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Vol. 25.

TORONTO, NOVEMBER 3, 1893.

No. 9.

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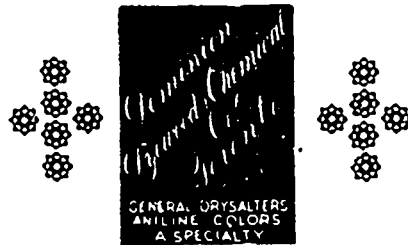
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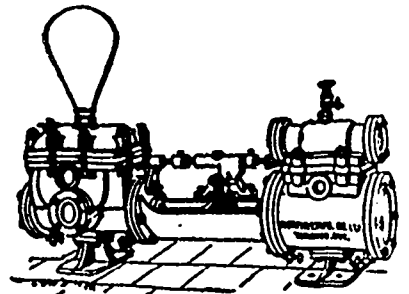
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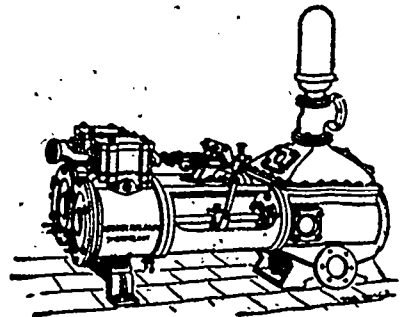
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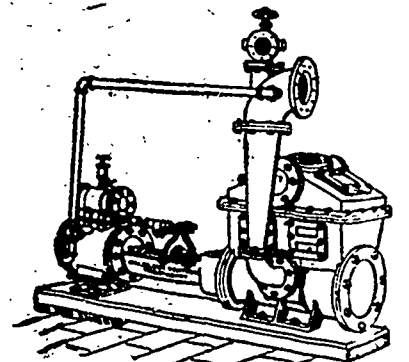


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**ENCOURAGING IRON MAKING.**

THE recently published second report of the Ontario Bureau of Mines, for a copy of which we are indebted to Hon. A. S. Hardy, Commissioner of Crown Lands, contains some excellent information regarding the iron deposits of Ontario, and the facilities we possess for making iron. It is true some of the statements contained in the book show some political coloring not in harmony with the opinions of advocates of the National Policy regarding what should be done by the Government desiring the establishment of an iron industry; and we regret to notice that it contains no suggestion that the Ontario Government should accede to the many requests made to it last winter to offer a bonus or some other substantial inducement for the production of iron in this province. Our opinion is that if such inducement had been offered it would have resulted in the erection of several blast furnaces and perhaps of a steel works also.

As might have been expected the Empire takes the publi-

cation of this report as an occasion to adversely criticize its political enemies, the Ontario Government, and to charge that the non-materialization of iron furnaces in this province is due to the apathy of that Government. It states that while the writer of a certain article in the report expresses the excellent opinion that one of the ways to encourage the iron industry is to publish reliable information concerning it, he forgets the other way demanded, i. e., a provincial bonus. It tells us, very correctly, that under the laws of the Dominion there are large advantages offered those who may go into the iron industry in Ontario; that the tariff on pig iron is \$1 per ton, besides which a bounty of \$2 per ton is offered on the production of pig iron from native ores; and it blames the Ontario Government for not supplementing these inducements as they have so earnestly been requested to do. It also makes reference to articles contained in the report written by gentlemen all well qualified to speak, and who express the opinion that the tariff as it now stands affords satisfactory protection to the industry.

While it is the opinion of many that if Sir Oliver Mowat had seen proper to promise a bonus of \$2 per ton on the production of pig iron in Ontario, the industry would have soon become an assured fact, the opinion is quite as generally entertained that some changes in the tariff would as quickly effect the same result, not only in Ontario, but to the great advantage of both Quebec and Nova Scotia.

As a strictly party paper, supposed to be familiar with the history of the tariff and its effects upon the industries of Canada, the Empire must certainly be aware that although Sir Charles Tupper predicted wonderful things for the iron industry when he was framing the tariff, the manufacture of pig iron is substantially in the same condition now as it was before Sir Charles formulated the iron schedule. It knows that this country abounds in all the materials necessary for the manufacture of pig iron, it knows that there is a large and constantly increasing demand in Canada for pig iron, it knows that the most of this demand can only be met by importations of foreign iron; it knows that the few furnaces we have do not have the capacity to supply the demand, and it knows that if more blast furnaces were erected, unless certain changes were made in the tariff it would be impossible to dispose of all the iron that such furnaces might produce. It also knows, or ought to know, that even if Mr. Mowat had promised a bonus to Ontario furnaces, the products of them could not all be disposed of unless there was a change in the tariff, and that the Ontario Government could have nothing whatever to do with making such a change. Therefore it is the ultraism of partyism to adversely criticize the Ontario Government in the matter, and never utter a word or suggestion to the Dominion Government showing that the establishment of an iron industry in Ontario depended entirely upon a modification of the tariff.

It has frequently been shown in these pages that as now arranged the tariff makes it positively impossible that Canada should have a comprehensive iron industry. Furnaces cannot be kept in blast unless there is a market for their product; and while there is a market for a certain portion of the pig iron they might produce, it is inevitable that they will produce large quantities of a quality of iron for which there will be positively no demand under the existing tariff. The entire product of the furnace must be sold if the enterprise is to be

a success, but where could purchasers be found for the mill iron that must inevitably be produced, in quantities varying from twenty to fifty per cent of the whole output, and which can only be used for puddling, and manufacture into refined bar iron, when our ports are open for the importation of scrap iron from all quarters of the world, upon which a duty of only \$2 per ton is levied. This wrought scrap is puddled iron; and if the article can be had at such little cost, the industry of puddling iron can never be made to materialize in Canada. Scrap iron is the product of no industry in any country. No money is invested anywhere in the manufacture or production of scrap iron. It is only the salvage obtained from wrecks or in the processes of established industries. Sir Charles Tupper may have thought he was doing a good thing for Canada when he rated wrought scrap for duty at only \$2 per ton. But he was mistaken, very badly mistaken, and the country has been and is a great sufferer from that blunder. Only one class in the community has been benefitted by it, and that includes probably not more than a dozen or a score of men. The wildest and most avaricious dreams of the rolling mill men could scarcely have hoped for such an arrangement of the tariff. With their raw material admitted at a ridiculously low rate of duty; with a close combination among themselves whereby they obtain whatever scrap that originates in the country at their own price, with a duty of \$13 per ton on bar iron (their finished product), they have enjoyed a snap which, for profitableness places them a close second to the sugar refiners. If they produced as much refined iron of the highest quality as the country has need for it would be to their credit, but they do not do even this, for when iron of undoubted reliability is required, it must of necessity be brought from abroad.

If Sir Charles Tupper had possessed the perspicacity for which he is credited, he should have foreseen the results of his anomalous tariff. He wanted to see a blast furnace industry built up; and in discussing the question in Parliament he dwelt long, often and gloriously upon the wonderful results to be achieved in this direction by his tariff. But alas, like the apples of Sodom that were wondrous fair to look upon, but which were but ashes and bitterness upon the lips, those who hoped for the realization of the industry imagined a vain thing.

The impression prevails with some that a modification of the iron and steel schedule of the tariff implies changes all along the line, including the whole list of dutiable articles. No doubt many articles that are now dutiable should be put in the free list, and probably will be, but these should be only those which are not made in Canada nor likely to be for a number of years. Such changes would not be likely to affect the blast furnace industry; but one change can and should be made which without doubt would give a great impetus to the manufacture of pig iron; the duty upon all scrap iron should be made practically prohibitory. To do so would not increase the cost of bar iron to consumers. It would create a fair market for such scrap as originated in the country; and it would create a demand for mill irons, the product of blast furnaces. We would then produce the very best qualities of bar and rolled iron instead of being forced to import them as now; and there would be a fair and legitimate profit to the rolling mills.

Therefore we should practically prohibit the importation of scrap iron.

## SCRAP IRON.

IN a recent issue of this journal in discussing the reasons why we do not have a comprehensive iron industry in Canada we said:—

Current commercial quotations in Toronto for bar iron place the value of that article at 1.95 cents per pound, or \$39 per short ton of 2,000 pounds, while No. 1 wrought scrap iron is quoted at 35 to 40 cents per hundredweight, or from \$7 to \$8 per long ton of 2,240 pounds, No. 2 wrought scrap being worth only from 10 to 15 cents per hundred weight, or about \$2 to \$3 per long ton. It is this sort of thing that makes one tired. It costs but about \$5 or \$6 to work up wrought scrap, costing from \$3 to \$8 per long ton, into bar iron for which the rolling mills charge \$39 per short ton. This condition prevails because of the low duty of only \$2 per ton on wrought scrap iron, the duty on bar iron being \$13 per ton. The duty on scrap iron should be practically prohibitory; and if it were those who have scrap for sale would obtain a fair price for it, while the consumer would have to pay no more than now for finished iron.

On other occasions this subject has been discussed in these pages, the object being to show that a great detriment and draw back to the manufacture of rolled iron in Canada, particularly in Ontario, is the very low rate of duty charged against imported scrap iron.

These articles have excited considerable interest among both manufacturers and consumers of bar iron; and we have been favored with expressions of opinion from some of them. A large majority of our correspondents quite agree with us in the arguments we have advanced, but others differ quite considerably. One writer who is largely interested in a works where large quantities of iron of the best quality are consumed, after explaining how wrought scrap when properly manipulated produces a very fine quality of iron, enlightens us as to the cost of conversion. Differing from us as to the value of number one scrap at Ontario mills, and placing it at \$15 per net ton, he shows that the cost of conversion amounts to over \$20 per ton of finished iron. This includes waste of iron in manufacture, fuel, labor in rolling mill and general charges; but does not include profit to the manufacturer, rent, taxes, interest, selling charges and allowance for depreciation of plant. Combining the value of the raw material—scrap iron with the charges for conversion into the finished product, and the figures of our correspondent show that bar iron cannot be made in Ontario for less than \$35.44 per net ton. The object of his argument is to show that the duty of \$13 per ton on bar iron is not too high; and that the duty of \$2 per ton on scrap is not too low. If the duty on bar were lowered the rolling mills would not be able to contend against the foreign iron that would be imported; and if the duty on scrap were increased the same condition would prevail.

In considering our contention that if the blast furnace proposed to be erected at Hamilton were in actual operation it would not be able to dispose of its inevitable product of forge pig unless the tariff were so adjusted as to compel the manufacture of puddled iron, and that this could only be done by making the duty on wrought scrap practically prohibitory; the same correspondent tells us that if the furnace is judicious in the selection of ores, and if the work is conducted scientifically, no forge pig will be produced—that it will all be either No. 1 or No. 2 foundry iron; and that even if forge is made it could be sold so cheap that it would supplant cast scrap in the mixtures required for foundry use. It may be that coke

furnaces can be operated so that no forge iron is produced, but our impression is that if any such furnaces are in operation either in the United States or elsewhere, they are exceedingly few in number. There always seems to be an abundance of forge irons for sale in American markets; and it is not probable that such would be made if foundry irons could be produced exclusively.

And then here comes the Hamilton Spectator who criticizes our figures and attempts to cast some light on the subject. It announces in the first place that every figure in our article is wrong—that bar iron may sell in Toronto for 1.95 cents per pound, but that it sells in Hamilton at 1.8 cents; that No. 1 scrap sells in Hamilton at from \$15.50 to \$16.50 per long ton and No. 2 at from \$7 to \$8. We suppose the Spectator has been posted as to prices by the rolling mill men in that city; but the trade is led to believe that the Canadian iron manufacturers, including those of Hamilton, have an established rate which equalizes the price on a basis of 1.95 cents at certain markets including Montreal, Toronto, Hamilton, London and other cities. And as to the prices paid at Hamilton for No. 1 wrought scrap, perhaps from \$15.50 to \$16.50 per ton may be paid there under certain circumstances; but we have knowledge of quite a large number of manufacturing concerns in Ontario who have accumulations of No. 1 wrought scrap for which they can obtain only about one-half of the prices quoted by the Spectator. This scrap is the accumulation of boiler shops and machine shops where only the very best qualities of iron are used.

But what is to be thought of the processes of manufacture of bar iron in Canada where the cost of producing finished iron, with scrap at \$15 per ton, amounts to more than \$35 per ton, this not including a profit to the manufacturer, nor charges for rent, taxes, interest on capital invested, depreciation of plant, or for selling on the market. Certainly our correspondent must be mistaken in stating the cost of converting scrap into finished iron at \$35 per ton, or 1.75 cents per pound, particularly in view of the fact that, according to the Spectator, the selling price in that city is 1.8 cents. The Ontario Rolling Mill Company have no opposition whatever in Ontario, and it is not probable that they make iron for amusement.

The Spectator says that scrap iron is absolutely a raw material; that the country does not furnish as much of it as is needed, and that it is not the policy of the Government to discourage Canadian industries by putting high duties on the raw materials. It also says that if the duty on scrap were prohibitory those who have scrap for sale would not get so good a price as they get now, because the rolling mills would put in puddling furnaces and make their own bar from pig, and that there would be no local market for wrought scrap. As we before remarked, it is this sort of talk that makes one tired. Correctly speaking, scrap iron is in no sense a raw material—it is a by product—a salvage obtained in the manufacture of such things as boilers and machinery, where iron is consumed; from worn out machinery, etc. No dollar has ever yet been invested in the manufacture of scrap iron. The Spectator gives itself away when it admits that if the duty on scrap were prohibitory the rolling mills would put in puddling furnaces and make their bar from pig iron. This has always been our contention, and we welcome the Spectator as a supporter of it. With foreign scrap kept out of the country the

rolling mills would start up puddling furnaces, and the puddling furnaces would be good customers for Canadian made pig iron. Retaining the present duty of \$13 per ton on bar iron, Canadian rolling mills would supply the home market with a better class of iron than they now usually produce. With a duty of \$4 per ton and a bounty of \$2 per ton on pig iron, Canadian furnaces would speedily produce all the pig iron the country would require, but the scrap must be kept out. It is a mistake for the Spectator to suppose that there would be no market for scrap iron in the event of puddling furnaces. There is always a good demand for scrap in all iron manufacturing centres, and Hamilton would prove no exception.

The Spectator accuses this journal of exhibiting a spirit of narrow jealousy of Hamilton industries, which it says most Toronto people experience, because there are two rolling mills in that city, and because we have advocated placing a prohibitory duty on scrap iron. This is undignified in the extreme. It is true the office of this journal is in Toronto, but being devoted to the manufacturing interests of Canada it has never uttered a word for or against a Hamilton enterprise that would not equally apply to any similar enterprise in Toronto or any other Canadian city. It is indicative of exceedingly small mental calibre to interject such silly stuff into the consideration of an important national question.

#### PROTECTION IN THE UNITED STATES.

WHEN the smoke of the battle of the recent presidential election in the United States cleared away it was found that the Democratic or free trade party had elected their president and an overwhelming majority in the House of Representatives; and had also acceded to the rule of the Senate; a condition that had not prevailed since the ante-bellum days of President Buchanan. The rout of the Republican, or protection party, was disastrous and complete. Without discussing the causes that led up to this event, a wave of madness seemed to have swept over the country; and in almost a twinkling a policy that had prevailed for thirty years, and which had lifted the country out of the fearful debt and distress caused by the rebellion, was rejected, the apparent determination being to enter upon a fiscal experiment that had never proved a success save, perhaps, in Great Britain. Mr. Cleveland went into the White House under the most favorable political conditions; and long before he assumed the duties of his office, he undertook, with the assistance of his political friends, to formulate a new tariff which it was promised to be enacted into law and to go into effect within the shortest possible time. Everything was to go with a hurrah, and the hated policy of protection was to be dead and buried without hope of resurrection instantaneously if not sooner.

So vehemently was this declaration made, and so vigorously did the Government and its friends go about the iconoclastic business, that thousands of manufacturers throughout the country, knowing that the carrying out of the threats of the free-traders meant quick and complete ruin to their industries, contracted their operations, discharging large numbers of their employes and putting the others on short time. The result was inevitable. It was foreseen and foretold by the leaders of the Republican party and by intelligent manufacturers, but it

was ignored by Mr. Cleveland and his free trade friends. But ignoring the result did not prevent the panic that quickly ensued: and endeavor as they may to cloud the fact, it is patent to all the world that the prime factor in precipitating the panic in the United States was the threat of Mr. Cleveland and the Democrats to destroy protection and establish a tariff for revenue only. There were auxiliary influences at work, but the threat against the tariff did the business.

A matter over which the United States could have no control, the demonetization of silver in India, and the consequent large depreciation of the value of silver in the United States, happening just at the time, accentuated and augmented the excitement and distress, particularly in those states where silver mining is a most important industry. Listening with close attention to the importers of foreign merchandise in the larger commercial centres, Mr. Cleveland insisted that Congress should repeal the law regarding the purchase and coinage of silver; and without delay the House of Representatives, according to his request, passed a repeal bill. Of course this bill must be assented to by the Senate before it becomes a law; and there is where the bill now is, and likely to remain. It is not likely that it will ever become a law.

And here it is that the conservatism of the Senate, and the conflicting interests of the States which they represent, will probably save the country from a condition that would be even more disastrous than any that has ever yet overtaken it—the enactment of a tariff for revenue only law. Although the Democrats are in the majority in the Senate, and therefore have the ability to pass any tariff bill that might be sent to them from the House of Representatives, they are hopelessly divided on the silver question, and the only hope the Western Senators have of defeating the silver repeal bill, and preventing it becoming a law, is that the Republican senators, or some of them, may side with them. This, then, is the opportunity of the friends of protection in the Senate to defeat the proposed new free trade tariff; and this can and probably will be done by a coalition of tariff Republicans and Silverites. If the Silverite Senators stand in with the Republicans and prevent the passage of the tariff for revenue only bill, the Republicans will stand in with the Silverites and prevent the repeal of the Sherman silver coinage law. The only visible way out of the dilemma seems to be by compromise; and this will probably be in the way of a modification of the Sherman law on the one hand, where the silver interests will not be so fearfully slaughtered, and on the other by the retention of many of the more important features of what is known as the McKinley tariff. The Republican Senators evidently hold the key of the situation.

