vice-president, W. J. Conroy; secretary-treasurer, James Gibson, and managing director, H. B. Spencer.

Besides operating the railway the company have also exclusive privileges for both private and public lighting in the city of Hull and the town of Aylmer, and for the

purpose there is installed at the power-house a 150-kilowatt monocyclic generator with a standard switchboard panel and equipment.

ELECTRICAL TRANSMISSION OF POWER FROM THE LACHINE RAPIDS TO MONTREAL.

The commencement of the second largest electrical plant in the world was successfully begun at Montreal on September 12th, regarding which the Electrical Engineer says:—The harnessing of the Lachine Rapids of the great St. Lawrence River has been a work to which some of the first engineers of Canada have given their best days, but the great obstacles that nature has placed in the way, together with the lack of sufficient capital to carry out the immense project, have up to the present time proved insurmountable. As far back as 1867, a company known as the St. Louis Hydraulic Company was formed by the late James Key Springle, C.E., of Montreal, but the country was too young and not sufficiently advanced to admit of the accomplishing of the great work. At that time the English press remarked that the men who successfully carried out the scheme would be ranked among the greatest engineers of the age. When it is considered what immense power lay dormant in the St. Lawrence, it cannot be wondered at that several of the prominent capitalists of Canada, observant of what had been done in other water-power plants, immediately came to the front with their financial backing, when the scheme was again prominently brought before the public in the summer of 1895. After the usual formalities had been gone through the needed permits had been received from the Canadian government, a meeting was called, and on July 15, 1895, the first subscription to stock was taken. At the present time \$1,110,000 has been subscribed by twenty-two stock-holders, of which \$800,000 has already been paid in, the best evidence of faith both in the engineers and in the enterprise.

CANADIAN OFFICE & SCHOOL FURNITURE
PRESTON, ONT.
FINE BANK OFFICE, COURT HOUSE & DRUG STORE FITTINGS. OFFICE, SCHOOL, CHURCH & LODGE FURNITURE. SEND FOR CATALOGUE.

THE PARIS ELECTRO-PLATING CO.

Manufacturers of
Stove Trimmings, Organ and Piano Trimmings, also all kinds of Brass and Nickel Plating Done
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SMITH WOOL-STOCK CO.

219 FRONT STREET EAST, TORONTO
Makers of... **WOOL STOCK, SHODDIES, Etc.**
of...
All lines of Graded Woolen Rags, Carbonizing and Neutralizing, Buyers of Wool Pickings. All lines of Hard and Soft Waste.

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Manufacturer of...
WHEELS. Wheel Materials. Shafts. etc

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MANUFACTURERS OF
Superior Malleable and Gray Castings, Bicycle Steel Castings A SPECIALTY
TORONTO JUNCTION, ONTARIO

W. J. KRAMER
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17 JORDAN ST
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The work, which might be called the making of an artificial canal, is situated on the north shore of the Lachine Rapids, and about five miles from Montreal. The wing dam is constructed of crib-work filled in with boulders, with a cut stone ice fender at the upper end, and triangular piers sunk at six feet below water to take up the fall that exists above the head-race. The greatest obstacle to overcome has been the action of anchor and "frazil" ice, the bug-bear to all who have to do with water-powers in Canada. The engineers have made a careful study of all of the surroundings since 1875, determining the bed of the rapids, the velocity of the water, and the records of the state of the river. They have now, it is believed, adopted a course in constructing the dams and head-race which will be satisfactory and free from this trouble. Frazil ice is never known to form in still water or under ice; as the head-races will freeze over during the winter, no frazil will be formed in it. The dams and head-races have been formed so as to take advantage of the fact that the ice when it gets into still water will float to the surface, and consequently the power utilization will not suffer from it. Owing to the peculiar formation of the shore and the position of the dam in regard thereto the current tends to strike the dam at an angle and with great velocity, due to the rapids above. The water approaches the head-race at a very great velocity and continues thus over the overflow of the dam, carrying with it the floating anchor ice. A sort of water dam is formed at the in-take, owing to the water moving into the head-race at a slow speed, creating no suction and carrying no anchor ice with it.

The main dam of the work running out from the shore consists of a series of isolated piers of masonry and concrete, and is constructed about 3,500 feet down stream from the ice fender. The piers are made to form the flumes to take the turbine wheels and shafting which generate and deliver the power. The sixty turbines will operate under a head of twelve feet and will develop 200 horse-power each, making a total of 12,000 horse-power all the year round. There are three power-houses in which will be located the electrical generators, four in each power-house, each of about 1,000 horse-power. These generators are coupled to a jack shaft, and six of the turbines are connected to this shaft with bevel cone gears, thus transmitting to each generator the power of six turbines, or 1,200 horse-power. The building extends the full length of the main dam, and is forty-two feet wide, excepting at the power-houses, where it is sixty feet. The construction is of steel, and each power-house is to be equipped with a traveler which runs from end to end of the building. The original idea of the company was to generate the power, and dispose of it on the jack shaft, and to lay out a large portion of the adjoining grounds into factory sites. During the winter, however, it was decided to bring the power into Montreal and dispose of it there. The capital was increased on this decision from \$1,000,000 to \$2,000,000, and a controlling interest was secured in the Citizens' Light and Power Company, which has valuable franchises, in order to receive an entrance into the city.

