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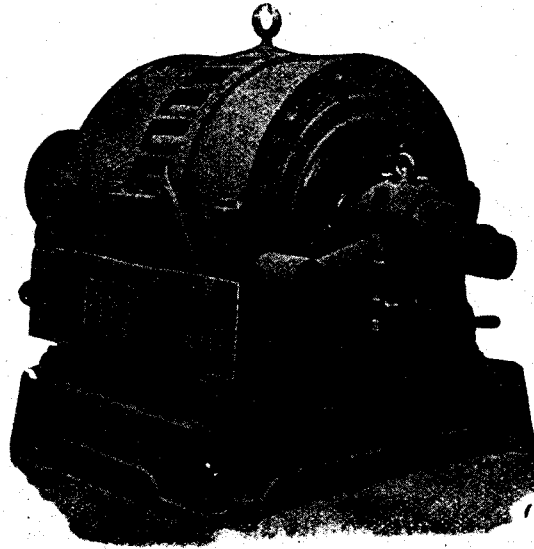
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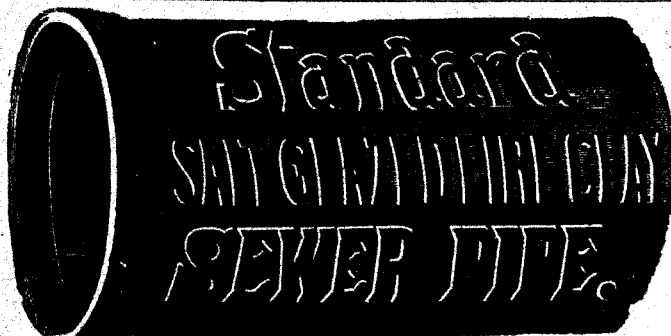
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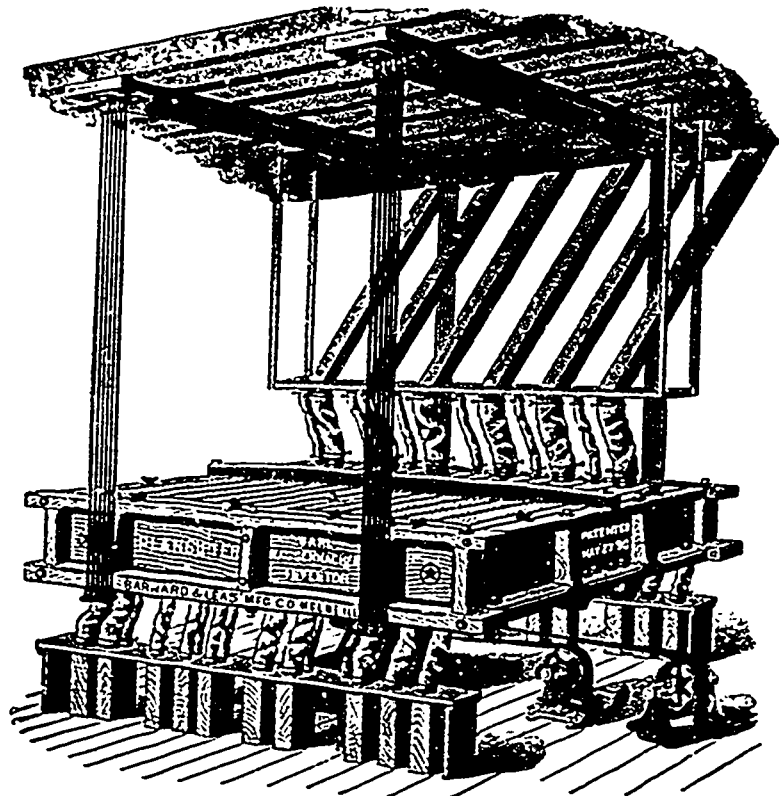
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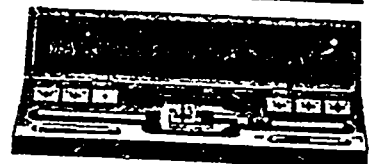
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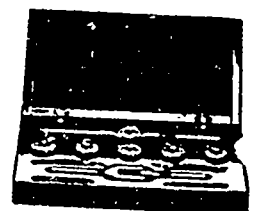
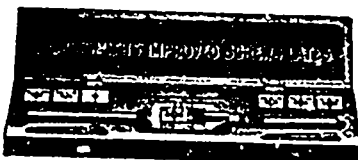