#### THE FARMERS' INTERESTS.

THE Controllers of the two great revenue producing departments of the Dominion Government have been making an extended tour among the rural constituencies interviewing the farmers and asking for information as to how they are affected by the tariff. There is a going commission of a free and easy character, every farmer who may desire to express his views on tariff matters having full opportunity to do so. We have noticed that much wholesome advice and valuable suggestions have been made by the Controllers and others to the

farmers, the general anxiety and desire being that every thing possible should be done to advance and protect the interests of the agricultural community.

But we have not noticed that the Controllers have sought any information whatever, or even asked a question, or in any manner broached the subject as to whether the cultivation of the sugar-beet in Canada could be made a success. As far as we have read of the conferences held with the farmers, no mention has been made whatever of this matter. And this, too, in the face of the fact that but a few days ago accounts were published in many of the papers of the formal opening of the beet-sugar factory at Berthier, Que., when it is said thousands of the people of the neighborhood assembled, to whom addresses were made, setting forth the importance of the enterprise, both to the promoters of it and to the farmers, who are expected to supply the beets, followed by a banquet, the proceedings being brought to a close with a divine benediction by the Archbishop of the Diocese.

In view of this proceeding, and of certain other facts that have heretofore been discussed in this journal, it is somewhat remarkable that while the Controllers are so anxious to obtain information upon which the Government may act at the forthcoming session of Parliament in the interests of the farmers of Canada, they have steadily and persistently ignored this most important question.

The strongest and most important claim put forth by the advocates of the National Policy is that its intention and tendency is to diversify all sorts of industry, and to secure the home market to the home producer. Under this *regis* the manufacturing industries of the country have expanded and enlarged until there are but few staple lines of merchandise which we do not produce at home; and the testimony taken by the Controllers from the farmers shows that this diversity of industry prevails to a most gratifying extent among them also. This fact seems to afford much gratification to the Government; and it is therefore quite remarkable that while this feature of the National Policy has been so gratifyingly developed, no persistent effort whatever has been made to develop an agricultural industry from which such good results might most reasonably be expected.

There can be no question as to its importance to the country the sugar beet and beet sugar industries would be if they could be successfully established. The desultory experiments that have been made in different parts of Ontario and Quebec show that sugar beets can be produced quite as high in saccharine qualities as those grown in countries where the industry has proved an unbounded success; and it is well-known that although conducted on a comparatively small scale, the works at Berthier are quite remunerative, not only to the promoters, but also to the neighboring farmers who grow the beets. Why not elsewhere in Canada? We have the soil and climate and intelligent labor necessary to produce the beets, and capital and skill are quickly available for building and operating the factories for extracting the sugar. Why is it then that the Government are so reluctant to give proper encouragement to the industry? Whatever has been done by the Government has always been with a begrudging and niggardly spirit, not at all in consonance with other assistance it has rendered on frequent occasions to establish and build up Canadian industries. The promise of a bonus on the production of beet sugar extending over only a year, is not sufficient to in

duce a farmer to go extensively into the cultivation of the crop, or capitalists and manufacturers to build sugar works.

This spirit is in strong and strange contrast with what the Government has done for other industries. Until quite recently the sugar tariff made it possible for a few capitalists, giving employment all told to less than a thousand men, to grow rich and become millionaires; and even under a so-called revision of that tariff, when it was declared that sugar upon the breakfast table of every man in Canada should be absolutely duty-free, every consumer of sugar is a forced contributor to the few rich men who own and control the Canadian sugar refineries. It is deceptive to say that the poor man may have free sugar upon his breakfast table because raw sugar of not higher grade than number 14 Dutch standard, is admitted free of duty, when it is remembered that such sugar is not edible. It is not a suitable article of food—and can only be used for refining purposes; while even a grade as low as number 16 Dutch standard, a good, wholesome article of sugar, which may be eaten, is liable to a duty of \$16 per ton. Of course this unnecessarily high duty upon all edible sugar keeps the foreign article out of the market, and enables the Canadian refiners to squeeze six or eight dollars or more, per ton more than what they ought to get out of the consumers; and the suggestion obtrudes itself that perhaps the influence of these refiners, who imagine that it would not be to their interest to have the beet sugar industry established, is the thing that prevents it.

This abnormally high protection to the refining industry is not at all in accord with the ethics of the National Policy; and it is not in accord with that policy to refrain from a cordial and persistent endeavor to establish the beet sugar industry. To our view the beet sugar industry has unusually strong claims upon the Government, in that it would benefit two of the largest, most important and most influential elements of the country. If it were established it would open up a new and most valuable diversity to the farmers, and it would be of equal value to the manufacturers and employers of mechanical labor. The advocates of the industry have never asked that any money grant be awarded them, but that a bonus be promised upon the production of home-made beet sugar, extending through a number of years, sufficient to place the industry on a firm basis. This was the method adopted in Germany, France, Austria and the United States, and under it the industry has become exceedingly valuable. If no sugar were produced no bounty would be paid, and if the amount of bounty that might be paid were large, it would indicate that the farmers had caught onto a good thing. Proper encouragement of the industry would include the admission duty free of such machinery necessary in the manufacture of beet sugar as was not made in Canada. This is what was done in the United States, the exemption from duty of such machinery extending through some two years after the passage of the law.

Canada should have the beet sugar industry.

#### BET SUGAR.

In considering the question as to whether the Dominion Government should lend active aid to the encouragement of the beet sugar industry in Canada, we suggest a study of the following facts as affecting the industry elsewhere.

Under the McKinley tariff the United States Government became obligated to pay about two cents per pound upon the production of sugar in that country, the bounty to be continued for about fifteen years; and for two years machinery necessary for the manufacture of beet sugar, not made in that country, was to be admitted free of duty. Louisiana had always been a large producer of cane sugar; and maple sugar in limited quantities, produced chiefly in the more northern states, supplied the current demand for flap-jacks, buckwheat cakes and confectionery purposes. For a few years before the enactment of the McKinley tariff some desultory efforts had been made in Iowa, Nebraska and elsewhere to produce beet sugar in commercial quantities; and the policy of the Government was to put imported raw sugar on the free list and to pay a bonus on the home production.

In 1892 the production of beet sugar amounted to 27,000,000 pounds against only about 12,000,000 pounds in 1891; and this is what the American Grocer has to say regarding the industry:

In Nebraska the area devoted to beet culture is being extended, and there is a marked advance in the industry in California and Utah. Upon the authority of the Louisiana Planter, the highest scientific expert authority in this country, we are warranted in saying that the quality of the sugar produced in American factories is on a level with the best beet sugar produced in Europe. Machinery has been imported from abroad, while the operators in the factories are experts brought here from France and Germany. Our growers have much to learn in the way of culture, in this respect not being on a par with growers in Europe. This industry had made quite rapid growth, and will go on very extensively, provided existing conditions are not interfered with in obedience to the false notions of the opponents of a sugar bounty.

There are those connected with our dailies who are opposed to every effort made to develop American industries, whether in the way of manufactures or agriculture. They forget that England built up her vast trade and commerce by protection, and did not abandon it until she practically controlled the markets of the world. Because she was successful in this they assume that like conditions exist here. So vast is the domestic consumption of manufactured products that this country consumes nearly all the product of her various industries, and is growing at such a tremendous pace that, within our own borders, we can for some years to come take care of the great bulk of manufactured products. When the necessity arises for enlarged foreign markets we shall get them, and probably as quick or quicker than any of our foreign competitors. Necessity is as much the mother of commerce as it is of invention.

Considerable interest exists in all the sugar-producing sections of the United States growing out of the belief that the policy of the Government is to reimpose a duty upon sugar and to withdraw the bounty; and this is what a contributor to the New Orleans Sugar Bowl says regarding it:

According to the best information I have at hand, there was consumed in the United States for the year up to June 30th, 3,575,000,000 pounds of sugar. A tariff or tax of two cents per pound on this amount of sugar will give \$71,500,000. The total amount of bounties paid was \$8,750,000, leaving \$62,750,000 the consumer of sugar will have to pay to protect the manufacturers of sugar to the extent of \$8,750,000. This is protection, and will increase the price of sugar two cents per pound to every man, woman and child in the country.

Now, let us see what will be the result and cost under the bounty system. The average per capita consumption of sugar to each inhabitant is 60 pounds, so that a family of five persons would require 300 pounds, or a barrel, for a year's supply. At five cents per pound, this would cost \$15,



about the present price; add two cents per pound by your tariff or tax, and it will bring it up to seven cents and cost \$21, making the barrel of sugar cost the head of the family \$6 more than it now costs him.

But the opponents of bounties say he will have to be taxed to pay the bounty. Now, let us see what his part of this tax will be. As the per capita tax is 14 cents for each inhabitant, multiplied by 5 will give 70 cents for each family. Take this from the \$6, and you will see he saves \$5.30 after paying his part of the tax on each barrel of sugar. This is a tremendous tax to levy on the people of the country for what is now one of the necessities of life—one that falls with peculiar hardship on the farmers and laboring men of the country. For the poor man's family need the sugar as much as the rich, and if he can afford to get it, will consume nearly as much. In my humble opinion, the Democratic party will take an immense responsibility by attempting to do it—so much so, when put to the test, they will shrink from it, or at most put a very small duty on it, and then if the bounty is repealed, what will become of the sugar industry?

This bounty was forced on us by the Republican party, and they have obligated the Government to let it stand for fourteen years. Under its stimulating effects, the sugar industry is making giant strides; millions of money have been expended in improved machinery, the putting up of costly factories and other implements necessary, with good prospects before the 14 years have expired we will be able to produce all the sugar the country needs.

For the Government or Democratic party to now repeal the bounty and ruin the industry, I, for one, cannot believe. We are now following in the footsteps of France, Germany, and all the most enlightened nations of Europe. See what they have done by a proper system of bounties, with the beet; how they have enriched themselves and become independent of the world for one of the prime necessities of life.

A few days ago the Deputy Internal Revenue Collector, whose duty it is to look after the beet sugar works at Alvarado, California, was in San Francisco; and in an interview with a newspaper man there stated some important facts regarding the industry in that state. He said that during the first week of the season at the factory the largest output was made of any previous year. From 71,000 to 75,000 pounds of sugar are made daily. The daily receipts at the factory average 250,000 beets. It requires 125 men to do the work in and about the factory, divided into two gangs, as the work is continued day and night. Heretofore the average production of beets per acre has been from fifteen to eighteen tons; this year the average has not fallen below twenty tons, and has reached as high as twenty-three tons. Lately a large amount of improved machinery has been placed in position, and as a result much better work is done in all departments. There is some likelihood of the plant being extended before long, and according to the encouraging reports it would seem as if the directors of the refinery would be justified in taking such steps.

Speaking of the exhibit of beet sugar made by the Oxnards at the World's Fair, the American Economist says:

The lesson it teaches is that the United States can produce its own sugar, and by so doing will retain among our own citizens about \$150,000,000 that we are now annually sending to foreign countries, and if this vast sum could be kept at home statisticians tell us that we would, in the course of ten years, be the richest nation on the globe. It also teaches that it would largely solve the labor troubles that seem at times to become so serious as to endanger our republic, as this new industry would give abundant labor to the unemployed, attracting the best class of immigrants to our country, and enable a man on ten acres of well cultivated beets to produce

as much money as he could on 100 of corn, to say nothing of the fact that the crop is free from speculative influences, as before planting a contract is made with the factory, and as soon as the beets are ripe they are delivered and paid for, thus enabling the farmer to pay his bills in town, and not be tempted to keep his crop hoping for a higher market, perhaps to realize on a much lower one. It teaches, also, little children, who are too small to work at hard labor, to make a living, as they are specially adapted to the thinning out of the beets, thus giving employment in the summer when they are away from school, and keeping them out of mischief. It helps the railroads, the coal mines, the iron foundries, the limestone quarries, the agricultural implement manufacturer, and, in fact, permeates into nearly every channel of commercial industry.

Some interesting official data have recently been published respecting the sugar campaign of 1892-3 in France. The number of factories working in that country was 368. Of these there were 95 rasping stations in connection with factories. While in 1891 beets were purchased at the factories at an average price of \$4.95 per ton, last year the price was slightly higher, being \$5.20, but the average yield to the acre was lower than it has been for several years past. As a consequence, notwithstanding an increased area devoted to the cultivation of beets, which was several thousand acres more during last campaign than previously, the total yield of beets was 6,499,907 tons, while during campaign of 1891-2 it was 6,676,000 tons. As to the weight of beets actually worked in factories, the quantity of 5,628,804 tons yielded, besides the sugar, 2,219,120 tons residuum pulp, which had an average selling price of nearly one dollar per ton. The quantity of coal used was 965,408 tons, and the total sugar made was 577,821 tons, besides molasses 207,392 tons. The industry during this period gave occupation to 42,000 men, 4,000 women and 3,000 children.

#### BOILER INSPECTION.

THE number of boiler explosions occurring in this country and the United States is alarmingly great—so great as to call for some legislation if there is none, or for the rigid enforcement of such laws as may be already enacted, looking to a thorough inspection of boilers by competent men, and the restriction of the care and management of them to men who have under strict examination proved their fitness for the charge entrusted to them. When it is considered that not only the lives of employes in establishments where boilers are, and the surrounding property, are constantly jeopardised by the presence of defective boilers, or boilers in the charge of inefficient men, but that even passers-by upon errands of legitimate business are liable to be killed or maimed by boiler explosions, it is more than strange that the law does not require that before a man may take charge of a steam plant, he shall prove his capability as a steam engineer before a board of experts, and that no boiler shall be used that is not periodically inspected by an expert, and a certificate from him duly displayed.

Boilers do not explode without there being good reasons for their doing so. Whatever people may, in the past, have believed about the generation of gases in boilers, the nature of which were inexplicable, and the force of which was irresistible, and that the loosening of this unknown and irresistible force, sending death and destruction to those

around, was caused by the act of God and not through the ignorance and inefficiency of the engineer in charge; such ideas no longer prevail among intelligent men. Engineers well know that boilers explode, and flues collapse, from the same causes that wreck bridges and buildings. They know that when improper materials are used, or when bridges and buildings are overloaded, or when their construction is faulty, they give way, usually with disastrous effects; and just so it is with boilers. Safety in the use of a boiler is assured by proper construction with proper materials, coupled with knowledge and skill in attendance. Rigidly enforced inspection and license laws is what is needed.

Recognizing the many obstacles that would intervene in the enforcement of such laws, were they enacted, owing to the cupidity or inexcusable ignorance of many steam users, who imagine that it is economy to avoid the payment of inspection fees, or good wages to competent engineers, the American Machinist says:

There is one other plan against which boiler users could not very well object. Admitting that inspection will cost them something, and that a properly qualified engineer cannot be hired to work for as little money as a man who knows nothing in particular about the business, still these grounds for objection would be untenable except that they do not believe their boilers will explode; in fact, we are rather bound to believe that they would not endanger life for the saving of a few dollars. Then let there be a law that shall provide for determining the exact cause of every boiler explosion and provision for publishing this cause. If Mr. Smith's boiler disastrously fails, because he has neglected to have it kept in proper repair, or because he put it in charge of Incompetency, or because he failed to have it examined in a way to determine its condition, let Mr. Smith's full name and location, together with all the facts in the case, be published by authority. He could not object to the passage of such a law, one of the provisions of which should be that nothing should be disturbed about the surroundings of the explosion until after full legal investigation, because his boiler is one of those that is not to explode. In other words, those who objected to such a law would—if the rather common expression may be used—give themselves away.

We are of the opinion that the enforcement of such a law without the attachment of any penalty except one against failing to report an accident to a boiler, or placing obstacles in the way of investigation, would result in a rather remarkable decrease in the number of boiler explosions. There are quite frequently—most generally—circumstances connected with such disasters that would not look well in print, authoritatively circulated. A remedy is wanted. We submit this.

At the last session of the Legislature of Massachusetts a law was passed directing the chief of the state police force to make an investigation into the condition of boilers and their appurtenances in that state; and at the recent convention at Chicago of factory inspectors, this officer, Chief Wade, made a statement which disclosed a condition of affairs in many of the manufacturing establishments which he had visited, which showed what might well be denominated criminal laxity. Many boilers were found by him and his officers which were absolutely unfit for use. Some of them were in such bad condition that their continued use would have jeopardized the lives of many human beings. The inspectors also found much to criticise in the character of many of the engineers in charge of boilers, some of them being ignorant of the first principles of the generation and control of steam. This not only shows a woful lack on the part of some of the manu-

facturers of a proper consideration for the lives of employes, but also indicates that many owners of factories are deficient in ordinary business sagacity, for nothing can be more foolish and suicidal than to keep in operation a dangerously defective boiler, or to place the care of valuable machinery, the safety of extensive buildings, and the lives of employes, in the hands of incompetent engineers.

#### THE CULTURE OF FLAX.

IN reply to inquiries from the State Department with regard to the supplies of flax consumed in the linen industry of Ireland, doubtless with a view of ascertaining its sources and the mode of its cultivation, as applicable to the development of the flax raising industry in the United States, Consul Reid, of Dunfermline, Scotland, contributes some interesting information upon these points in a recent report.

The leading industry of Dunfermline is the weaving of linen, and although the culture of flax is of the highest importance to such a district, it appears that Great Britain is largely dependent on other countries for its supply of raw material. Even Ireland does not raise flax enough for its market, and though 80,000 acres of productive land were given to its cultivation in 1892, it did not supply one-fourth of the demand for Belfast alone.