The contract for water wheels and hydraulic machinery is in the hands of the Stilwell-Bierce & Smith-Vaile Company of Dayton, Ohio, who have already delivered thirty-eight carloads of machinery. In order to distribute wires in the city underground, a contract for some 500,000 feet of cement-lined iron pipes

has been awarded to the National Underground Conduit Company of New York, who are endeavoring to complete their work before the frost comes. The contractors for the main work are William Davis & Sons, of Ottawa.

The opinions of the most expert engineers in Canada have been obtained by the company and they, one and all, have indorsed the statements of the company's own engineers. By the first of the new year the entire work on the immense construction will have been concluded, and the power brought into the company's house in Montreal, where already the chances of better and cheaper lighting and power are being looked forward to with very lively interest. In addition to the great development of water-

power, the Lachine Hydraulic and Land Company have decided to lay out their property adjoining the work in the form of a model town. The property will be divided into building lots, drained, graded, supplied with water, electric lighting and electric heating, besides having its own electric railway to Montreal. The engineers and promoters of this greatest enterprise of its kind in Canada are W. Lea Walbank and Thomas Pringle & Son, of Montreal, and to their ability and efforts is due the success of the undertaking, as far as it has gone.

The machinery for the flour mill to be built at Fort Saskatchewan, Alberta, N. W. T., has arrived.

Wm. KENNEDY & SONS, OWEN SOUND, ONT.

MANUFACTURERS OF

HIGH-CLASS

WATER WHEELS,

Electric Water Wheel Regulators,

Machine-dressed Heavy Gearing,
Shafting, Etc.

PROPELLER WHEELS AND MARINE REPAIRS A SPECIALTY

TURBINE AND CASCADE WATER WHEEL

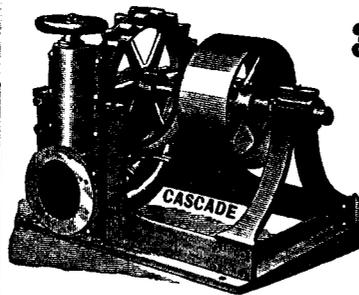
Adapted to all Heads from

3 Feet to 2000 Feet.

Our experience of 33 YEARS building Water Wheels enables us to suit every requirement of Water Power Plants. We guarantee satisfaction.

Send for a Pamphlet of either Wheel and write full particulars.

JAMES LEFFEL & CO.
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Burnham's

Percentage

Full Gate	84
3/4	84
1/2	62

NEW IMPROVED
STANDARD TURBINE

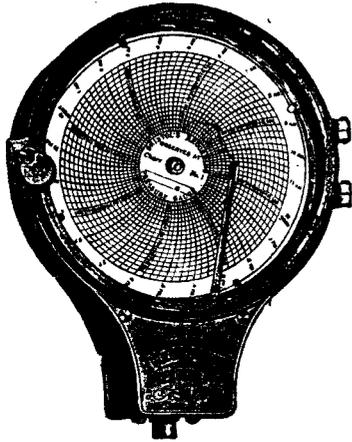
It gives on either a Vertical or Horizontal shaft more power than any other water wheel, and is the most durable and best finished wheel made. So and so on.

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BRISTOL'S RECORDING INSTRUMENTS.

The accompanying illustration is of one of the new recording instruments manufactured by the Bristol Company, Waterbury, Conn. Their instruments are made for



recording pressure, temperature and electricity, and are in very general use throughout both Canada and the United States, the company informing us that they are increas

ing their lines of these instruments as rapidly as demands are made therefor, thousands of them now being in daily use.

The manufacturers allude to their gauges as making a continuous record, day and night, of steam, water, gas, oil or air pressure, and adapted to all ranges of pressure; and they suggest that the users of steam in factories and mills, water and gas works, electric light and power stations, public buildings and institutions, hotels, etc., will find the instrument of great value, as it shows at a glance whether the boiler has received the attention upon which so largely depends its safety and economy. The instrument may be placed in the office or engine room, at any desired distance from the boiler or vessel of which the pressure is to be recorded; and, if required, gauges are furnished with electric alarm for high or low pressure. They are handsomely finished in nickel plate, and are fully guaranteed.