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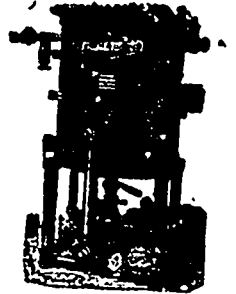
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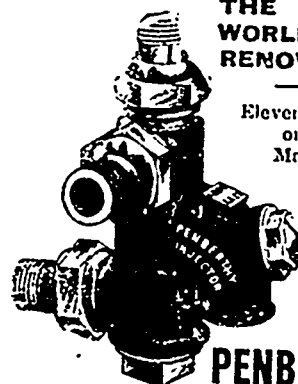


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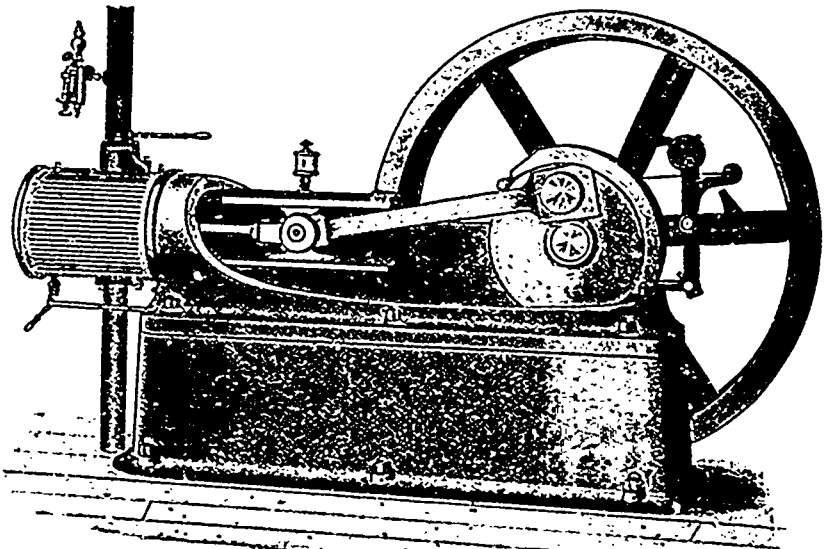
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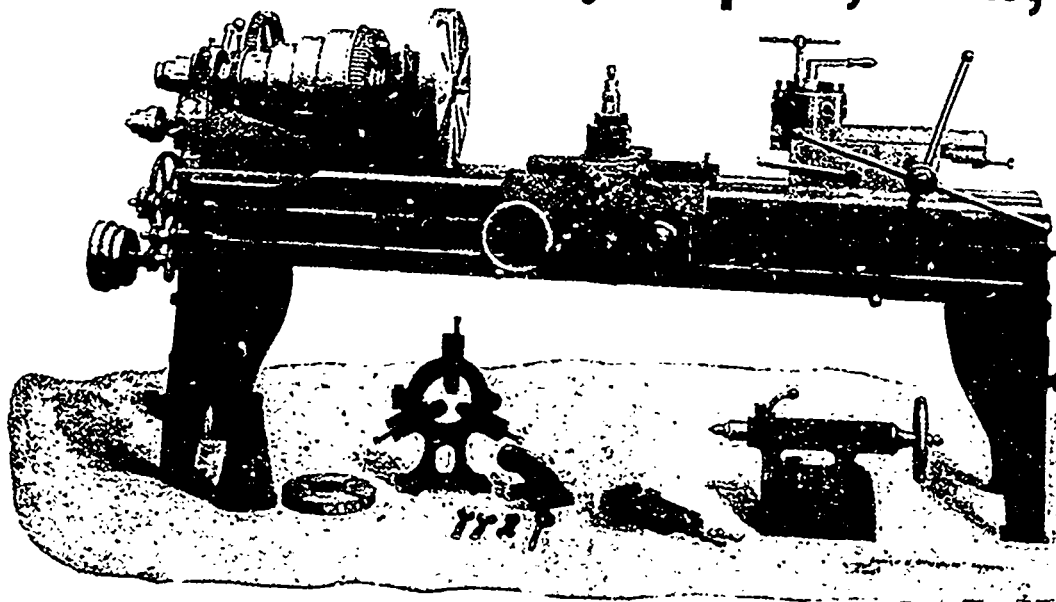
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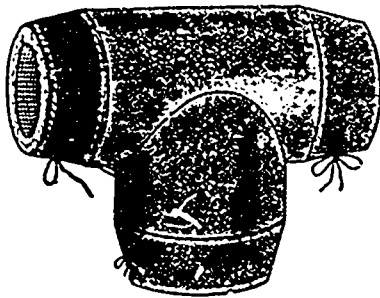
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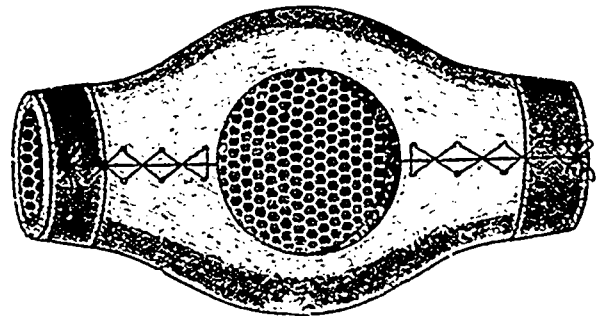