The common species of flax is indigenous to Europe, Asia and Egypt. Scotland derives her chief supply from Russia, where it is grown more extensively than in any country in the world. In Russia, however, the culture of the plant is conducted with less care, and the preparation of the fiber receives less attention than in any other flax-producing country. This results in a coarse fiber and an inferior yield. Germany, Austria and France come next to Russia as flax-growing countries. In each of these an average area of over 200,000 acres is devoted to this crop. In Holland flax is raised chiefly for seed, and the quality of the fiber is thus injured. It is this seed which is used in Great Britain wherever flax cultivation is attempted. Flax is found in the highest state of cultivation in Belgium. Throughout the country the fields resemble highly cultivated gardens. Here is raised the very finest quality of flax, such as is used in the manufacture of Brussels lace. This care has ample reward, for the product brings from \$500 to \$1,000 a ton in the market; in fact, it is stated that the sale of a single crop of flax will sometimes bring a higher price than would the land on which it was cultivated. Although the soils of England, Scotland and Ireland are supposed to be equally favorable for the raising of flax, yet it has reached its highest development in Ireland. A quantity of dressed flax grown last year in the consular district of Fife, however, brought \$450 a ton. It is asserted that when properly cultivated no other product of the farmer can in these days show a better return.

Consul Reid gives a vast amount of valuable information regarding methods for the cultivation of flax and its cost of production, and he declares that the United States is eminently adapted to the cultivation of this product, which could be grown to advantage almost anywhere with proper care and attention. There is scarcely another plant which so readily becomes acclimated under different conditions and in so many countries.

NEW CATTLE INDUSTRIES.

THE splendid success, both as to extent of production and excellency of product, which has been achieved by the cheese-makers of the Dominion, is a source of great pride and gratification to all Canadians. The government of the Dominion and the governments of the different provinces are using strenuous efforts and expending liberal sums of money in the endeavor to accomplish a like success for the butter industry. It is pleasing to notice that all parties are united in commending this policy. The very low prices which farmers have realized for their wheat, barley, etc., in recent years, and the very improving outlook for the future is rapidly impelling them to curtail the production of grain crops, and to extend their interest in cattle and dairy products. Even now their production of these largely exceeds the requirements of the home market, and their further extension will swell the surplus for export. It is evident that the profitableness and success of this change in the methods of farming must largely depend upon the prices which will be obtained for animals and their products, in the home and foreign markets. It may not be possible for Canada to improve prices in foreign markets, but it is quite practicable to adopt the best and most economical methods for preparing all kinds of meats both for the foreign and home markets, and for utilizing, improving and cheapening the cost of transportation. Even when in the enjoyment of special privileges in Great Britain, the business of cattle exporting was at all times precarious, and in many seasons disastrous to those engaged in it. The recent abrogation of these privileges strongly emphasises the urgent necessity for reform in the conduct of this cattle business, and for adopting some system under which animal products will be delivered to the consumers of the United Kingdom and the other countries in Europe in their most profitable shape, and at the lowest possible cost of transportation.

We are pleased to learn that already considerable progress has been made towards the establishment of two strong companies, one of which it is proposed to operate in Toronto and the other in Winnipeg. From the well known ability and energy of the projectors of both companies, we have no doubt that their efforts will be crowned with success, and we hope to be able soon to announce their incorporation and active operation. There is an ample field for a very extensive business for both companies, so that there is no cause for jealousy, but rather for honorable rivalry. As we understand it the purposes of both companies are:—to purchase all kinds of animals used for human food; to sell the same on foot or in carcass at home and abroad. They propose to erect commodious premises, with ample cold storage, and equipped with all the most approved machinery for slaughtering, preserving, curing, canning, etc., and for utilizing every part of the animals they kill. It is universally known that one of the greatest risks which cattle dealers have had to encounter has been the capricious and frequently exorbitant rates of ocean freight demanded by steamship agents or freight speculators at Montreal. Under the new system proposed, the projected companies will be to a large extent independent of the steamship lines. When the rates of ocean freight invite shipment on foot, they will be prepared to avail themselves of such opportunities. They will be at all times in a position to withhold or forward their stock, just as the foreign markets and

freights may render advisable. They will create a constant, regular and reasonable market for all the cattle, sheep, hogs, etc., which farmers may have to dispose of. By economizing and turning to best account, every part of the animals slaughtered, they will create a value for very much that is now wasted. By preserving, curing, drying and canning all kinds of meats, they will be able to use every part to the best advantage, and will be able not only to supply the Canadian market with the preserved meats which are now purchased in the United States, but with a large value in bristles, soap grease, hair, hoofs, horns and tips, pelts, rennet, oils, steaming lard, bacon, beef and pork, sausage casings, and tallow, which are also at present imported from that country.

There is a great deal of misapprehension prevalent in Canada with respect to its commerce in animals and their products, especially as to its dealings with the United States. For the year ending June 30th, 1892, the imports of this class of merchandise into the United States from Canada, per Washington returns, amounted to \$4,674,708; the imports of like products into Canada from the United States, for consumption in the Dominion, amounted to \$4,684,948; the imports and exports being almost the same. The Trade and Navigation returns show that for same year, Canada's exports of these products of its own production, to Great Britain, amounted to \$24,068,081.

There is no doubt that under free trade with the United States in animal, as in other raw products, a much larger interchange between the two countries would take place, and to mutual advantage. So soon as American politicians learn, from a careful study of their own government statistics, that the limited free trade which Canada is in a position to offer or accept, must prove as advantageous to the United States as to Canada, and so soon as they learn that McKinleyism or exclusiveness tends to alienation rather than attraction, Canada will be found willing to negotiate in this direction, either by treaty or legislation.

We append a summary, compiled from the report of the Bureau of Statistics at Washington, showing the extent and value of the exports of animals and their products from the United States to foreign countries during the year ending June 30th, 1892, also showing the export value of the principal articles. This statement clearly shows the futility of looking to that market for the sale of most kinds of Canadian animal products. It also shows how large a market there is in Great Britain and other European countries for the disposal of all the outturn of the two projected Canadian companies. Let them go in and take possession. We congratulate them on their enterprise, from which we anticipate great success to the investors, and large and lasting benefits to the Dominion.

Summary of the number, quantity and value of the domestic animals and their products exported from the United States to foreign countries, during the year ending June 30th, 1892.

From Report No. 12, 1892-93 of the Chief of the Bureau of Statistics, Washington.

DESCRIPTION OF MERCHANDISE.	No. or Quantity.	Value.
Animals, Cattle, average value \$23.05, No.	394,007	\$9,082,028
" Hogs, " " 11.70 "	31,903	371,061
" Sheep, " " 3.43 "	40,000	161,000
" Horses, " " 100.00 "	3,200	319,000
" All other and Fowls .....	....	21,000

DESCRIPTION OF MERCHANDISE.	No. or Quantity.	Value.
Bones, hoofs, horn tips, strips and waste	.....	\$218,030
Eggs, average value, 17½ cents..... Doz.	183,083	32,371
Furs and fur skins	.....	3,580,330
Grease, scraps and other stock for soap	.....	1,208,708
Hides and skins other than furs	.....	1,224,805
Honey	.....	78,018
Oil, lard, average value 5¼ cents..... gals.	107,575	400,000
Beef, canned, " fresh, " salt or pickled, " other cured"	lbs. 87,028,084 220,554,017 70,204,731 833,712	7,870,451 18,033,732 3,067,823 92,524
Tallow	87,780,010	4,425,030
Bacon	507,010,830	30,334,363
Hams	70,850,550	7,757,717
Pork, fresh, " pickled,	377,740 80,330,481	30,240 4,792,019
Lard	400,045,770	31,201,021
Mutton	101,463	0,022
Oleomargarine, imitation butter, average value, 12.14 cents	1,010,857	115,587
Oleomargarine oil, average value 9.84c.	91,581,703	9,011,980
Paraffin and paraffin wax, average value, 6.10 cents	61,008,807	3,015,263
Poultry and game	.....	11,828
All other meat products	.....	1,220,265
Dairy products, butter, average value, 16.25 cents	lbs. 15,017,206	2,445,878
Dairy products, milk, " cheese, average value, 9.25 cents	lbs. 82,100,221	7,070,057
Wax, bees', average value 2½c.	127,470	31,908
Wool, raw, " "	202,436	30,004

Total.....\$187,584,111

Of the above, there was exported to the United Kingdom, \$124,828,791.

EDITORIAL NOTES.

ONE of the most striking things in the Chicago exhibition, says Charles M. Langren, in the Popular Science Monthly—remarkable on account of being so entirely out of harmony with all our ideas of the conditions under which we expect to see heat generated—is the apparatus to be seen in an exhibit which may be appropriately termed the "water-pail forge." This consists of an ordinary wooden pail filled with water into which dips a metal plate connected with one terminal of the electric circuit. The other terminal is attached to a pair of blacksmith's tongs, with which the operator picks up and holds the piece of metal to be heated. Immediately upon his plunging this into the water the liquid begins to sputter and the metal to glow, until in a few seconds it is brought to a welding heat and is then speedily melted. The heating is so rapid that neither the water nor the metal a few inches away are more than slightly warmed. This curious phenomenon appears to be due to the localization of the resistance of the circuit at the surface of the heated metal by the interposition of a layer of hydrogen between the metal and the liquid. This is the explanation offered by two Belgian engineers who recently brought out the process abroad with apparently no knowledge of its prior use in the United States.

A NICKEL in the slot telephone has been placed in a hotel at Wilmington, Del., in which it is only necessary to drop in your coin and the telephone does the rest. Slots are made for a nickel, dime, a quarter, half dollar and a dollar. When the coin is dropped in the slot the telephone rings at the Exchange, and then the operator knows how much money has been put in the slot and how long and to what point the

person is entitled to talk. It is said to be a device which bids fair to become popular.

WHAT is known as "journalism" in New York is just now being still further degraded by the publication of long despatches, or what purport to be despatches from Chicago, telling at length how some New York manufacturers of hats or some other thing have been awarded the "highest gold medal," and giving at length the reasons for their superiority over every other similar article. These despatches are so obviously paid for advertising puff, that we consider that a paper publishing them as bona fide despatches simply insults the intelligence of its readers, and leaves them to think that the medal as well as the telegraphic advertisement have been paid for. American Machinist.

Is it according to the ethics of journalism that the intelligence of readers should be thus insulted? If it is, then no wonder that the touch of nature, which makes the whole world kin, should cause Toronto daily papers to patter on so closely after their New York contemporaries. Or, perhaps, the New York papers are following close in the steps of the Toronto journals which refused to insert a line or a word in their columns during the recent Toronto fair, regarding any exhibits of manufacturers, unless the matter was paid for at so much per line. Such notices as appeared were so obviously advertising puff that readers were not beguiled by them.

A BOAT constructed of aluminum and intended for the forthcoming expedition of Commander Monteil into Central Africa, has just been launched in Paris. It is a flat-bottomed ferry-boat, capable of carrying a load of 15 tons, is 33 feet long and 8½ feet wide, and the total weight of the boat is 20½ cwt., of which 18 cwt. is of metal and the remainder of wood. This lightness of construction has only been obtained by the use of aluminum, and the difficulty had to be overcome of rolling sheets of this metal, 4 feet long, 2 feet 4 inches in width, and ¼ inch thick. The boat is made in twenty-four parts, each of which can be carried by one man, and which are adjusted by means of bolts, india rubber being provided at the joints of the sections so as to render the boat water-tight. With two exceptions all the parts are interchangeable, and the boat, which is fitted with the tools necessary for assembling it, can be put together in a very short time.

FOREIGN advices received at the United States Treasury Department state that the indications point to the probable imposition of a definite import duty on silver into India. It is said at the Treasury Department that the effect of putting a duty on silver imported into India will be to advance the price of the silver now in India and bring out the gold that is hoarded there. It is also believed that it will have the effect of lowering the price of American silver, as it takes India out of the list of purchasers and leaves the United States the sole purchaser of any considerable amount of silver in the world.

A BRITISH journal devoted to economic subjects, thus defines the meaning of the term "raw material":

"Any product of labor essential to promote further production, and which is incapable of being produced at home, or by the industry of the country under consideration. If it can be produced at home it is not technically a raw material as to

the collective industries of the whole nation, but it is the finished product of the industry which produces it and the raw material of the next in which it is to be used."

This brings to the front the essential fact that raw material is a relative term. It is well-known to be the protectionist position that, while an article may be raw material with reference to a more elaborate article, it is a product so far as protection is concerned, and is entitled to protection with other home products that need it, just as soon as it has employed labor. Iron ore, if mined in Canada, would not be a raw material, neither would be pig iron, muck bars, billets, beams or bars. What are raw materials? The finished product of an industry may become the raw material of another industry, and so on.

One of the most important questions now offered for consideration of the Government and the people of Canada is that of modifying the iron and steel schedules of the tariff; another and of equal importance, being the establishing of a comprehensive blast furnace industry. It is generally conceded that no country can attain the acme of prosperity and independence without a well-established iron industry; and it is to be supposed that those political newspapers which favor the National Policy would have something to say at this time on these questions. But they ignore them entirely, or mention them in such a perfunctory manner as to disgust and disappoint those who had hoped for exhibitions of more intelligence by them. Thus when The Empire sees and knows that this is a live and burning question that must be exhaustively discussed at the approaching session of the Dominion Parliament. Instead of having opinions of its own and expressing them, it quibbles and sneers at the Ontario Government, and blames it for not doing what the Dominion Government alone can effectively do. Then there is the Hamilton Spectator, that has the ability to intelligently discuss the question, as dumb as an oyster regarding them. Until recently it appeared that blast furnaces might be erected in Toronto, and then it was that, while not directly attacking the project, it was profuse in slinging epithets about the huggishness of Hogtown, otherwise Toronto; but now that it seems certain that furnaces are to be erected in Hamilton, it might be supposed that the Spectator would lend itself to a discussion as to whether the enterprise would prove a success under existing tariff conditions. But it does nothing of the kind. In fact our worthy contemporary is in quite a quandary: for there are, or will be, conflicting interests existing in that ambitious city, and while the Spectator is a paper of wonderful ability, it hesitates about trying to accomplish the impossible task of riding two horses at the same time going in opposite directions. One of these horses is represented by the blast furnace industry about materializing there, but which cannot possibly prove a success unless the tariff duty upon wrought scrap iron is very materially increased, so as to force rolling mills to manufacture puddled iron; the other horse representing the rolling mill industry now existing there, and which is naturally quite averse to the increase of duty upon their raw material. But the Spectator will be smoked out of its hole sooner or later. The success of the Hamilton blast furnace would not imply the ruin of the Hamilton rolling mills, but only an equalization of the profits. With a proper modification of the tariff both these industries would

## An Introduction

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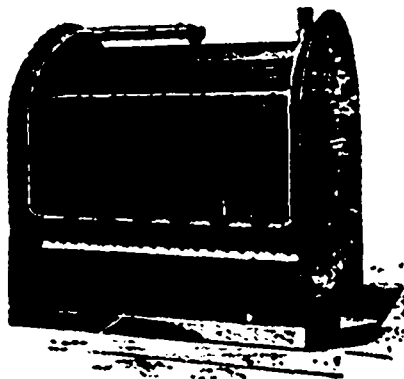
prosper; but it is rather queer that the Spectator declines to discuss the question.

From the reports of 600 correspondents in forty-one States of the Union the American Protective Tariff League has prepared a tabulated statement of startling significance. It is given below:

Same Industries.	Nov. 5, 1892.	Sept. 2, 1891.
Weekly wages .....	\$1,500,000.35	\$450,000.04
Hands employed .....	143,401	51,384
Volume of trade .....	100 per cent.	50.75 per cent.
Labor employed .....	100 per cent.	61 per cent decrease
Wages paid .....	100 per cent.	60 per cent decrease
Weekly wages (average) .....	\$10.56	\$8.20

In connection with the foregoing table, it should be said that it represents data gathered from every branch of industry, and not from special departments of business only. Hence, the losses which it indicates in work, wages and trade are expressive of a general condition. They graphically illustrate the difference between the present state and prospects of business at large with the state of things only a year ago. Naturally, a more or less interested curiosity prompted the League to enquire for the causes as well as the statistics of business depression. The replies on this head were singularly of a kind, comparatively few of them linking any other cause with that of "fear of tariff changes."

The electric light plant started in 1882 by the Société Electrique Edison de Paris, at the Bium Theatre, is, after a run of 11 years, during which the old-type machinery seems to have done remarkably well, and suffered little depreciation, about to be taken over by the municipality. This theatre claims the distinction of never having had a single gas jet burning within its walls, and is probably one of the first theatres to have been lighted by electricity, as its plant is certainly one of the oldest electric light plants on the Continent.



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One-fifth of the world's population of 1,480,000,000 is found by Gen. A. W. Greeley to live in the 500 cities in which population exceeds 50,000. Of these cities the United States has 85; India 76; Great Britain, 72; Germany, 47; Russia, 34; France, 33; Japan, 17; Spain, 16; Austria-Hungary, 15; Italy, 14. One-sixth of these cities belong to the United States, which also contains three of the ten cities having 1,000,000 inhabitants. Of the largest 100 cities, 52 are under the control of the English-speaking races.