Their recording thermometer for atmospheric ranges of temperature makes continuous records of temperature, day and night, upon a chart revolved once a week. It can be located within a building, recording outside temperatures. It can be so located as not to be exposed to the injurious influence of inclement weather, and may be placed twenty-five feet from the point at which the temperature is to be measured.

It is especially adapted for use in observatories, colleges, institutions, clubs, hotels, private residences, cold storage plants, drying rooms, etc.

A water and an electric light company has been organized at Sussex, N.B.

A Toronto syndicate propose purchasing the street railway charter of Niagara Falls, Ont., and convert the road into an electric line.

The building of the Lake Superior Power Company, at the Michigan side of the "Soo," is about completed, and most of the machinery has been placed. The building is thirty-three by forty feet on the the foundation, three stories high with basement. The machinery room occupies the first floor. A one story addition is built on the west side, thirty by sixty feet, and will be filled with several furnaces. It is an imposing looking building. The electricity for operating the plant will be generated at the company's works at the Canadian Soo. A branch of the railroad will be run alongside of the building and will be further extended as the canal is completed. It is expected that the plant will be ready for operation on or before November 1st.

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Ridout & Maybee, 103 Bay Street, Toronto.

C. H. Riches, Canada Life Building, Toronto.

A. Harvey, Central Chambers, Ottawa.

Copies of any American patents can be procured from either of these attorneys for the sum of twenty-five cents each.

53,058 Wrench, J. Shafer, San Bernardino, Cal.

53,059 Wrench, F. S. Smith, Chicago, Ill.

53,060 Sailing vessel, R. Gillis, Sydney, N.S.

53,061 Down spout filter, J. S. Baughman, Burlington, Iowa.

53,062 Soldering iron, R. McShane, Winona Springs, Ark.

53,063 Wrench, P. P. Collins, Toronto, Ont.

53,064 Piano pedal action, A. F. Norris, Boston, Mass.

53,065 Automatic safety instalment ledger, J. F. Brown, Toronto, Ont.

53,066 Turbine, E. G. Libby, Everett, Mass.

53,067 Vaginal powder injector, J. Schoone, Berlin, Germany.

53,068 Pneumatic handle for handle bars of bicycles, F. H. Merry, Brooklyn, N.Y.

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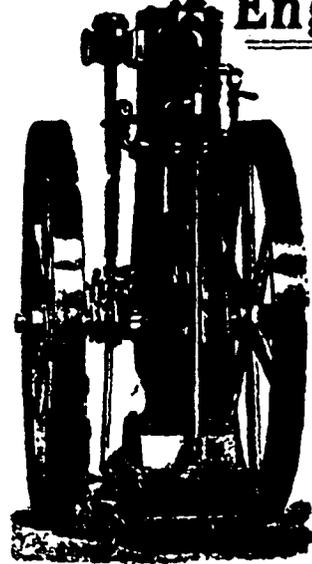
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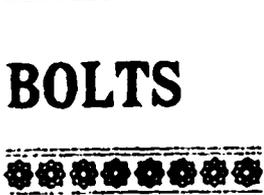
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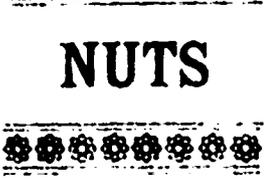
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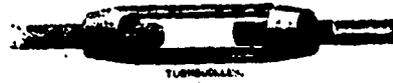
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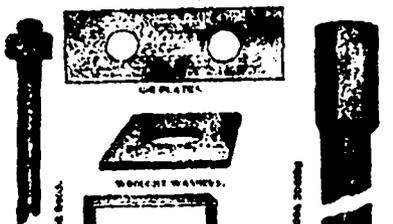
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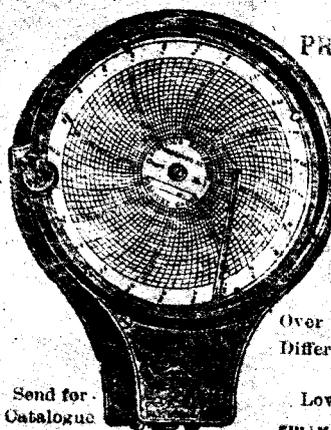
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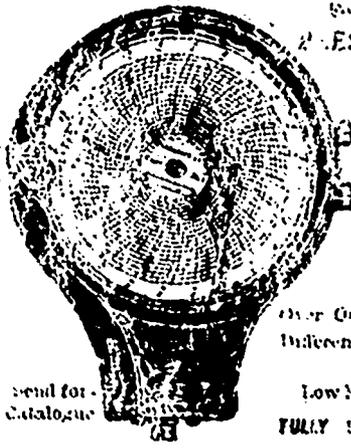
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