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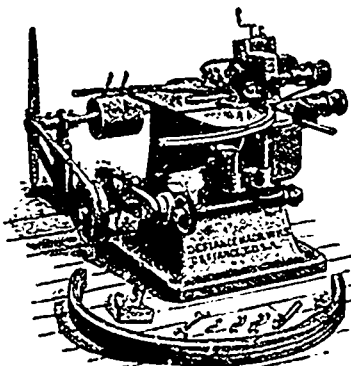
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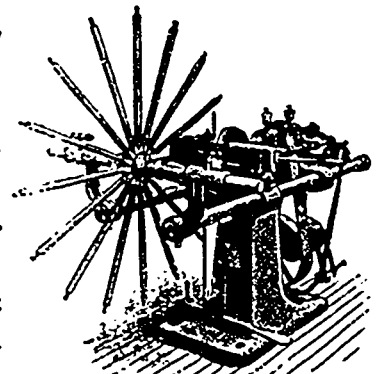
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J. J. CASSIDEY.	

AS TO NICKEL.

The great interest displayed just now in mines and mining in Canada marks the era of development for our splendid natural resources. Klondike and Yukon are the present points of interest, and everyone is talking, writing and reading of the golden northwest. It is to be hoped that the public disturbance and the parliamentary warfare over matters in connection with tariff and transportation to our sub-arctic region will not cause the government and the members of parliament to lose sight of the fact that Canada stands in great

need of legislation to protect her mineral interests in other places than the Klondike.

The nickel industry and the industries attendant upon it have been the subject of much discussion on public platforms and in the public press of Canada. It has been pointed out and proved that the nickel ores could be refined and should be refined in Canada. Americans who invested a comparatively small amount of money in their plant have taken millions of dollars out of Canada and are still taking it. The Liberals in opposition complained of this state of affairs, but the Liberals in power have not remedied them and so the profits of our nickel resources have gone to help Mark Hanna and John D. Rockefeller elect Wm. McKinley to the Presidency of the United States, and unless some change is made, they will go on drawing a million dollars a year to help keep him there.

As long ago as 1891 THE CANADIAN MANUFACTURER took up the cudgels and inaugurated the fight for an export duty on nickel, other than refined, exported from Canada. During the second week of October of that year, a convention of gentlemen interested in mining was held at Sault Ste. Marie and declared against the imposition of such a duty. These gentlemen desired to get the ore out of the ground as quickly as possible and hustle it over into the United States where they established costly refineries and paid high wages to skilled artisans. Of course the wages in Canada were not so great, because digging holes in the ground is not highly remunerative employment.

A nickel mine in Pennsylvania enjoyed the fostering benefit of a tariff of fifteen cents a pound on ore and matte until nickel rose to its present place of importance in the industries, and Canada was found to be possessed of the greatest nickel resources in the world. The United States promptly became a great consumer of nickel and as it could not supply its own demand it proceeded to keep at least the benefits of the refinery at home by imposing a duty of \$200 a ton on refined nickel and allowing nickel ore or nickel matte to be taken in free. Thus they thought to prevent the erection of refineries in Canada and force this branch of the industry into giving profitable employment to American capital and skilled labor at home.