The statistician, John Birkinbine, states that in 1864 the United States made 1,000,000 gross tons of pig iron, falling below that figure in 1865, but exceeding it in 1866. Taking the period for 27 years from this last date it appears that the industry advanced so rapidly that in 6 years, namely, in 1872, more than double the amount of pig iron was produced than was made in 1866; in 14 years (1880), the output was over treble that of 1866; in 16 years (1882), it was almost 4 times the output of 1866; in 21 years (1887), it was over 5 times the output of 1866; in 1889, 23 years after, it was over 6 times the output of 1866; in 1890 it was 7½ times the production of 1866. The product of 1891 was considerably below and that of 1892 slightly below the output of 1890. This is truly a remarkable record of progress, and one which has never been duplicated in any country in a similar interval of time. The total output for the 27 years was 105,712,591 tons, of which 65,571,334 tons were produced in the decade just closed. Statistics show a total production of pig iron for the

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year 1892 of 9,157,000 gross tons, made in about 300 furnaces, which were in operation for some portion of the year, although but 253 were active at the close of that year. Of the total output, 6,822,266 gross tons, or about 74½ per cent. was made by using coke or bituminous coal; 1,797,113 gross tons, or 19¼ per cent. was made by using anthracite fuel in whole or in part, but only 229,020 gross tons, or 2½ per cent. of the total output, was smelted with anthracite coal alone; 537,621 gross tons, or 6 per cent. were made with charcoal as fuel.

BOILER inspection and insurance must be a good thing judging from the small number of policies that are allowed to lapse. It would seem that only those who have not tested the value of regular inspectors are opposed to insurance. It is claimed by experts, that as all explosions are the result of either ignorance or carelessness, and that when the engineer faithfully follows the rules laid down by boiler insurance companies, an explosion is well nigh impossible. Defects in material and construction are discovered by the inspector and remedied in time.

WE wish to congratulate the Penberthy Injector Company, of Detroit, Mich., on the fact, that to their justly celebrated Penberthy automatic injector has been awarded the medal for merit by the judges of awards at the World's Columbian Exposition. Their "Little Wonder" has been on the market only about six and a half years, yet nearly 75,000 of them have been placed on boilers in all parts of the world.

A CORRESPONDENT in a neighboring city tells us of a conversation overheard by him between an inspector of a steam boiler insurance company and the proprietor of an establishment where a steam boiler is in use. The inspector stated that if the boiler owner would insure in his company a quarterly report of both the internal and external condition of the boiler would be regularly rendered; to which the reply was that the boiler was in the care of a very good engineer who had been in his employ for ten years, and that he had never had an explosion. "That may be so" said the inspector, "but are you getting the best results from your boiler at the least cost? Do you ever go into your boiler and make a personal examination of it to see if it is clean and in good condition?" To which the boiler owner answered: "Well, yes, I did once. The engineer had blown off on Saturday and reported the boiler as being clean. As Monday was a holiday I thought to make a personal inspection of it, and you will smile when I tell you that I took out two wheelbarrowfulls of mud from the far end of the boiler." And still boiler explosions are attributed to "mysterious" causes.

MR. JAMES BERESFORD who has just returned from a two years sojourn in British India, where he has been prospecting for oil on behalf of an English syndicate, has in his possession some rare specimens of Burmese carving on teak wood and ivory, and samples of cloth made by the natives, which are of surpassing beauty of design, and delicacy of coloring and tracing. When we consider the rapidity with which all hand labor is being superseded by machinery, these fabrics will

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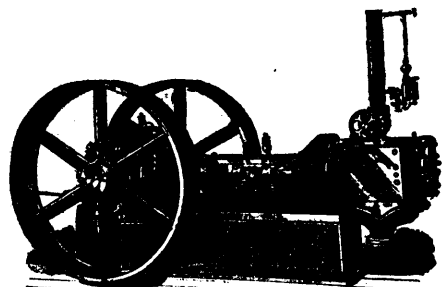
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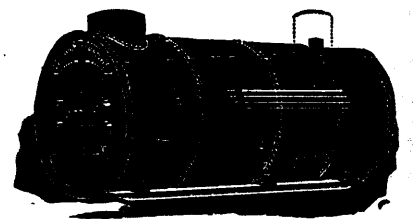
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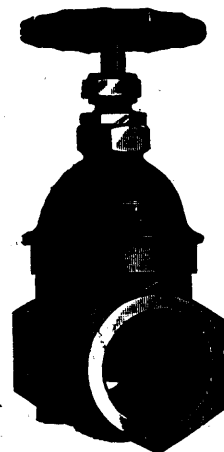
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soon be regarded as relics of a bygone age, and, as curios, will be of great interest to the next generation. Mr. Beresford is now travelling representative for the Steam Boiler and Plate Glass Insurance Company of Canada, and as he has spent fifteen years in the oil fields of Petrolia and Oil City as superintendent of wells and drilling and pumping rigs, for one of the largest producers, he evidently knows a thing or two about steam boilers. It may be of interest to our readers to know that there are nearly five hundred steam boilers in use in and around Petrolia.

The latest idea in transportation comes from England, and is nothing more or less than the familiar roller skates, provided with pneumatic tires, which, it is claimed, adapt them to use on ordinary roads. The rollers are about 3 1/2 inches diameter, are provided with ball bearings and run noiselessly, though the speed attained is said to be about equal to that of the cycle, while, of course, the first cost and repair bills are much lower.

According to the latest official statistics, the values of the manufactured products of various countries in 1888 were as follows: Spain, \$425,000,000; Belgium, \$510,000,000; Austria Hungary, \$1,265,000,000; Russia, \$1,815,000,000; France, \$2,425,000,000; Germany, \$2,195,000,000; Great Britain, \$4,100,000,000, and the United States, \$7,215,000,000. Thus, five years ago, the United States manufactured more than the two next highest, and made over 33 1/2 per cent.

of the total for the eight countries named. In 1892 it had still further increased its already great lead, and it is probable that during that year it manufactured quite as much as Great Britain, France and Germany combined. It would seem that for a nation that is being robbed by a protective tariff, the United States is doing very well. But how will free-traders account for the marvelous growth of trade in the United States when by their teaching in Great Britain, that alleged Paradise of trade of all kinds, trade has been diminishing, or at least not growing, while that of the United States has been constantly augmenting. The contention of the Protectionists that the home market is the one of most value is amply vindicated by the results.

There arrived in the port of Montreal this week a cargo of 1,900 tons of pig iron by the steamship Tiber, from Pictou, Nova Scotia, consigned to Messrs. Drummond, McCall & Co. The iron is the product of the Ferrona furnaces, an extensive plant having recently been established at that point with a view to the development of the rich iron deposits of Pictou. Already a large output has been made, and the proprietors hope, in the course of time, to supplant foreign pig iron to a great extent in the Canadian markets. Heretofore, iron shipments from Nova Scotia to Montreal have been made principally by rail, and the higher freight rates have somewhat militated against the expansion of the trade in competition with Scotch and other pig iron brought here by water, but if the business attains the proportions which are antici-

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puted, it is probable that arrangements will be made next season for the regular shipment of iron from the Ferrona furnaces by vessel to Montreal. We learn from the North Sydney Herald that while only a year ago the extensive iron works at Ferrona were established, there is to-day one of the finest enterprises in Canada located at that place. Ferrona, which is reached by the Intercolonial Railway, is some five or six miles from New Glasgow. The railway of the New Glasgow Iron, Coal and Railway Co., 15 miles in length, runs to the iron works. The company gives employment to some 500 men in connection with its magnificent plant at Ferrona, where 300 tons of coal for coking purposes, 200 tons of ore and 100 tons of limestone are used each day. The furnace turns out about 90 tons of pig iron daily. There are 50 coke ovens in Ferrona, the coke plant being one of the finest in America. It is of German design, and is managed by Mr. Zirker, who formerly held a responsible position in the Krupp gun works in Germany. The New Glasgow steel works obtain their pig iron for manufacturing into steel from Ferrona, the supply of the home product being a new and gratifying departure, as hitherto the iron has been imported from abroad. As a result of the supply from Ferrona the steel works at New Glasgow are expected to double their output in a short time, and instead of one blast at Ferrona there will soon be three or four. The steel works employ about 500 men, and about 1,000 men are employed in the iron and steel industry at that point.—Montreal Gazette.

At the recent meeting of the corporation of McGill College in Montreal it was announced that Mr. Peter Redpath, who donated the funds for founding the Redpath Museum, had

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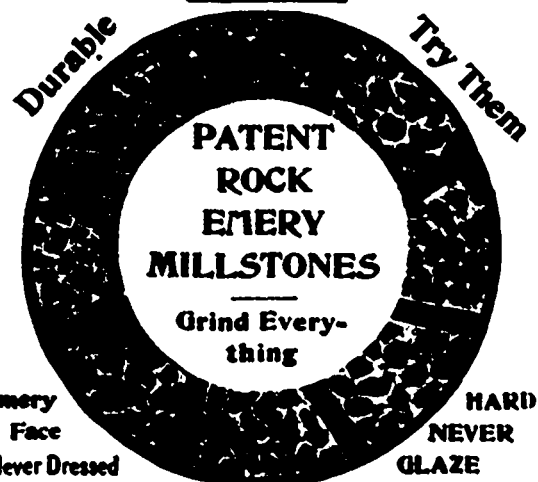
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offered to give \$5,000 per year for the maintenance of the new library which has just been completed. Mr. Redpath is a millionaire who accumulated his wealth by or through an incongruous feature of the tariff upon sugar. Previous to the so-called placing of free sugar upon the poor man's breakfast table, Mr. Redpath et al were obliged to ante up the duty upon raw sugar, which was subsequently recouped to them when the refined sugar was sold. Mr. Foster stated this amount to be some \$3,500,000 per year; and the interest thereon amounted to a snug sum to Mr. Redpath et al. This interest sum is now saved to Mr. Redpath et al because the duty on raw, unedible sugar has been withdrawn; and this amount should be added to the enormous profits Mr. Redpath et al continue to make on their refinery business. Mr. Redpath's liberality is not commensurate to what the tariff enables him to unfairly wring out of the people of Canada.

AFTER many months of weary waiting and most serious consideration His Excellency the Governor General in Council has been pleased to order that jewelers' sweeps and photographers' waste, when imported by Canadian refiners for the purpose of being refined in their factories in Canada, be admitted duty free.

GODEY'S MAGAZINE for November, is in the opinion of the publishers, the most attractive of any in the new series of this old-time favorite. It is rich in contents and illustrations. The complete novel is from the pen of Mrs. Amelia E. Barr, and is called "The Flowers of Gala Water." It is beautifully illustrated by Theodore Hempe. This number also contains illustrated articles on "A Holiday in Spain," by Floyd B. Wilson, and "A Pretty Mocking

of the Life," by Eola Willis. "New England's Children" is the thanksgiving story by George I Putnam, and there are sketches by J. M. Leverage and Oliver Bell Bunce. All the departments, including Godey's famous fashions, are excellent. The poems are by W. J. Henderson, Clark W. Bryan, Daniel Doane Bidwell, Sam King Wiley and others.

A FAMOUS man is always interesting when he tells how he did the thing which brought him his reputation, and there is a particular charm about Frank R. Stockton's narrative, which opens the November Ladies' Home Journal, of how he conceived and wrote his famous story, "The Lady or the Tiger?," what came of its writing, and the condition of his own mind at the present time of the correct solution of the story. Amelia E. Barr has a strong article in answering the question "Why Do Not Literary Women Marry?" which Octave Thanet cleverly supplements in a brief article, "But They Do Marry." Robert J. Burdette is at his best in pointing out what, in his opinion, is "The Task-mistress of Woman," while Will Carleton suggests his best poems in "Captain Young's Thanksgiving," which is accompanied by a characteristic illustration by Alice Barber Stephens. Palmer Cox has his funny "Brownies" in the polar regions. With this number the Journal is ten years old, and the issue is made, in a sense, a jubilee. The Journal is published by The Curtis Publishing Company, Philadelphia, for ten cents per issue or one dollar per year.

SCRIBNER'S MAGAZINE for November opens with a picturesque and amusing travel sketch by Colonel H. E. Colville, C. B., of the Grenadier Guards, in which he describes his experiences while "In Camp with the Katchins"—a tribe of cattle-raiding mountaineers, living near the Chinese frontier of Upper Burma. This region is held of much strategic importance by England, as the detail of Colonel Colville, one of the best known officers for such service, attests. Colonel Colville made an interesting series of photographs during his travels, from which Mr. A. F. Jaccaci has produced a most striking series of drawings. A distinctly American article is Isaac H. Bromley's contribution to the Historic Moments series, giving his recollections of the "Nomination of Lincoln." Mr. Bromley was present at the convention of 1860, and was a close observer of the stirring event described. Mr. F. N. Doubleday concludes his "Glimpses of French Illustrators" with accounts of

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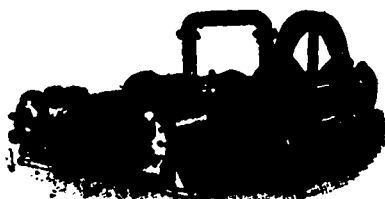
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the work of Renouard Kaemmerer, Berand, Flameng, Leloir, Formin, and other contemporary artists, with many effective examples of their work. In November, 1793, Madame Roland was condemned to death and executed as an author and accomplice in a conspiracy against the French Republic. The hundredth anniversary of that event is the occasion for a very clever paper by Ida M. Tarbell on "Madame Roland." The fiction of this issue includes two short stories by Octave Thanet and Martha McCulloch Williams.

OUTING for November is rich with the lore of sport in many lands. Football and yachting are, naturally, prominent features. The number is a strong one, and, of usual, is finely illustrated. The contents are as follows: "Imagination," by Edgar Fawcett; "Wild Sport in Costa Rica," by J. J. Peatfield; "The Dunworth Crow," by E. M. Weyer; "Down the Teche in a Cat-rig," by A. B. Paine; "Lenz's World Tour Awheel"; "Foot-ball, Retrospective and Prospective," by Walter Camp; "Duck Shooting in California," by Bruce Douglas; "The cradle of the English Cutter," by Capt. A. J. Kenealy; "Trapping and Home-made Traps," by Ed. W. Sandys; "A Fox-hunt on the Little Obed," by Minnie W. Armstrong; "The Government Scout," by Capt. Jack Crawford; "Team Racing," by S. Scoville, Jr.; "The National Guard of Pennsylvania," by Capt. C. A. Booth; "The Victory of the Vigilant," by Capt. A. J. Kenealy, and the usual editorials, poems, records, etc.

ZOOLOGY, electricity, education, hygiene, philosophy, mathematics and meteorology are all represented in the November Popular Science Monthly. Henry L. Clapp contributes an essay on

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"The Scientific Method with Children." Under the title of "The Pestalozzian System," Hon. George S. Boutwell reclaims for the schools of Massachusetts the credit for pioneer work in America that had been attributed to the Oswego Normal School by a writer in the Monthly for May. "An Argument for Vertical Handwriting," illustrated with cuts and facsimiles, is presented by Joseph V. Witherbee. The opening article of the number is a fully illustrated paper on "The Conservation of our Oyster Supply," by Robert F. Walsh. The writer shows that an oyster famine is threatening, and describes the modes of restocking depleted beds that are coming into use. The first half of the lecture on "Evolution and Ethics," delivered by Prof. Huxley at the Sheldonian Theatre, Oxford, is printed in this number. Charles M. Lungren's illustrated account of "Electricity at the World's Fair" is concluded, electric welding, cooking, heating, and the telautograph being described. In "Nature at Sea," the marine creatures seen on a voyage from the Bahamas to New York are described by Prof. F. H. Herrick, with illustrations. Other articles are "Laplace's Plan for Perpetual Moonlight," by Daniel Kirkwood; "Immaterial Science," by E. S. Moser; "Origin of the Mississippi Valley Rainfall," by J. H. Patton; "Mathematical Curiosities of the Sixteenth Century," by V. Brandicourt; and a "Sketch of John Ericsson," with portrait. The World's Fair and the Congress of Evolutionists are made subjects of editorial comments.

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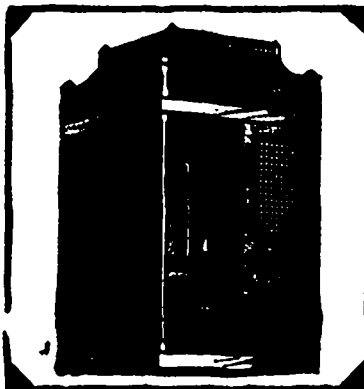
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# Inventions.

## CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from October 16 to October 25, 1893, inclusive.

Information in regard to any of these patents may be had free on application to **THE CANADIAN MANUFACTURER**, or copies of American patents corresponding to these, where the American patent has been previously granted, can be procured through us for the sum of twenty-five cents.

### MECHANICAL.

- 44,480 Pillow sham-holder, H. C. Wills, October 16th.  
 44,481 Drive chain, A. Warner, October 16th.  
 44,482 Tram car, A. Warner, October 16th.  
 44,483 Safety horse hitch, C. A. Conger, October 16th.  
 44,484 Furnace, T. E. Caddy, October 16th.  
 44,485 Carriage curtain fastener, A. Baker, October 16th.  
 44,486 Connection for belting and the like, A. W. M. Keen, October 16th.  
 44,487 Pulping and slicing turnips and mangolds, J. Irving, October 16th.  
 44,488 Steam motor, J. M. Richmond, October 16th.  
 44,489 Clothes pin, J. H. Hamilton, October 16th.  
 44,490 Lifting jack, J. B. DeLong, October 16th.  
 44,491 Railway track surfacing and tamping machine, M. A. Evans, October 17th.  
 44,492 Wire coupling, W. E. Banta, October 17th.  
 44,493 Boiler, J. C. Orr, October 17th.  
 44,494 Potatoe digger, W. O. Martin, October 17th.  
 44,495 Driving rein and tail holder, B. Blake, October 17th.  
 44,496 Spring shade roller, E. F. Hartshorn, October 17th.  
 44,497 Collar for animals, J. W. Hull, October 17th.  
 44,498 Saw attachment, H. C. Webb, October 17th.  
 44,499 Oscillating churn, J. R. & W. Semmens, October 17th.  
 44,500 Extensible structure adapted for use as a bridge, scaffold, tower or ladder and the like, J. O. Oakley, October 17th.  
 44,501 Holding mechanism for spring actuated shades, E. T. Burrows, October 17th.