The importance of nickel in the manufacture of armor-plates became apparent just at the time of the McKinley Bill which upset the United States tariff of 1883, and laid down the law we have spoken of which proved the basis of a great nickel steel industry for the United States. Within a year after the passing of this bill extensive plants in the United States were making nickel steel, and then and ever since then Canada has permitted this state of things to exist. The only other nickel supply in the world is from New Caledonia. It is controlled by France, and therefore the United States must have Canadian nickel. Were the conditions reversed Canada must have established refineries in the United States, or paid exorbitant duty on every ounce of nickel brought into Canada. It is but just; it is but fair to the people of Canada that we should either have a great nickel-refining industry in Canada, or John Rockefeller and Mark Hanna should pay largely toward the expenses of the Canadian Government.

It is as broad as it is long. The people should receive personal benefit, or the Government should receive cash. Either remedy would lighten the burden of the unfortunate tax-

payer, and there is scarcely room for any objection by free-traders that it would result in a higher price to Canadian consumers, because Canada has no steel industry to require it, inasmuch as our free-trade friends seem determined to allow us no chance to develop our iron mines, except upon the most unfavorable terms.

Seven years ago THE CANADIAN MANUFACTURER demanded an export duty on nickel ore and nickel matte, and in many quarters our prophecy that without it Canada would never have a great nickel industry was pooh-poohed. What have the same gentlemen to say about it to-day in the face of the fact that not a pound of nickel has ever been refined in Canada?

The famous series of tests of armour-plates at Indian Head, Maryland, by the United States Government, resulted in the decision that nickel steel was the most suitable for armour-plate purposes. Just at that particular juncture Canada had a better chance than the United States to become a great producer of armor-plate. We had superior national advantages, not only in the possession of nickel, but in the possession of every other constituent of nickel steel, easy of access, and where the transportation from the smelter to the complete armor-plate would have been reduced to the minimum.

The American Government sent a commission of experts to Sudbury to report on the amount of the nickel deposit there and upon their report nickel steel plate was adopted for the armor of United States warships. The United States was thus committed to a policy which placed them under obligation to Canada for a supply of nickel. The very most stringent possible industrial enactments have been made in the United States against Canada and enforced to the utmost extent the law allowed. By means of an export duty on nickel ore and matte Canada could make most effectual retaliation which could not possibly be counteracted by an American enactment, and yet, for some inexplicable reason, no step has ever been taken to secure anything more than the original mess of pottage for our birthright. In early 1892 The Empire discussed the boom in nickel. It told of British American and French capital that was crowding into Canada to invest in nickel properties, and painted an alluring picture of the wonderful results that were to ensue. "We have," said The Empire, "practically the only nickel mines in the world—the only ones of any importance—and the future demand is assured." And after this premise it went on to request Toronto capitalists to invest in a refinery in Toronto and keep our mining interests from falling entirely into the hands of American and French speculators. Instead of asking for an export duty The Empire talked nonsense. No matter if we had a thousand nickel refineries in Canada they would never be called upon to refine a pound of nickel as long as the United States duty stood against our refined nickel and we supplied them with nickel ore and matte without restriction.

If the daily press of this country had joined issue with THE CANADIAN MANUFACTURER to settle this question for the best interests of this country it would have been decided long ago and an export duty would now be operating to support the establishment of nickel refineries in Canada. Instead of that we find that they have been turning it to party advantage without the least regard for the pressing needs of the case. In December, 1892, The Toronto World demanded that the Ontario Government take action when at the same time Mr.

W. F. Maclean was a member of the great Conservative majority in the House of Commons at Ottawa and a simple resolution in that body would have given Canada an immense industry paying a million and a-half dollars yearly in wages to Canadian skilled labor. At the last session of the Commons an act was passed providing that the Governor-General-in-Council might, at any time, by proclamation, impose export duties as follows:

(a) On nickel contained in matte, or in the ore, or in any crude or partially manufactured state, and upon copper contained in any matte or ore which also contains nickel—when exported from Canada—upon such nickel, an export duty not exceeding ten cents per pound, and upon such copper an export duty not exceeding two cents per pound;

(b) On ores which contain copper, or any metal other than nickel or lead, when exported from Canada, an export duty not exceeding fifteen per cent. of the value of said ores;

(c) On lead ores, and on lead and silver ores, when exported from Canada to a country which imposes an import duty on lead in bars or in the form of pig lead in excess of the import duty on lead contained in lead ores or in lead and silver ores—an export duty on the lead contained in the ores so exported from Canada, to an amount per pound equivalent to such excess.