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# PATENTS

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Counsel Work Undertaken in Patent Causes.  
 Patent Suits Prosecuted before the Courts.  
 Validity and Infringements of Patents Investigated.  
 Searches made. Assignments and Agreements Drawn. Advice on Patent Laws, etc.

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- 44,502 Disk sharpener H. Casoy, October 17th.  
 44,503 Rotary churn, T. D. Brock, October 17th.  
 44,504 Adjustable double disc harrow, H. Tallman, October 17th.  
 44,505 Railroad gate, J. H. Fitzgerald, October 17th.  
 44,506 Car coupling, J. Fischer, October 18th.  
 44,507 Cylinder and valve of steam compressed air and other reciprocating motors, A. Holmgren et al, October 18th.  
 44,508 Riding attachment for plows, W. E. & W. A. Stafford, October 18th.  
 44,509 Stop mechanism for spool carriers, L. Raffloet & C. H. Schott, October 18th.  
 44,510 Braiding machine, L. Raffloet & C. H. Schott, October 18th.  
 44,511 Velocipede drive wheel, Gendron Mfg Co. (Ltd) October 19th.  
 44,512 Calculating machine, American Arithmometer Co., October 19th.  
 44,513 Skate, R. Daine & B. Gladwin, October 19th.  
 44,514 Clearing railway tracks from snow and ice, R. A. Heady et al, October 19th.  
 44,515 Loading and unloading apparatus, E. Cardarelli, & G. W. Dick, October 19th.  
 44,516 Journal lubricator, W. H. Howell & W. G. Mallett, October 19th.  
 44,517 Shaft holder, J. Hill & D. Hamilton, October 19th.  
 44,518 Wash bowl, I. Melvaine, October 19th.  
 44,519 Hanger for trolley wires, G. H. Rieke & M. A. McGuire, October 19th.  
 44,520 Ointment, O. Destrempes, October 20th.  
 44,521 Metallic facing for buildings, L. L'Sugendorph, October 22nd.  
 44,522 Fire guard, R. W. Wyatt, October 22nd.  
 44,523 Binder, R. R. Vernon, October 22nd.  
 44,524 Axle box, W. L. Mills, October 23rd.  
 44,525 Plow, A. S. Seeley, October 22nd.  
 44,526 Wood split pulley, D. A. Sprinkle, October 22nd.  
 44,527 Chair seat, C. C. McPhee & J. E. Brock, October 22nd.

# INVENTORS!

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 44,529 Frame saw, N. S. Snell, October 22nd.  
 44,530 Cable arch support, S. D. Stephens, October 22nd.  
 44,531 Lantern, E. O'Keefe, October 22nd.  
 44,532 Watchmakers' tools, G. W. Cameron, October 22nd.  
 44,533 Bag holder, E. H. Ketchum, October 22nd.  
 44,534 Car coupling, G. W. Robertson, October 22nd.  
 44,535 Log drag, C. W. & G. J. Reichert, October 22nd.  
 44,536 Brush, W. M. Whitford & S. Cohen, October 22nd.  
 44,537 Stay travellers, K. Evans, October 22nd.  
 44,538 Baker's ovens, F. Duhkop, October 22nd.  
 44,539 Hydrant, R. A. Brooks, October 22nd.  
 44,540 Waterproof shoe, E. Roche, October 23rd.  
 44,541 Propeller, M. Davies, October 23rd.  
 44,542 Rafter bevel and scale, P. Williams, October 23rd.  
 44,543 Adjustable support for carrier rod or cable, M. T. Buchanan, October 23rd.  
 44,544 Attachment for shovels, spades and similar implements, T. Walsh, October 23rd.  
 44,545 Clamp, J. F. Harvey, October 23rd.  
 44,546 Gate, A. J. Russell, October 23rd.  
 44,547 Outside sash fastener, J. E. Dolber, October 23rd.  
 44,548 Portfolio, P. Kussner, October 23rd.  
 44,549 Holding device for cleaning uniform buttons, E. A. J. Meredith, October 23rd.  
 44,550 Railroad track lifting machine, J. H. Whitfield, October 24th.  
 44,551 Running implement, J. B. Beekly, October 24th.  
 44,552 Machine for melting snow and ice, R. A. Healy et al, October 24th.  
 44,553 Workman's time recorder, National Time Recorder Co., October 24th.  
 44,554 Form for holding shovel handles while being dried, W. H. Johnson, October 24th.

- 44,555 Tube cleaner, W. F. Bradbury & C. A. Harper, October 24th.  
 44,556 Hammerless breachloading fire arm, The Syracuse Arms Co., October 24th.  
 44,557 Furnace door, C. W. Rencau & J. A. Lewis, October 24th.  
 44,558 Cross cut saw, B. F. Moss & E. C. Atkins, October 24th.  
 44,559 Vise for milling machine planer, etc., T. A. Knowlton, October 24th.  
 44,560 Seal lock, D. F. MacCarthy & C. E. Lazier, October 24th.  
 44,561 Combined cap, pillow and life preserver, F. Frank, October 25th.  
 44,562 Cutting cards with bevelled edges for photograph mounts, etc., B. McHugh, October 25th.  
 44,563 Button, A. Hall, October 25th.  
 44,564 Windmill, J. Boisclair, October 25th.  
 44,565 Printing in colors, J. L. Davies, October 25th.  
 44,566 Suspender buckle, A. M. Ziegler, October 25th.  
 44,567 Forging and shaping small metal articles, J. B. E. Gomez, October 25th.  
 44,568 Thickness gauge for paper making machine, O. W. T. Am Ende Ball, October 25th.  
 44,569 Wrapper, J. J. Cochran, October 25th.  
 44,570 Surgical dilator, A. Beavis, October 25th.  
 44,571 Illuminating lense, M. J. Althouse, October 25th.  
 44,572 Sheet metal hook, E. Kempshall & W. R. Walkley, October 26th.  
 44,573 Steam shovel and excavator, The Vulcan Iron Works Co., October 26th.  
 44,574 Automatic flushing apparatus for water closets, T. McAvity & Sons, October 26th.

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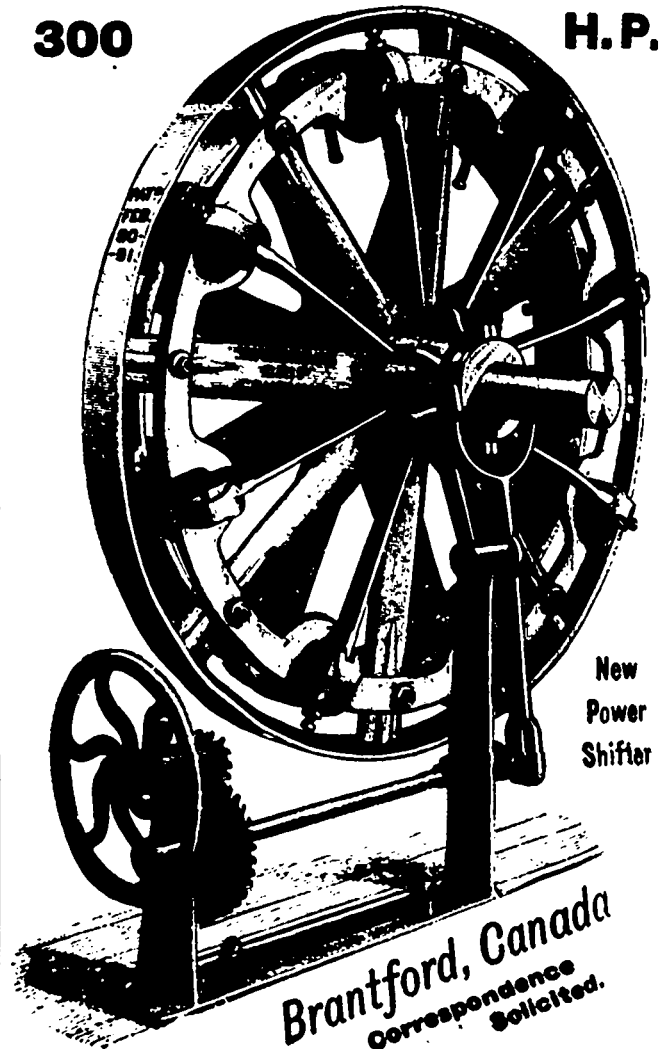
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## Captains of Industry.

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

The Vankleek Hill (Ont.) Electric Light Company will increase their capital from \$3,000 to \$10,000.

Messrs. Frost & Wood, agricultural implement manufacturers, Smith Falls, Ont., are placing a new 150-h.p. Wheelock engine in their foundry.

The Chatham Electric Light Co., of Chatham, N.B., are putting in a second Wheelock engine of 125 h.p., the one of 75 h.p. placed about two years ago having given splendid results.

Mr. J. Kink, of Sarnia, Ont., is throwing out his old slide valve engine, and putting in a new 125-h.p. compound condensing Wheelock engine from the Goldie & McCulloch Co., Ltd., of Galt, Ont.

The Canada Machinery and Supply Co., Brantford, Ont., dealers in new and second hand machinery, have received a large order for water wheels, machinery, electric power and lighting for the lumber mills at Cobden, Ont., near Ottawa.

The Chaudiere Electric Light Co., Ottawa, are placing two compound condensing Wheelock engines of 600 h.p. each, with six new steel boilers, in their power house, Chaudiere Falls, Ottawa, all from the Goldie & McCulloch Co., Galt.

Messrs. W. D. Spooner & Co., Montreal, manufacturers of dull and glazed dongola calf leathers, are enlarging and making important alterations in their factory and will also manufacture Russia and hardwood calf.

The Canadian Pacific R. R. Co have just placed Wheelock engines in their new elevators at St. John, N.B., and Quebec City, from Goldie & McCulloch Co., Galt.

Messrs. Dowling & Legiton, Harriston, Ont., have recently placed a 60-h.p. Wheelock engine in their furniture factory, from the Goldie & McCulloch Co., of Galt.

The Waterloo Woolen Mill Co. have just placed 3 new steel boilers and a 100-h.p. Wheelock engine, with all connections, from the Goldie & McCulloch Co., of Galt.

The Dominion Shirt Co., of Montreal, are placing a 50-h.p. Wheelock engine and steel boiler in their factory, from the Goldie & McCulloch Co., of Galt.

The St. Henri Chemical Company, with head offices at Montreal, is being incorporated, with a capital stock of \$50,000, to manufacture acids, alkalis, sales and chemical substances of all kinds employed in the useful arts, and especially refined and distilled glycerine. Messrs. Thomas C., Theron R. G. and Dwight Brainerd, Montreal, are to be first or provisional directors. Mr. James Watson, Hamilton, Ont., is one of the incorporators.

Wm. J. Matheson Co., Montreal, are calling attention to the diamine dyes manufactured by them, and which they say have the singular merit of dyeing cotton, wool and silk in an alkaline bath in one operation without a mordant, hence their great importance for mixed fabrics. Some of the shades are faster than alizarine.

The St. Jean Baptist Electric Light Co., Montreal, Que., are putting in a new 500-h.p. Cross compound Brown-Automatic engine, with cylinders 21 and 42 inches, by 48 inch stroke, built for them by the Polson Iron Works, Toronto.

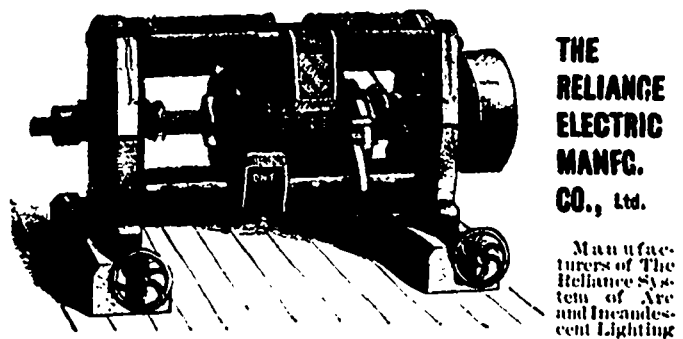
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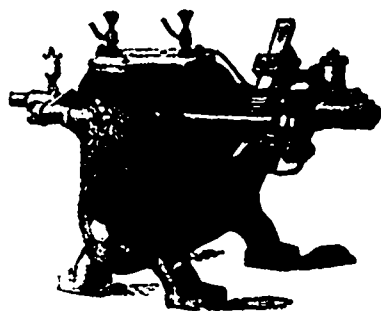
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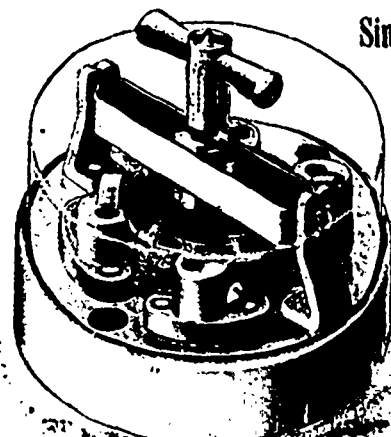
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**PERKINS' ELECTRIC SWITCH MFG CO.**

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For Sale by the Canadian General Electric Co., Toronto.

THE Coal Saving and Smoke Consuming Company, with headquarters at Montreal, are applying for incorporation, with a capital stock of \$50,000, to acquire the Canadian patent right for the manufacture of a certain chemical compound for combining with coal, and thereby consuming the smoke and gases caused by the combustion of the coal, and also materially increasing the heating power of coal. The business card of this company appears in another part of this journal. Mr. William Angus is president of the company, the Toronto office being at 36 King street west.

THE Hutt & Phillips Manufacturing Company, Toronto, are applying for incorporation, with a capital stock of \$50,000, to manufacture machinery for making paper pails, buckets, boxes, baskets, etc., and to manufacture such articles. James W. Hutt, Arthur J. Phillips, Wm. R. Draper, George Bengough and George A. Stimson are to be the first directors.

WM. J. MATHESON & COMPANY are applying for incorporation, with a capital stock of \$25,000, to manufacture, import and deal in dyes, dye stuffs, chemicals and chemical and medicinal preparations. The chief place of business is at 423 St. Paul street, Montreal. This is the Canadian branch of the large manufacturing and importing house of Messrs. Wm. J. Matheson, 178 Front street, New York, with works at Long Island City, near New York, whose business card occupies a prominent place in these pages.

THE saw mill of Messrs. Davidson & Davidson, at Cape Chin, Georgian Bay, near Lion's Head, was destroyed by fire Oct. 26th; loss, about \$4,000.

THE corporation of Bracebridge, Ont., have passed a by-law appropriating the sum of \$25,000 for the purpose of establishing a municipal waterworks and electric lighting plant.

JAMES H. ETHERINGTON, St. Catharines, Ont., has now got his carpet factory in very fine shape. He has built an addition which is used as a dye-house, which is very complete, having all the latest appliances, among which is an improved scouring machine, which turns out the yarn in first-class style free from all grease. He has also new boiler room and drying rooms. The factory is lighted throughout by electricity. There are 30 looms now running, and they have to work overtime in their endeavour to keep up with orders. He has also added some new machinery, one of Altemus' new twisters, spoolers and warpers, and one of their improved finishing and rolling machines.

MR. M. E. BONHAM, Brantford, Ont., is starting a factory for manufacturing a new patent lawn mower. He is now placing the machinery in position, and will be running by middle of November. He has put in an electric motor to furnish power.

THE Consumers' Cordage Company have just been informed that they have been awarded medal and diplomas for their very superior exhibit of cordage, twine, etc., at the Chicago World's Fair.

MESSRS. STAGG BROS. & Co., St. Catharines, Ont., manufacturer of hair cloth seating, crinoline lining, tailors' paddings, etc., have sent us a circular, in which they announce that their factory is fitted with the latest improved machinery, fitted up under their personal supervision, and they are now prepared to turn out the finest quality of work at the lowest possible prices. Their goods are all woven on the English principle, their cloth being uniform weight on both sides. Every detail of the business is subjected to their practical supervision, and satisfaction is guaranteed in every particular. We are informed that Messrs. Stagg Bros. & Co. have just placed 12 new looms in their factory, and have put in a Canadian turbine water power wheel.

THE Toronto Lock Company, Toronto, has been incorporated, with a capital stock of \$3,000, to manufacture locks, cabinet and builders' hardware, etc. Miles Vokes is one of the incorporators.

THE Robinson Carriage Manufacturing Company, of Coldwater, Ont., has been incorporated, with a capital stock of \$2,500, to manufacture wheel vehicles, sleighs, etc.

THE Whaley-Royce Piano Company, of Toronto, has been incorporated, with a capital stock of \$75,000, to acquire the business of Whaley, Royce & Co., and to manufacture pianos, organs, etc.

MESSRS. HAMMOND & LAKE, Hartney, Man., are placing in their flour mill a new 100-h.p. Wheelock engine and steel boiler, with all connections, from the Goldie & McCulloch Co., Ltd., of Galt, Ont.

MESSRS. BREITHAUP BROS. & HALL, Penetanguishene, Ont., are placing a new 75-h.p. Wheelock engine from the Goldie & McCulloch Co., Ltd., of Galt.

THE Carleton Place Electric Light Co., operated by Messrs. H. Brown & Sons, are placing a new 150-h.p. compound condensing Wheelock engine and boiler in their electric light station in Carleton Place, Ont.

# WHITING

ALL GRADES

IN LUMP, OR FINELY BOLTED, AND VERY DRY.

*English Cliffstone*

"WESTMINSTER" Brand

*PARIS WHITE*

ALSO IN LUMP OR FINELY BOLTED.

We are the Largest Manufacturers of these Goods in the United States and they are

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We give SPECIAL ATTENTION to the preparation of a BOLTED WHITING for use of Rubber manufacturers, and in Compounds for the Covering of Electric Wires.

Shall be pleased to send Quotations and Samples when desired.

**The H. F. TAINTOR MNFG. CO., 281 Pearl St., New York**

The Geo. F. Blake Manufacturing Co., Boston, have given the contract for the four large boilers for the Toronto Waterworks to Messrs. John Inglis & Son, Toronto.

The Reliance Electric Manufacturing Company, Waterford, Ont., have made the following recent sales: Prescott Electric Light Co., one 100-light alternating current incandescent plant. The Ontario Government, for Central Prison, Toronto, one 35-light dynamo and 35 arc lamps; and one 200-light direct current incandescent plant. The Parkhill Electric Light Co., one 30-light arc dynamo. The Canadian Oiled Clothing Co., Port Hope, one 50-light incandescent plant. Warton Electric Light Co., one 60-light arc dynamo. Watford Electric Light Co., one 40-light arc dynamo. New Hamburg Electric Light Co., one 15-light arc dynamo. The Sutton Electric Light Co., Simcoe, Ont., one 750-light alternating current incandescent plant. The Slingsby Manufacturing Co., Brantford, Ont., one 200-light direct current incandescent plant. In addition to the above the Reliance Company have recently sold a large number of stationary motors.

The Brockville Electric Light Co., Brockville, Ont., will install a new tandem compound engine, now being built for them by John Inglis & Son., Toronto.

Messrs. John Inglis & Son, Toronto, have supplied all the machinery for a new 50-barrel flour mill at Little York, Ont., for Mr. Campton.

Wm. LAUKISS, Freelon, Ont., is building a new steam flour mill.

THOMAS VOLLENS, Windsor, Ont., gave the contract for his new 150-barrel flour mill to Messrs. John Inglis & Son, Toronto.

Messrs. H. C. BARD & SOX., Parkhill, Ont., are increasing their electric plant by the addition of a 28-light Reliance arc dynamo.

MR. CHARLES ERNST, New Hamburg, Ont., is adding a 15-light Reliance arc dynamo to his electric plant.

The Warton Electric Light Co. have added a Reliance 50-light 6 ampere machine to their plant.

The Calvin Company, Garden Island, have bought a large Scotch marine boiler, weighing 35 tons, from John Inglis & Son, Toronto, for the new steamer they are building.

MR. JOHN N. LAKE, president of the American Watch Case Co., has purchased enough land on the Hamilton (Ont.) Mountain to build an inclined railway and provide a public park. The railway will be operated by electric power, and will run from one of the principal streets to the park on top of the mountain, thus enabling visitors to have a splendid view of the city and surrounding country. Plans are now being perfected, and work will be commenced in the spring and pushed to an early completion.

The Central Prison, Toronto, have put in a 300-light incandescent and a 35-light arc plant, made by the Reliance Electric Co., Waterford, Ont.

Messrs. CARMAN & BROUSE, Prescott, Ont., have put in a 100-light Reliance alternator.

The Canadian Oil Clothing Co., Port Hope, have put an electric light plant in their factory, supplied by the Reliance Electric Co., of Waterford, Ont.

The Ontario Box Co., of Hamilton, are placing a new 75-h.p. Wheelock engine in their factory, from the Goldie & McCulloch Co., Galt.

The Ontario Agricultural College, Guelph, Ont., are placing a new 30-h.p. Wheelock engine in the dairy department, from the Goldie & McCulloch Co., Galt.

Messrs. DOHERTY & Co., Clinton, are placing a new 50-h.p. Wheelock engine in their factory, from the Goldie & McCulloch Co., Galt.

J. R. VANFLEET, of Brantford, Ont., is placing a new 30-h.p. Wheelock engine in his planing mill, from the Goldie & McCulloch Co., Galt.

The F. E. Dixon Belting Co'y, Toronto, are applying for incorporation, with a capital stock of \$30,000, to take over the leather belting manufacturing business of Messrs. F. E. Dixon & Co., and continue the same. The applicants for incorporation include Messrs. Walter D. Beardmore, George W. Beardmore and Alfred O. Beardmore, all of Toronto. Mr. F. E. Dixon, who is an expert manufacturer of leather belting, will be manager for the new company.

MR. A. C. NEFF, Chartered Accountant, having left the employment of The T. Eaton Co., where he has had the financial and office management for over two and a half years, and is returning to his profession as an expert accountant. Mr. Neff will do anything an accountant can do, but makes a speciality of auditing and investigating account books. His address is 174 Mutual Street, Toronto.

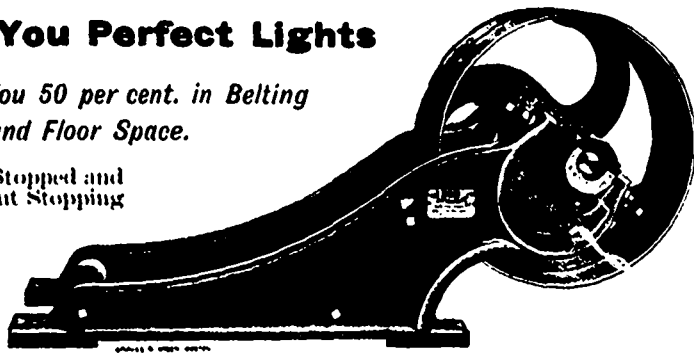
## L. P. D. TRANSMITTER FOR DRIVING DYNAMOS

Will Give You Perfect Lights

Will Save You 50 per cent. in Belting and Floor Space.

Dynamo can be Stopped and Started without Stopping Engine.

It is used by some of the largest companies in Canada and the States.



**DARLING BROS., Reliance Works, Montreal**  
Sole Makers for Canada.

WE MANUFACTURE

## FANS FOR NOTHING

but hard work, and having had twenty years experience we know how to get steam out of

Dye Houses and the largest possible Dry Rooms

Our Compound Wheel is the most powerful in the world, and if we can't be of actual value to you we don't want your money.

Send for Circular and Information **BARNEY VENTILATING FAN CO., 70 Pearl St., Boston, Mass., U.S.A.**

**CANADIAN OFFICE & SCHOOL FURNITURE**  
PRESTON, ONT.

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



Mr. J. V. OBERHOLZER is building a factory opposite the G.T.R. station, Berlin, Ont., which will be used by him in manufacturing slippers and shoes.

The Calvin Company, Garden Island, near Kingston, Ont., are building a steam tug for the lake and river trade, 115 feet long and 24 feet beam. The engines are being built in the company's shops at that place, the boiler being under construction by Messrs. Doty Bros. & Co., Toronto.

The Cant Bros. Company, of Galt, have just brought out a three-cylinder sandpaperer, which, they claim, is one of the greatest labor-saving machines ever brought out for wood-work, and which all well-appointed finishing factories, sash, blind and door factories or furniture factories would do well to have. In every detail the machine is simple, compact, easy to adjust, of great strength and durability, producing work more perfect and uniform than can be done by hand. There are three sand cylinders. The first has a cutting action; the second, finishing; the third, polishing; and each is independently adjustable to any desired cut. The feed is effected by eight geared feed rolls, so placed as to make the sanding of very short stock practicable. The upper feed rolls can adjust themselves so as to admit stock varying in thickness from  $\frac{1}{8}$  of an inch to 4 inches. There are three upper pressure rolls, one for each drum, and these can be adjusted separately by means of conveniently placed handwheels. The drums are provided with a simple fastening device which holds the paper securely, and which will admit of taking up the stretch which will occur in the paper. All are properly balanced, and run on steel shafts provided with lathed boxes. Any drum can be raised or lowered independently of the others to any desired cut, without stopping the machine. The brush cylinder is a very valuable addition to the machine, as it removes all dust or loose fibre from the finished work, so that it is at once ready for painting or varnishing. The machine operates equally well on all kinds of timber, hard or soft, cross-grained or straight.

# Machinists' Fine Tools

Drills, Chucks, Reamers, Etc.

WILEY & RUSSELL  
Screw Cutting

## TOOLS

RICE LEWIS & SON, Ltd.

TORONTO

# Dominion Wire Manufacturing Company

MONTREAL AND TORONTO.

Wire Drawers, Galvanizers

AND

MANUFACTURERS OF

IRON WIRE BRASS  
STEEL WIRE COPPER

FOR ALL PURPOSES

Also

Steel and Brass Wood Screws, and  
Wire Nails.

Crescent Coat and Hat Hooks, Steel and  
Brass Jack Chain.

2 and 4 POINT BARS and PLAIN TWIST FENCING.

WRITE FOR PRICES AND DISCOUNTS



The Ontario Malleable Iron Company, Oshawa, Ont., are erecting a new building in connection with their works 300 feet long and 60 feet wide.

Messrs. P. FREYSING & Co., Toronto, manufacturers of coal goods, are erecting a three-storey addition to their works at a cost of about \$5,000.

Messrs. FERGUSON & PATTERSON, Preston, Ont., have been making improvements to their woollen mills by the addition of another Monarch economic boiler and some new dryers. They have also built another large smokestack, and are now contemplating equipping their mills with electric light throughout.

Messrs. NEWLANDS & Co., Galt, Ont., have built an extensive addition to their factory, and added a quantity of new machinery, which is now being placed in position.

Messrs. JAMES WARNOCK & Co., Galt, Ont., are building a brick front to their axe factory.

Messrs. JOHN INGLIS & SON, Toronto, are putting in a new plant for boiler making. Among the new machinery is a hydraulic rivetter with hydraulic crane connected, which will enable this firm to turn out work much quicker than before.

JAMES PARIS, White Lake, Ont., has just put up a 50-barrel flour mill, Messrs. John Inglis & Son, Toronto, supplying the machinery.

Messrs. BENNETT & WRIGHT, Toronto, are installing an electric light plant at the Asylum at Mimico, Messrs. John Inglis & Son furnishing a 75-h.p. engine and 100-h.p. boiler.

# A Pocket-Book for Pharmacists


By Thomas Bailey. Full of valuable tables and memoranda. 288 pages, 32mo, limp roan. English Pharmacopoeia. Mailed free to any address on receipt of \$1.00.

SPON & CHAMBERLAIN, 12 Cortlandt St., New York

MAGNETIC METAL

## SEPARATORS

(B. FITT'S PATENT).



For Separating Iron Turnings, Filings, etc. from Brass and other metals.

Made in Two Sizes . . .

Price, No. 1, \$135; No. 2, \$225

No. 2 is more than double the capacity of No. 1.

Built by **EZRA SAWYER, WORCESTER, MASS.**

# REHM'S DUPLEX STEAM TRAP

Sent on 30 days' trial.



Sent on 30 days' trial.

Absolutely Perfect

## THOS. DOWN & CO.

28 AND 30 DALHOUSIE ST., TORONTO, ONT.

FINE BRASS CASTINGS.

Sensitive, Adjustable

Sole Manufacturers for the Dominion

A Trial Order Solicited.

The rapid labelling machine recently patented by Mr. W. G. Tretheway, of Mission, B.C., is being adopted by leading canners in that province, and the inventor hopes shortly to induce Californian, Chicagoan and Kansas City canners and meat packers to also test his machine, which, it is claimed, will do the work of 16 men and label over 30,000 cases daily.

MESSRS. THOMAS LAWREY & SONS, Hamilton, Ont., have been making alterations to their pork-packing works, and have added some new machinery, among which is a very large tankage press, built for them by Nic & Whittfield, that city.

The Breithaupt Leather Company, Berlin, Ont., have had to build an addition to their warehouse near the station on account of increase of business.

Mr. A. J. SYER, Wyoming, Ont., has recently added a new set of cards in his woollen mill, and also put in other machinery, extensive alterations and repairs having already been done in his mill.

The Curtain and Upholstery Manufacturing Co., Guelph, with Mr. Alvin Burrows as manager, is a new concern starting at to manufacture chenille curtains, table covers, upholstery trimmings, buggy wraps, etc. Mr. Burrows has for the last seven years been a member of the Royal Carpet Company, Guelph, and has severed his connection with them to start this new industry. The machinery, shafting, etc., is now being placed in position, and they expect to be running by the latter part of December. They will use electricity as a motive power.

The additions and alterations to the Waterloo Woollen Company's mills, Waterloo, Ont., are now completed, and the new machines are nearly all in position. The new dyehouse is 80 x 45 feet, and the weaving room, 150 x 75 feet, is one of the most complete and best arranged in the country. The mill is lighted by electricity throughout.

MESSRS. J. Y. SHANTZ & SONS, Berlin, Ont., manufacturers of dress buttons, have bought and moved into the factory formerly owned by the Crompton Corset Co. in Berlin. They have added a new boiler and engine room, and will shortly build an addition as a warehouse.

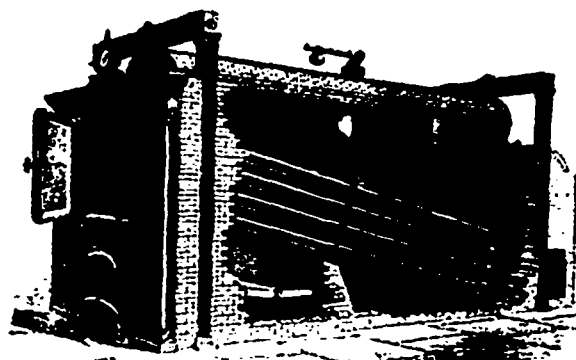
MESSRS. JOHN BERRAN & SONS, proprietors of the Canada Tool Works, Dundas, Ont., have just built and shipped to the Nova Scotia Steel and Forge Company, at New Glasgow, N.S., what is perhaps the largest turning lathe ever built in Canada. It is intended for turning steamboat shafts and similar work. It will accommodate work 34 feet long and 5 feet diameter. The total weight is 68,000 pounds.

The corporation of St. John's, Que., have voted a bonus of \$20,000 to the St. John's Stone Chinaware Company, the company agreeing to increase its paid up capital to \$100,000, and to give constant employment to an average of 150 hands.

MESSRS. GALMARTH & Co., Guelph, Ont., are putting in a new boiler, dye plant and extractors into their knitting mill, and also a complete system of steam heating.

MESSRS. CLARK, SKILLING & Co. will erect a mill at Newcastle, N.B., for cutting spool wood.

MESSRS. HUGH LEONARD, as president, and G. B. Loomis, as secretary-treasurer, have formed a company at Sherbrooke, Que., to extract or separate asbestos from the rock in which it is found by a patent process. It is said that the refuse matter from asbestos workings will pay well for working by this process, and the material obtained is valuable for felting and other purposes when a long fibre is not essential.



The Babcock & Wilcox Co.

WATER TUBE STEAM BOILERS

Now being manufactured in Canada

Agents for the Dominion

A. HOLDEN & CO.

Waddell Building - 30 St. John St., MONTREAL

Send for book "STEAM" free on application.

THE CANADIAN

COLORED COTTON MILLS CO.

FALL, 1893

Ginghams, Zephyrs, Cheviot Suitings, Flannel-ettes, Dress Goods, Skirtings, Oxfords, Shirtings, Cottonades, Awnings, Tickings, Etc.

NOW READY : See samples in Wholesale Houses

D. MORRICE, SONS & CO., Agents

MONTREAL AND TORONTO

**"STARR"**  
Incandescent  
Lamps



HAVE NO SUPERIOR  
UNRIVALLED QUALITY  
HIGH EFFICIENCY MOST ECONOMICAL  
FULL CANDLE POWER LONG LIFE CHEAP

The "Starr" Lamps are Made of any Candle-power and Voltage, and with bases to suit the different sockets in use. The quality of these Lamps is unsurpassed, and users of Lamps will find it greatly to their interest to give them a trial. They have a long life, give out full-rated Candle-power, and do not blacken.

QUOTATIONS GIVEN ON APPLICATION

Stating Candle-power, Voltage, Base, and quantity wanted.

These Lamps are packed in an improved manner, each Lamp being done up in a separate package, with particulars stamped on the outside. This renders them most convenient to handle, and avoids breakage. They can also be packed in smaller compass.

CORRESPONDENCE SOLICITED.

John Starr, Son & Co., Ltd.

Manufacturers and Dealers  
in Electrical Apparatus and Supplies

HALIFAX, N.S.

THE Storey Washing Machine Company is being incorporated at Ottawa, with a capital stock of \$25,000, to manufacture washing machines, wringers, mangles, etc.

THE Teller Envelope Company, of Toronto, is being incorporated, with a capital stock of \$250,000, to manufacture envelopes, paper boxes, etc. Messrs. John R. Barber, John F. Ellis and L. P. Bouvier are named as being incorporators.

THE Norway Cabinet Company, Norway, Ont., is being incorporated, with a capital stock of \$20,000, to manufacture furniture, etc.

JOHN BURK's planing mill at North Bay, Ont., was destroyed by fire October 24th, which, with the lumber also destroyed, was valued at \$50,000.

MESSRS. MUNROE, BROS., New Glasgow, N.S., are in receipt of another large order for their improved car seats for cars on the Intercolonial Railway.

MESSRS. TAYLOR & Co., whose woollen mill at Merritton was burnt out last spring, have now rented a building in St. Catharines, and are putting machines in place, and expect to be running before the end of November.

MESSRS. WRIGHT & CUNNINGHAM, St. Catharines, Ont., have secured the right of manufacture for the Dominion for Gillie & Goderich's patent steam merry-go-round.

THE Hamilton Vinegar Works, Hamilton, Ont., have put a duplex tank pump in their works, built for them by Messrs. Nie & Whitfield, that city.

MR. J. F. DAVIS, Hamilton, Ont., is giving up the manufacture of granite ware, which he has carried on for the last five years, and is going into the manufacture of small specialties and electro plating.

THE Vancouver and New Westminster Electric Tramway and Lighting Company, whose headquarters are at Vancouver, B.C., has been formed, with a capital stock of \$2,500,000, to take over the property and franchises of the two tramway companies in those cities. The new company will control all of the existing tramway accommodation of the two cities and intermediate district, and also the public lighting of Vancouver. The incorporators of the company are Messrs. D. Oppenheimer, B. Douglas and P. N. Smith.