It is encouraging to read The World's comment on the nickel situation on January 6th last, when it said:—

The imposition of an export duty on our matte would have the effect of bringing into existence at once one or more refineries for the treatment of the Sudbury ores. Canada's position in regard to nickel is simply impregnable. We have the industry wholly within our control. The United States nickel refineries admit this fact. There is no excuse for delay on the part of the Government. An export duty should be proclaimed within ten days.

The World went even farther than this and declared the urgency of an export duty on lead, silver and other ores. On January 3rd The Globe talked nickel. It described the evidence before the Committee of Ways and Means at Washington of Robert M. Thompson, manager of the nickel and copper refinery at Constable Hook, New Jersey, where the Canada Copper Company send the product of their Sudbury mines to be refined. We quote from The Globe:—

Mr. Thompson denied that the United States demand for nickel could be supplied from any known deposit in the United States. He had employed an expert to visit and examine every reputed nickel deposit of which he ever heard, and the result was invariably disappointing. . . . The ore was difficult to treat, the cost of extraction being prohibitory. The Canadian ore, Mr. Thompson said, contained so much copper that it was as correct to call it a copper ore as a nickel ore. Each of the metals had its value, and this made the Canadian ores cheaper than the United States ores referred to.

Mr. Thompson laid a brochure before the committee. Some of its statements were:—Matte at Sudbury costs \$25 per ton; about \$28,000 monthly is expended in Canada; at Thompson's works and at Wharton's works in Philadelphia, and for freight, \$100,000 a month is expended in the United States; a tariff on raw material and matte from Canada to the United States would stop the refineries in the United States.

Judge Burke also made a statement to the same committee. Inasmuch as he is president of the Canada Copper Company, his statements should carry weight. He said:—

Of course the putting of a duty upon either nickel ore or nickel matte would result necessarily in the refining of this product in Canada, or in Great Britain or in Germany. For

instance, at the time this question came up in 1890 or 1891 the matter was investigated, at the company with which I am connected was selling its nickel matte at that time in Germany and in Great Britain; and I wish to say at the present moment we are offered by a very prominent Englishman—a man who has very great wealth and who has a process of refining this nickel—a market for every pound of nickel matte we have—every pound of it. We have preferred to have this work done in this country. We have preferred to give our people the benefit of it; and inasmuch as our institution is absolutely an American institution in every respect, an Ohio corporation with Ohio stockholders, and the property over there owned in fee simple—and we are treated exceedingly well by the Canadians so far as I have any reason to know—we do not see any special use of practically destroying as far as possible the investments of Americans in Canada. Of course if a duty should be put upon nickel ore or nickel matte why, that is the end of its coming to this country.

The Globe reviews the question very neatly and points out that the charter of the Canada Copper Company contains a clause over which there is a dispute as to whether it compels refining in Canada. Then, instead of advocating the imposition of an export duty which Messrs. Thompson and Burke have been kind enough to recommend as an effectual remedy for the export of nickel matte from Canada it reaches the sapient conclusion that,

The whole subject is one of great interest.

On January 6th last, The Mail and Empire used three-quarters of a column of its valuable editorial space in proving that Canada had nickel, that there was a demand for it, and that Canada had every national facility to supply that demand. It asserted at length that nickel refineries should be established in Toronto and devoted eight lines to the necessity for the imposition of an export duty on ore and matte. Again on June 10th it felt called upon to deliver a lecture on nickel. During the four days that had elapsed since its first article it evidently realized where the gist of the whole matter lay, and accordingly it devoted itself to pointing out reasons for the enforcement of the export duty clause. It is to be hoped that other leading journals will take up the matter and insist on action by the Government to establish nickel refining in Canada.

The production of nickel from the mines of this district last year was about 3,900,000 pounds, an increase over that of 1896 of nearly 250,000 pounds, and the copper in the ore was about 3,750,000. The price of nickel in the United States during the year kept steadily at thirty-three to thirty-eight cents, and in England at twenty-six to thirty-two cents a pound. A little more than half of the nickel was consumed in the United States, and the rest was sent to Europe where the market for nickel has expanded very considerably of late.

Thus says The Sudbury Journal. It supplements this by an estimate of expenses, etc., which we do not quote, inasmuch as we have it on authority of Judge Burke and Mr. Simpson that the amount they expend in Canada is only about one-half that given by The Journal. Nevertheless The Journal's figures as to the production and its value in the market form a remarkably apt argument to prove the value of the gift we are annually making to the United States. It is scarcely to be wondered at that Judge Burke grew humorous when he thought how "exceedingly well" Canada treated his company. By way of emphasizing the importance we place on having this export duty imposed, and to show that our course has been consistent and continuous we make the following quotations:—

A Canadian export duty upon ore and matte would establish the refining industry here, and most probably our American friends would be quite glad to remove their duties, which now discriminate so severely against us, as an inducement for us to modify our export duty on nickel.—CANADIAN MANUFACTURER, January 1, 1892.

Considering the situation and our opportunities, it is to be hoped that our Government will take prompt and effective action to secure to Canada the benefit of her nickel wealth. Without the expenditure of a dollar, by imposing an export duty hundreds of thousands of dollars can be covered into the Dominion treasury every year.—CANADIAN MANUFACTURER, February 5, 1892.

We may never hope to see the manufacture of nickel steel a prominent industry in Canada until we check the export of nickel ore and matte, and encourage by the imposition of duties or the bestowment of bounties, the establishment of the industry.—CANADIAN MANUFACTURER, March 18, 1892.

It would mean the immediate investment of millions of dollars of foreign capital in Canada, in the establishment of nickel refineries and works for the manufacture of all descriptions of nickel steel. It would mean the manufacture in Canada of the armor plates now about being made in the United States for the Russian navy; and not only for that navy, but also for those of other countries, probably even of Great Britain and the United States. Suppose we try it. Impose the duty. Give us a nickel manufacturing industry.—CANADIAN MANUFACTURER, July 7, 1893.

We trust that no question, great or little, will be allowed to delay the imposition of an export duty on nickel. We believe that persistence in the present course is foolish. We believe that it is nothing less than criminal carelessness in managing the affairs of this country. We believe that Canadians are opening their eyes to the situation, and realize that they are being unnecessarily deprived of millions of dollars yearly. We believe that this country would endorse and appreciate Government action to put an end to such needless sacrifice of Canadian interests. We believe that it will not endorse a Government that takes no action in the matter. The manifest absurdity of present conditions should cause immediate change. To sum up we quote from The Mail and Empire of Jan. 10th:—

All, however—profits and wages—would be kept in Canada by an export duty. Whatever other parts of the Act, therefore, are held in abeyance it is to be presumed that the Government will be willing to set free that part of it which relates to nickel. Canada can then trust to its own unequalled supply and to the world's immense demand to do the rest. A nickel refinery would be the first creation of an export duty. That in itself would be a huge industry, and would be the nucleus of several others that would soon form around it—industries using nickel as a material.

SCORE ONE FOR VANCOUVER.

The Vancouver Board of Trade has established an agency in Seattle to afford information of Vancouver's advantages over the United States cities, in supplying outfits for the Klondike at lower prices and of a more suitable character. The result has been so detrimental to Seattle outfitters, as miners realized the saving they would effect by outfitting in Canada, besides getting their miners' license before starting for the north, that the newspapers of Seattle are calling on the city council of that place to impose a heavy license fee on any representatives of Canadian cities who may go there. It is realized here that this is a significant admission on Seattle's part that she cannot compete for the trade, a fact which is amply confirmed by comparison of Canadian and United States invoices of outfits and supplies, the duty on United States outfits being about thirty per cent.

The above press despatch of recent date is self-explanatory. It is more than that. It is satisfactory. We cannot be any too energetic in our contest for trade with the United States. Seattle proposed all manner of restrictions to prevent Vancouverites from carrying out their project, but finally came to the conclusion that such a step might bring them into disfavor with right-thinking persons.

Vancouver is to be congratulated on her success in this matter. As the despatch states, the cry of the Seattle newspaper for practically the exclusion of the agents of Canadian cities is a significant admission. It means that Seattle realizes the advantage of western Canadian cities in outfitting for the Yukon trade and a desire to force the miner to outfit at Seattle no matter at what extra cost to him. Seattle's position was unjustifiable from any standpoint, and is merely another indication that this feeling and this way of expressing it will some day cause serious trouble.