THE McKinnon Dash & Hardware Co., St. Catharines, Ont., who are adding the manufacture of suspender buckles, clasps, etc., to their present business, have purchased about \$10,000 worth of new machinery for that purpose, which is now being placed. They are busy making dies, and will shortly have everything in readiness to start up this new branch.

THE Grant, Lottridge Brewing Co., Hamilton, Ont., have bought a 70-h.p. Armington & Sims engine from Nie & Whitfield for their brewery.

MESSRS. MUNRO BROS., New Glasgow, N.S., have sent us their new illustrated catalogue, having reference to the wire goods manufactured by them. Mention is made of the Queen, Royal, New Hotel and Cottage wire Spring mattresses, wire gates for lawn, garden and farm use; picket wire fencing, window guards, flower stands, wire window and door screens, reversible steel wire door mats; wire work for banks, offices, counters, etc.

THE Warman Railway Dust Collar Company is being incorporated, with headquarters at St. John, N.B., with a capital stock of \$50,000, to manufacture the Warman patent dustguard and oil saver for railroads. Mr. W. A. Warman, of Moncton, N.B., is the patentee and one of the incorporators.

## WANTED

Address of Manufacturer of Machine for WIRE STITCHING STRAWBERRY BOXES. Address,

CANADIAN MANUFACTURER,  
CANADA LIFE BUILDING, TORONTO.

## SITUATION WANTED.

A young man with several years' experience in Book-keeping, and who for a few years has had charge of the office of a manufacturing institution, is open for a situation. Owns and operates a Remington Typewriter. References unexcelled. Address, "Bookkeeper," care Canadian Manufacturer.

# Dodge PATENT Wood Split Pulleys

33 <sup>1</sup>/<sub>3</sub> Per Cent. More Power  
with Same Belt  
Over  
Iron or Steel Pulleys



50 to 75 Per Cent. Lighter  
Than  
Iron Pulleys  
and Much Cheaper

Remember that every Pulley is fully guaranteed by us. Rim of our Pulley is Thoroughly Nailed, as well as being glued and pressed up, making it the only perfect Wood Pulley made. We fill all orders on day received. We solicit your orders knowing we have the best Wood Split Pulley in the World. Send for Catalogue.

## THE DODGE WOOD SPLIT PULLEY COMPANY

Office and Warerooms

68 KING STREET WEST, TORONTO

REFERENCE is made elsewhere to the bulletins issued regularly by Messrs. Wm. J. Matheson & Co., New York, giving information of the dyes, etc., manufactured by them, and which they will send on application to dyers who may require them; and also a suitable case in which the bulletins may be kept. In their last bulletin, addressing themselves to dyers, they say:—We respectfully suggest that you submit the within dyed samples to any tests required of the goods which you manufacture, and advise us in what respect they come short. For this purpose we can send you larger dyeings if you desire. We will be glad to dye on your own goods (if you will send us a sample) any shade of color you are interested in, and return the dyed sample to you with recipe. We manufacture the highest grade of logwood, fustic, sumac and indigo extracts, as well as chip logwood, and shall be glad to send you samples and quote you prices. We are sole agents and proprietors of the U. S. patents for the celebrated Diamine dyes manufactured by Leopold Cassella & Co., which have the property of dyeing cotton or mixed goods in an alkaline bath in one operation without any mordant.

MESSRS. MEXRO BROS., New Glasgow, N.S., have just taken out a patent for a new style of buggy seat cushion which they say will revolutionize road travel. It consists of a combination of woven and spiral wire springs so adjusted as to form a cushion, which when properly covered gives a seat which affords the greatest possible comfort. It does away with upholstery to a large extent besides giving a cushion which is light and not liable to be affected by dampness. It is especially applicable to overcoming the horse motion of road carts. At the recent Toronto Fair this cushion was exhibited for the first time, and attracted the attention of carriage manufacturers. An evidence of its merit is the fact that it has been selected to go in a magnificent cart now being built for the Duchess of York by Wm. Ramsey, of Orillia, Ont.

The Canada Machinery and Supply Co., of Brantford, Ont., dealers in new and second hand machinery and mill supplies have purchased the engines, boilers and machinery in McLaren's saw mills, tub and stove factories at Snake River and Oscola.

The planing mill and box factory of the Georgian Bay Lumber Company at Midland, Ont., were destroyed by fire Oct. 25, loss about \$12,000.

MESSRS. Wm. J. MATHESON & Co., New York, have sent us a bulletin having reference to the Hemolin and Morin yellow manufactured by them. Regarding these dyes they say:—Hemolin, patented, is the only color yet discovered that has all the advantages of logwood and none of its inconveniences. It is a perfectly soluble dry crystalline powder of great tinctorial power. A barrel of Hemolin weighing 200 to 300 lbs. will do more and better work than a ton of chip logwood. Morin Yellow, patented, has the same advantages over fustic that hemolin possesses over logwood. These two products with our dry concentrated alizarin red, when used alone or in combination with each other, will produce nearly all of the staple shades required in a woolen mill. They dye evenly at the boil on a chrome and tartar preparation shades that are fast to fulling, and as fast to light as colors dyed by any of the old bulky and troublesome vegetable dyes. The bulletin contains samples of yarns dyed with these dyes, which indicate some of the uses of them. Messrs. Matheson & Co. issue these bulletins regularly which they will no doubt take pleasure in sending to those to whom they would be of value; and they have prepared a case for filing and preserving them, which admits of easy reference to any of them. These cases will be sent on application to those to whom the bulletins are sent.

The Richelieu and Ontario Navigation Co. will immediately rebuild its workshops in Sorel, Que. The corporation has offered exemption from taxes and a percentage on wages paid out for the next twenty years, which offer has been accepted.

MESSRS. HAMELIN & AYERS, Lachute, Que., have purchased the machinery of McClymont & Co.'s woolen mill at Ottawa, which is to be put in the extension they are building at Lachute.

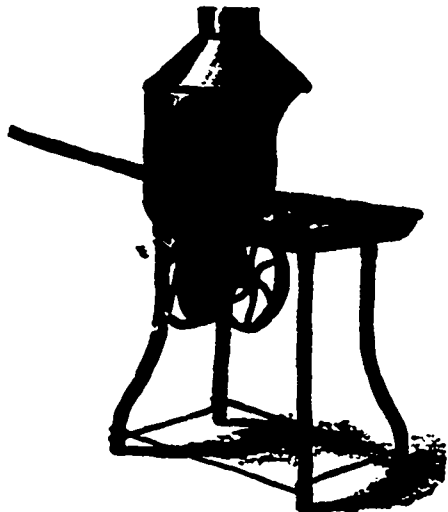
MENTION was recently made in these pages of the destruction by fire of the glue factory and shoddy mills of Mr. J. T. Huber, at Berlin, Ont. Mr. Huber has purchased the J. Cluthe flour mill at Doon, Ont., which he is now fitting up for the purposes of his business.

MESSRS. W. BOUTLER & SOSS, proprietors of extensive canning factories at Picton, Ont., have leased for a term of years a large building on Esplanade street to be used as a factory for canning fruits, vegetables, etc., giving employment in season to about 200 hands.

## The Sturtevant IMPROVED PORTABLE FORGES

TWENTY-FIVE SIZES AND STYLES

HAND POWER  
AND  
BELT POWER **Hand Blowers**  
For FORGES



## The Sturtevant STEAM FANS

FOR

**Boiler Fires**

FORCED OR INDUCED DRAUGHT

### THE STURTEVANT

Blowers and Exhausting

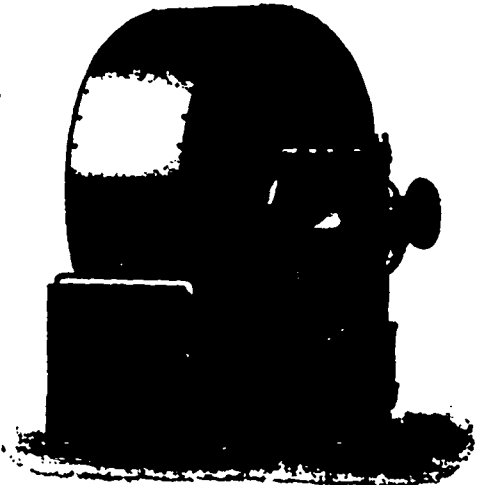
**FANS**

Known as the Monogram Pattern.  
For Blowing Boilers and Fires, Exhausting  
Dust and Gases.

SEND FOR CATALOGUES

**B. F. STURTEVANT CO.**

BOSTON, MASS., U.S.A.



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# **THE HAWORTH BELTING CO.**

**MANUFACTURERS**

**OFFICE AND FACTORY : 9 AND 11 JORDAN STREET**

**TORONTO**

---

One of the oldest flour millers in Canada is Mr. James Goldie, of Guelph, Ont.; and one of the best known flour mills is the Goldie Peoples' mill in that city. A Guelph paper, speaking of recent improvements in that mill, says:—Foremost for many years in this part of Ontario, the Peoples' mills still keep abreast of the times in the evolution of the milling trade. Mr. Goldie was among the first to introduce the roller process, and as improvements have since been effected he has not been slow to adopt them. The increasing competition and the consequent necessity of economizing power and fuel, and obtaining the largest possible output at the least possible expense, induced Mr. Goldie this summer to thoroughly renovate his mill. Most interesting possibly of the many new features in the mill is the magnificent Wheelock cross compound engine put in by Goldie & McCulloch, of Galt. It is 350 horse-power, and by far the largest engine in Guelph. The fly-wheel alone weighs thirteen tons. This engine is more than sufficient for the present needs of the industry. Mr. Goldie is looking to the future. Half the mill by the new arrangement of rolls is almost vacant and when the time comes to increase or mayhap double the capacity there will be no necessity to increase the power. When there is a high pressure of water the engine is not used at all, the water-wheels being fully sufficient to operate the entire mill. The economy of the improvements may be realized when it is stated that 150 more barrels can be turned out now in twenty-four hours with less steam than formerly. The capacity of the mill is now 600 barrels per day, and both the water and steam power can be used separately or conjointly. Fourteen double set of Goldie & McCulloch's improved rolls have been put in and are arranged in two rows on one side of the floor. These run 200 revolutions a minute faster than the old rolls and are longer by six inches. The elevators are

all perpendicular and compactly arranged within a small space. With the old style of elevator the dust has gone. The grinding floor of this immense mill is almost as free from dust as an uptown store. In the upper flats new wheat-cleaning machinery has been put in. The garret, usually a sweat hole in a flour mill, is a large, well-lighted clean and airy apartment. By raising the roof several feet a much greater pitch is given to the elevators and less power consequently needed to drive them. Goldie & McCulloch, of Galt, had the contract for putting in the new machinery and they have done their work well.

Messrs. O. KARTZMARK & Bro., electrical and mechanical engineers, Hamilton, Ont., have sent us a circular in which they announce that they have taken over the business of the late Mr. Geiss, and have added an electrical department. They are practical mechanics and electricians, having had 17 years' experience in New York in the best electrical factories. They are prepared to take orders for all kinds of mechanical and electrical work, experimental work, model making, designing and manufacturing of fine machinery and tools. They are also agents for the Dominion for the celebrated Victor electric fuses and electric pull-up blasting machines.

Messrs. BUTTERFIELD & Co., Rock Island, Que., who are well and most favorably known to the machinists and hardware trade of Canada, particularly as manufacturers of Recco's screw plates and screw cutting tools, now include in outfits of those goods a tap wrench which goes without extra charge.

MR. LEO WHITTON, of Brighton, Ont., said to be the largest man in the world, weight 716 pounds, when recently in Toronto ordered a Maltese Cross mackintosh from the Toronto Rubber Co. Mr. Whitton measures over seven feet around the waist. His mackintosh is made of the finest material finished in the highest tailor's art and is without doubt the largest mackintosh ever made. The Toronto Rubber Co. had this garment on exhibition for a few days at their warehouse, 28 King street west, where it excited much interest.

# THE GRIFFIN MILL

The Only Perfect Pulverizer

or  
**QUARTZ,**  
**GOLD**  
**OR SILVER**  
**ORES,**  
**PLUMBAGO,**  
**PORTLAND**  
**CEMENT,**



or  
**PHOSPHATE**  
**ROCK,**  
**FOUNDRY**  
**FACINGS,**  
**And All Other**  
**Refractory**  
**Substances.**

Will work either wet or dry, and deliver a finished product. Capacity, 3 to 4 tons per hour on Phosphate Rock, 1½ to 2 tons per hour on Portland Cement, Quartz or Ores, depending on hardness of material to be pulverized and fineness of product. Grinds from 20 to 250 Mesh with equal facility.

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

Correspondence solicited, and illustrated descriptive pamphlet furnished on application to

**BRADLEY FERTILIZER CO., 92 State St., Boston, Mass.**

## WANTED

Machine for the Manufacture of  
**MATCH SPLINTS**

New or Second-hand.

With Wargers that will Cut Eighth or Tenth

GEORGE R. WEST, Mount Holly,

P. O. Box, 431.

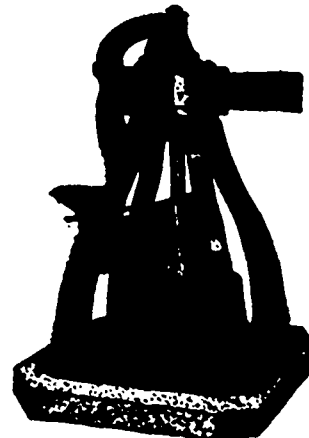
New Jersey, U.S.A.

# THE GRIFFIN MILL

IN CANADA

IS MANUFACTURED AND SOLD ONLY BY

PULVERIZES PORTLAND CLINKER, NATIVE  
 CEMENT, GOLD AND SILVER ORES,  
 PLUMBAGO.



PULVERIZES PHOSPHATE ROCK, FOUNDRY  
 FACINGS & REFRACTORY SUBSTANCES  
 OF ALL KINDS.

## The Jenckes Machine Co.

SHERBROOKE, QUE.

Branch Office - 70 VICTORIA SQUARE, MONTREAL

CORRESPONDENCE SOLICITED

**HEMOLIN.**

NOVELTIES in coal-tar dyes appear now so rapidly that they cease to excite surprise, but in the case of the old and well-known natural dyes a novelty at once arrests attention, because one naturally supposes that chemists and manufacturers have long ago exhausted themselves in trying to improve them. There are no substances more familiar in the dye-house than logwood extract and logwood chips. The extract in its liquid, sticky state has long been an unmitigated nuisance. It is easily injured by extremes of heat and cold, it ferments easily, especially when loaded up with glucose and other similar "reducers," it leaks from the barrels, and cannot well be entirely removed from them. It is awkward to handle, difficult to weigh out with accuracy, and at every step involves trouble, loss and vexation. The solid extracts, which are made by further evaporation, are difficult to cut up, and afford an excellent opportunity for the manufacturer to work off all of the waste products of his works. Like the liquid extracts they are practically insoluble in cold water, and are even more difficultly dissolved in hot water. As a rule, the extract contains so much resinous matter that the solutions on cooling become turbid and filled with muck. The chip wood is extremely bulky, and needs to be extracted before it can be used, which is too antiquated a method to be entertained in a modern dye-house.

But in spite of all these objections, logwood has held its own in certain kinds of dyeing against the artificial dyes because of the relative cheapness of the color. Logwood is without doubt the cheapest dye there is. An objection, however, to its use as a dye is due to the fact that it contains two substances, haematoxylin and haematein, the former a color principle and the latter a color. The behavior of these two substances requires a much more exact adjustment of the dyeing process than is usually attained. And hence a method, which works well with one extract, often fails with another, and this is a source of continual perplexity in the dye-house.

The appearance, therefore, of a new logwood dye in the form of dry and friable powder, having an exact and constant composition, and soluble in cold water without appreciable residue, in fact resembling both in appearance and behavior an artificial dye, is a matter of unusual interest. In this novel condition it has recently appeared under the name of Hemolin, and is rapidly displacing the older logwood products. It is produced by a process invented by Prof. Peter T. Austen, an American chemist. The great power

may be appreciated from the fact that 200-300 pounds of it will do more and better work than a ton of cured or chip logwood. As it comes in the form of a dry powder, there is no difficulty or loss in shipping and handling it, it is not fermentable or affected by heat, cold or moisture, and it can be accurately weighed out. It is free from resinous matter and gives a clear solution in even cold water. In hot water it dissolves instantly.

Dyeing with Hemolin is conducted in about the same way as with logwood, except that much less of it is required to give the results sought. It is easily reduced by reducing agents such as sulfurous acid, zinc dust and acetic acid, etc., to a colorless dye principle, which again is easily oxydized to a rich color, properties which will undoubtedly soon find application in dyeing.

On wool mordanted with chrome and tartar, or with chrome alone, it gives a light blue. With 2 per cent. a fine dark blue is obtained. A superb black is reached at 8 per cent. By adding small amounts of yellow and red coloring matters, jet blacks of unusual intensity are produced. The addition to the dye-bath of one pound of acetic acid for every four pounds of Hemolin gives a brighter, bloomier and stronger color.

A fine black can be obtained without previous mordanting, by making up the dye-bath with the proper mordants. Thus an excellent black is obtained by boiling white wool for an hour in a bath consisting of:

Hemolin	-	-	-	7-10 per cent.
Copperas	-	-	-	4 "
Bluestone	-	-	-	3 "
Oxalic Acid	-	-	-	3 "

thus reducing the process to a "single-dip."

The freedom of Hemolin from the resinous and gummy matters which so generally characterize the logwood extracts renders this dye particularly adapted to dyeing cotton by padding and chroming, the nips and rolls remaining free from incrustation. A method which is rapidly finding favor is to pad the cotton in a solution of Hemolin made alkaline with soda and then passing it through bluestone or copperas. Chroming after the passage through bluestone develops an intense black. It is also finding favor in the running kettle method of black dyeing with bluestone and soda ash; and in several processes of dyeing.