The general opinion of the citizens of Canada about this matter is unanimous. A Canadian spirit is more and more manifest and Canadians are coming to believe in a policy of Canada for Canadians. The general trend of feeling is very fairly represented by Mack's editorial in Saturday Night of last week, from which we quote as follows:

We hold that if the "alien" question is raised at all, Canada should raise it. Joseph Martin in an interview at Winnipeg, and Dr. Montague in a speech at Ottawa, have both this week urged that "aliens" should not be allowed to get mining rights in the Klondike. They point out that in Alaska, Oregon and Washington Territory, aliens are not allowed to take up mining claims. If a new gold field should be discovered to-morrow fifty miles from Dawson City, across the border of Alaska, and the miners should rush there, all Canadian and British subjects would be stopped short and forced to declare their intention of taking the oath of allegiance to the United States before they could strike a pick into the ground. We get no return and no thanks for giving the citizens of the republic the same privileges in our mining regions that our own citizens possess, and if they claim these privileges and we concede them because to deny them would be dangerous, then it seems that the republic enjoys the fruits of conquest without the pains of war.

Sir Charles Tupper in the House of Commons proposed that we should tender Uncle Sam the compliment of an exact imitation of the law of the United States with regard to the exclusion of outsiders from our mining districts. Not to be unfriendly the exclusion of Americans would cease immediately upon the repeal of the American laws that at present are directed against Canadians. The law proposed by Sir Charles just fits the case so aptly stated by Mack's clever pen. It would put the boasted patriotism of the sons of the Stars and Stripes to the test. If they were bound to seek wealth in the gold fields of our far northwest then they must become British subjects. Failing that the only way out of the difficulty would be through the repeal of the United States anti-Canadian laws.

In this event Canada's object would have been attained and the United States would have learned a salutary lesson in international courtesy, a commodity in which she has been conspicuously lacking in the Venezuelan boundary trouble and in the Behring Sea Sealing arbitration. We have waited already far too long for the United States to show some symptom of inclination to make satisfactory emendations in their present arrogantly obnoxious laws. We have been given as an excuse for delay the opinion that changes would

be made in the right direction and it was not wise to retaliate. A corollary to this proposition was that retaliation would be put into operation if the United States made no move within a reasonable time.

We have waited—surely long enough. To wait longer were to inform the Washington Government that we fear to act. Delay is dangerous. Every day means the loss of thousands of dollars to Canada and Canadians. The Ontario Government did not hesitate to discriminate against American labor on railways in Ontario. The Ottawa Government will do well to consider the situation carefully before they refuse the demand of the great working population of Canada that their rights shall be vindicated.

MAKING A BLUFF.

The following extract is from the Buffalo Express. Read it carefully and paste it in your scrap-book as one more example of the inconsistency of man.

It would doubtless surprise a good many Canadians, and even some Americans, to learn how small a figure Canadian lumber really cuts in building operations right here on the northern border. We have been informed that it is hard to find a building of importance in such border cities as Buffalo and Detroit in which native timber has not been used to a much greater extent than Canadian. Five of the largest mills in the Tonawandas do not handle a stick of Canadian timber. There is more southern timber sent to Buffalo and the Tonawandas to be dressed than there is Canadian. So far from being obliged to depend on Canada for a timber supply, the United States is itself an exporter of lumber, and its dealers are constantly on the look-out for new foreign markets. The United States is the principal lumber supply for South Africa. American lumbermen were much gratified by the news in yesterday's dispatches that a prospective increase in the duties on yellow pine in the Argentina had been abandoned. Such facts as these should, at least, convince the Canadians that Americans can better afford to do without Canadian timber than to transfer their mills to Canada. While along the northern border we should greatly regret to see the Canadian timber trade suspended, in most other sections of the country such a result would be greeted with actual pleasure. And even with us the suspension would by no means be ruinous. The bulk of our lumber business would still be left to us, and there would be the prospect of considerably better prices to compensate for what was lost.

Canadians are not so much surprised at the statement of the Express as it expected. Canadian lumber in the building operations of the northern border of the United States occupies an unimportant position. That is exactly why the Ontario government took action in the matter. "Canadian lumber" is evidently intended by the Express to mean lumber exported from Canada. It certainly could not have meant Canadian saw-logs, or if it did it surely has not heard the complaints of the Black Rock saw-mill men who foresee all kinds of calamity overtaking them if they cannot obtain Canadian pine for their mills. Incidentally if it took the latter position it also must never have read the official report of the Michigan lumbermen's famous interview with the Ontario government, in the course of which prominent American gentlemen whose opinion in lumber matters is surely to be preferred to that of the Express, took occasion to announce that they had made every effort at Washington to secure the abolition or at least the reduction of the American tariff on Canadian lumber.