Altogether Hemolin is one of the most interesting novelties that has come out for some time.—*Textile Colonist.*



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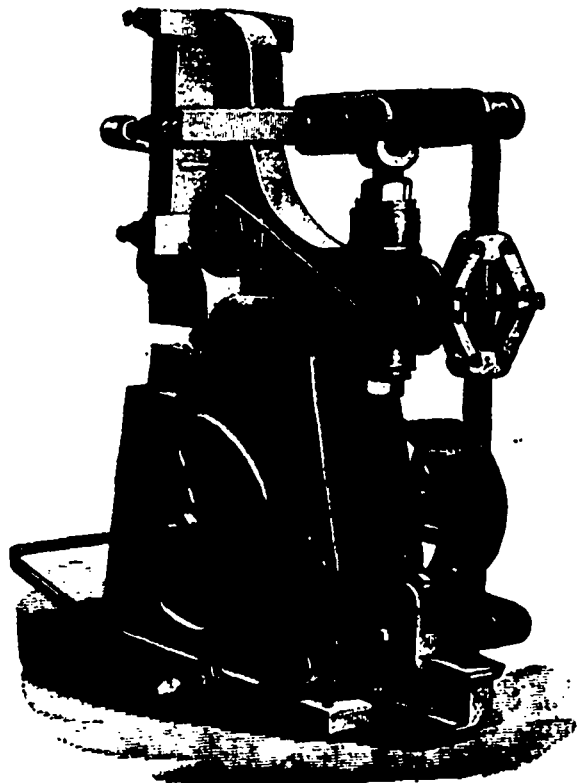
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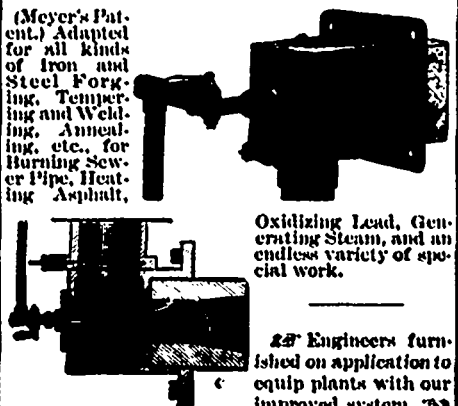
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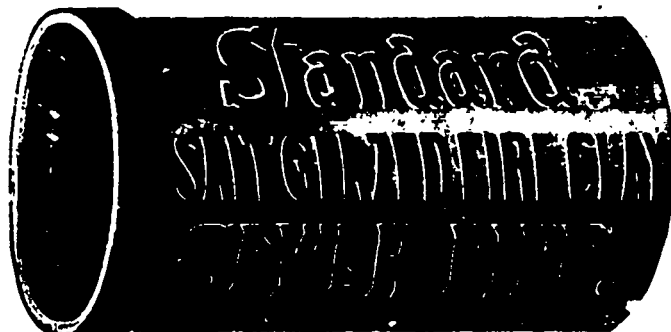
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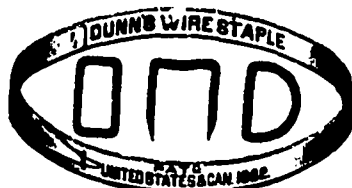
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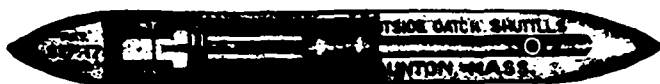
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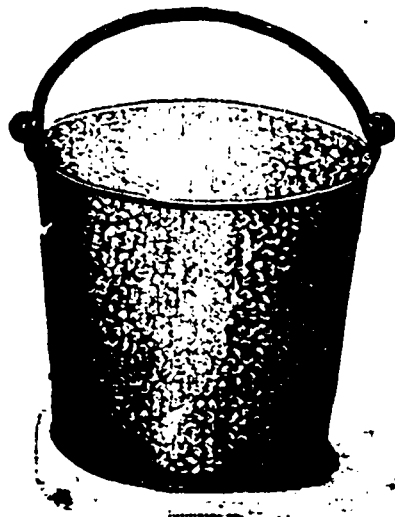
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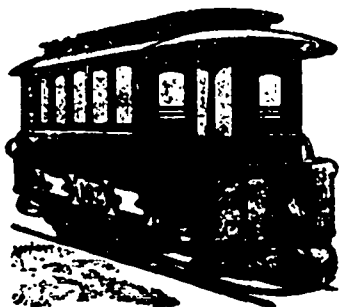
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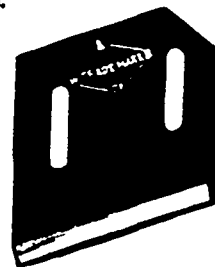
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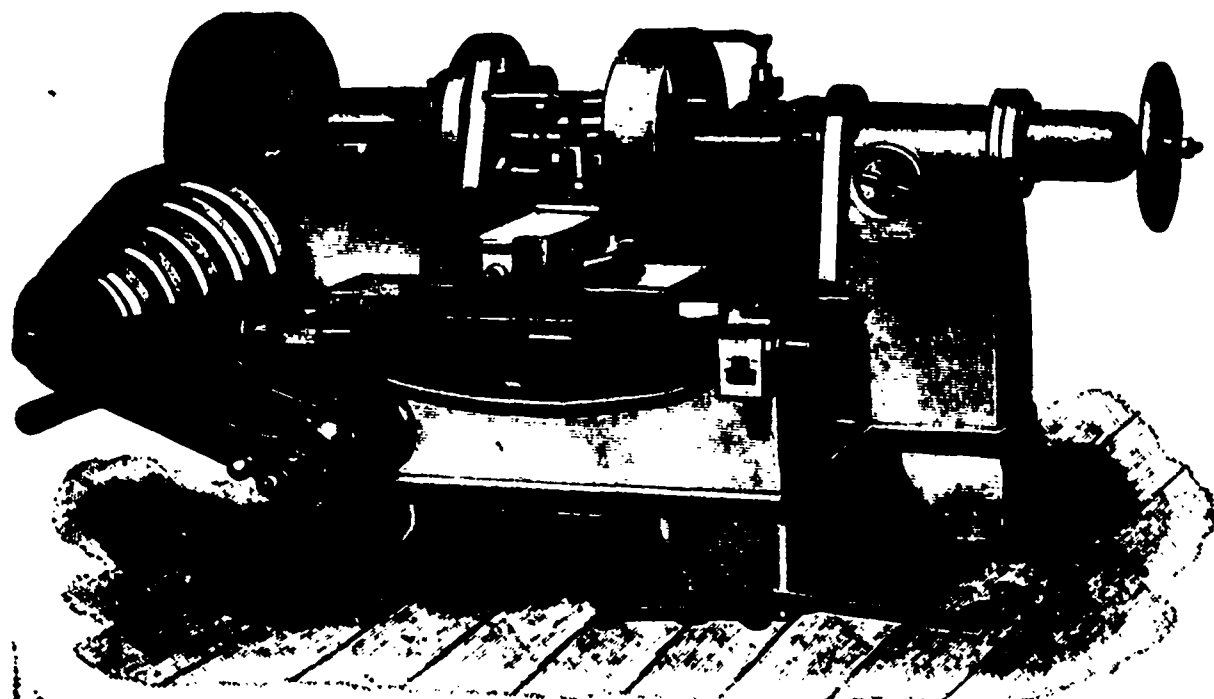
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Up to the present time the insurers with this Company have made a saving, when compared with the current exacted rates, of \$91,004.29. And in addition thereto bonus dividends have been declared to continuing members amounting to \$21,322.72.

Besides achieving such result, we now also have, over all liabilities - including a re-insurance reserve (based on the Government standard of 20 per cent), a cash surplus of 125 per cent, to the amount of risk in force.

Such results emphasize more strongly than any words I could add the very gratifying position this Company has attained. I, therefore, with this concise statement of facts, have much pleasure in moving the adoption of the report.

The report was adopted and the retiring Directors, unanimously re-elected. The Board of Directors are now constituted as follows: - James Goldie, Guelph, pres.; W. H. Howland, Toronto, Vice-pres.; H. N. Ralph, Toronto; Wm. Bell, Guelph; Hugh McCulloch, Galt; S. Neelon, St. Catharines; George Pattinson, Preston; W. H. Story, Acton; J. L. Spink, Toronto; A. Watts, Brantford; W. Wilson, Toronto.

**JAMES GOLDIE, Pres. W. H. HOWLAND, Vice-Pres. T. WALMSLEY, Treas. HUGH SCOTT, Man. Dir.**

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**DRAPER'S IMPROVED**

**GLOBE VALVE**

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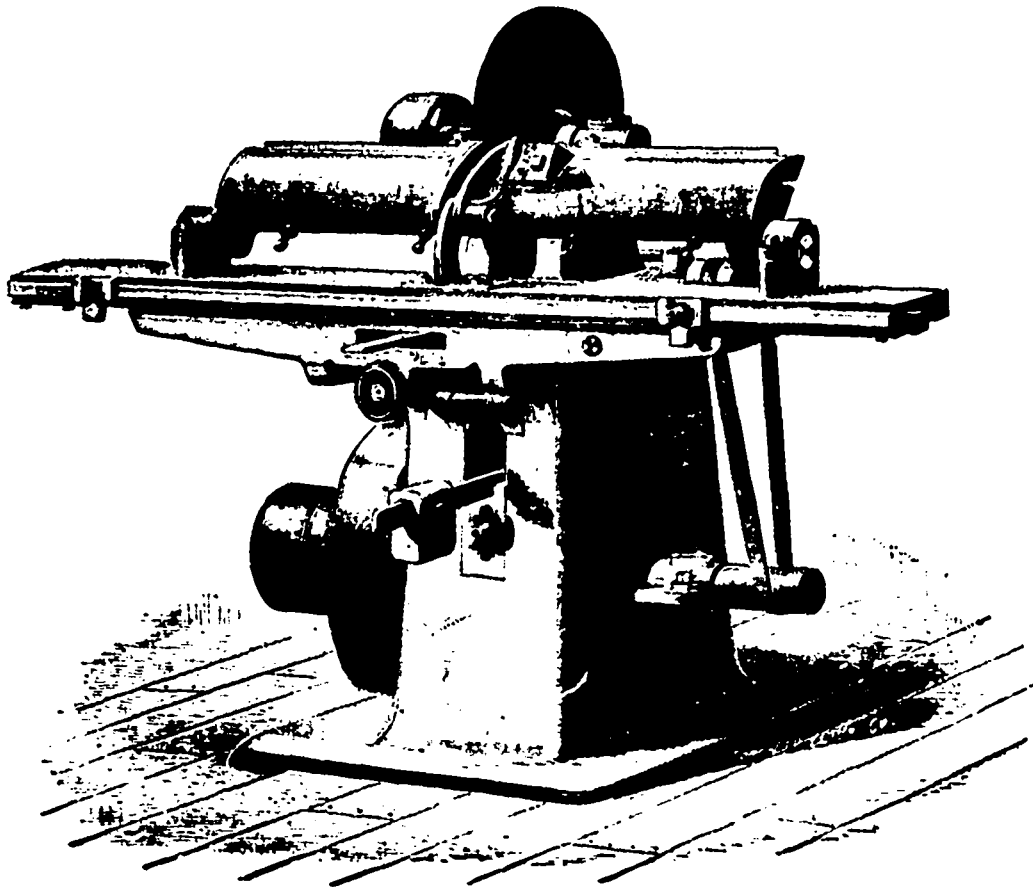
Constructed to prevent Scales or Grains of Dirt being Caught between faces at joint of closing.

When the projection on valve enters the seat orifice, of which it can easily fit, only clean fluid rushes past. Scales, etc., are pushed back and the faces meet with nothing between to injure them. Send for prices and particulars to

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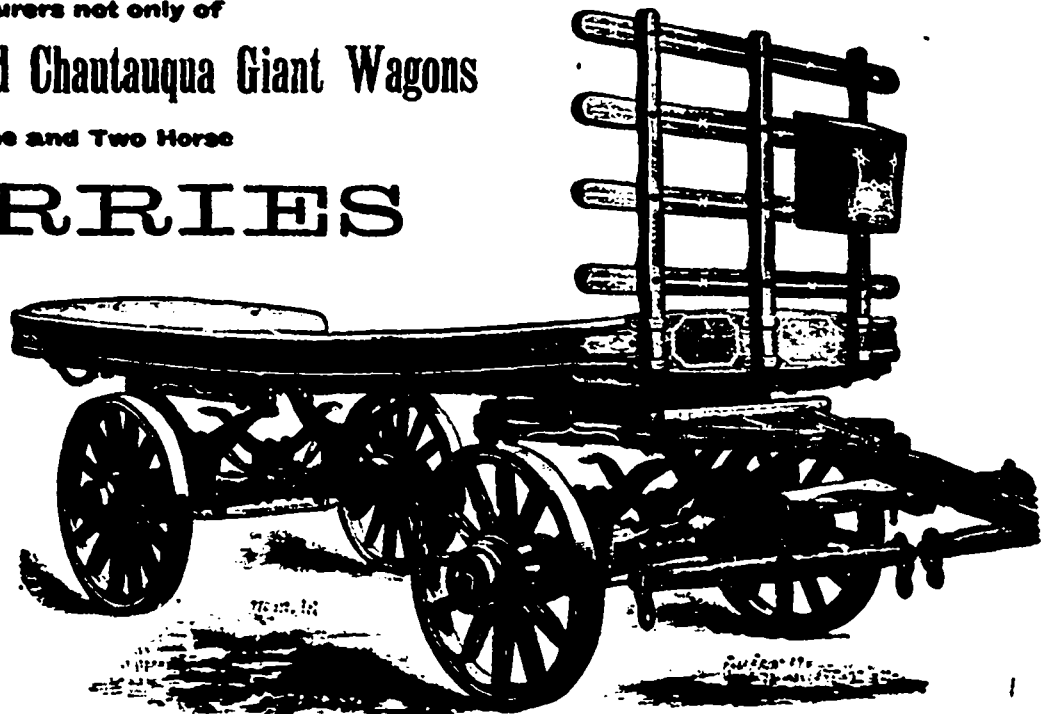
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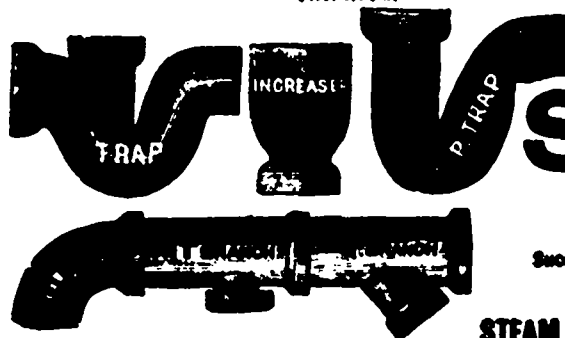
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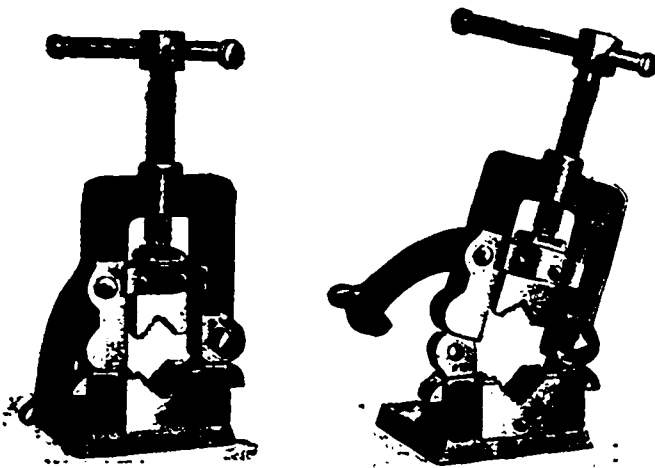
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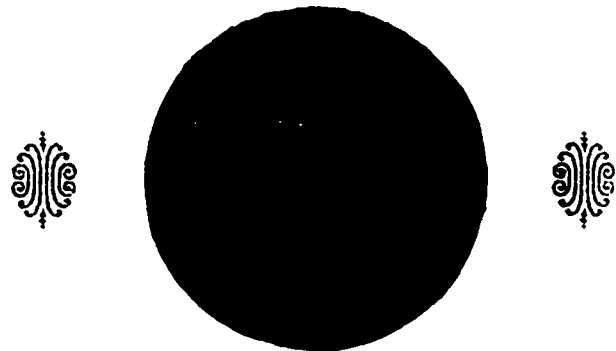
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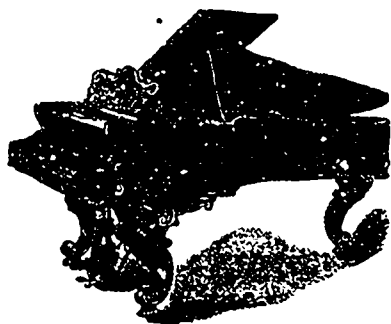
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**THE OBJECTS OF THIS ASSOCIATION ARE:**

- To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.
  - To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.
  - To maintain Canada for Canadians.
  - Any person directly interested in any Canadian manufacturing industry is eligible for membership.
  - Manufacturers desiring to hold meetings for the promotion of their business are invited to avail themselves of the Board Room of the Association for the purpose, which is offered to them free of charge.
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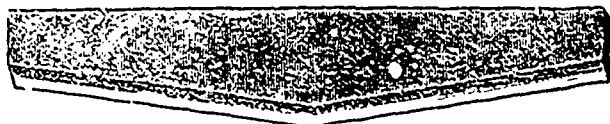
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