Taking the Express on its own ground and assuming that by lumber it even meant round and square timber as well as board, plank, and other sawn lumber, its editorial is the best possible endorsement of the government's action. Making the term lumber as wide as possible, those who conduct building operations in the northern states are very much in the same position with regard to Canadian lumber as the little boy was with regard to the pair of skates, which he wanted and had only seventy-five cents to buy while their price was a dollar. Canadian lumber may not be much to them, but it's just as necessary to their building operations as the quarter the boy didn't have was to the purchase of the skates. The United States is an exporter of lumber. The stoppage of the supply from Canada will have one of two effects. It will force the United States lumbermen to cut millions of feet more from Uncle Sam's forests every year or it will force him to stop supplying South Africa or Argentina, in event of which Canada doubtless could find enough lumber to keep those countries from a lumber famine.

The last paragraph of the quotation is very laughable. Our contemporary knows full well that if a high tariff would have secured the American market to American lumbermen and given them better prices that step would have been taken long ago. It is always distasteful to us to call attention to these little discrepancies, but we could not let such egregious misstatements pass unchallenged. Perhaps the Express will vouchsafe us a word of explanation.

WILL IT END IN TALK?

The manufacturers of Canada who ought to monopolize the trade of the Yukon should make it a matter of pride as well as of good business that any goods intended for that country should be of the best quality. It will be the best kind of an advertisement for Canada if "Canadian" and "good" be synonymous terms with reference to the supplies which the miners and prospectors bring in. Where a man's life depends on the reliability of his outfit there will be no unwillingness to pay a price for a first-class article. The boots, rubbers, mitts, clothing and camp outfits should be excellent in every respect. A man who gets a bad article cannot in that country throw it away and buy another very conveniently. What he gets, therefore, should be made for service and not for show. The miner will care very little where an article comes from so long as it serves his purpose well. Let the legend prevail from the first that what is Canadian is good.—Toronto Globe.

Our contemporary is correct. This statement has the right ring about it, but, perhaps, its energy might better have been turned another way. We have yet to hear that Canadian manufacturers are in the habit of turning out from their factories a poorer class of products than those of any other country. If The Globe desires to assist along the line its remark indicates, there is a way open for it.

How will the miner know that the good article he gets is not American, while the bad article is Canadian? Does The Globe not know that cheap German imitations of Canadian manufactures are sent into this country, some of them even bearing the trade-mark, or the slightly-differentiated trade-mark, of Canadian firms? In such cases how is the miner to know that the poor article, for which he paid good money, is not Canadian? Here is an opening for The Globe to be useful. Parliament is in session, and if The Globe will use its best efforts to secure a Merchandise Marks Act for Canada,

THE CANADIAN MANUFACTURER will join hands with it to the utmost of its ability.

That is one side of the case. A poor grade of a foreign article, made in imitation of a high grade Canadian article, may in this manner prove very detrimental to Canada's commercial interests in the Klondike. There is another phase of the question. There are, we are sorry to say, importers in Canada whose imported goods are all too frequently the product of Canadian mills, although sold as imported and at the price of imported goods, and giving such satisfaction to their purchasers that they almost certainly return to again purchase the same line of imported goods. Suppose the miner invests his cash in goods of this class, he gets good value for his money and is abundantly satisfied. But who gets the credit? Canadian workmen in Canadian mills made the goods from Canadian material, yet Canada gets no credit for it, because the miner has been told that the goods were made in England, in Ireland, in Scotland, or in whatever other part of the earth the salesman chose to ascribe their origin. Thus Canada is indirectly the loser in both instances. In the first case she has to suffer discredit. In the second case she does not get that credit which is properly her due. That the miner may learn that "Canadian" and "good" are synonymous terms, and that the manufacturer may thus be placed in the proper light, viz., in the position which he wins upon merits of his wares, we shall expect The Globe to advocate the passing of a Merchandise Marks Act with all possible speed.

On the Imperial Statute Books a law of this nature is to be found, and The Globe may very easily ascertain, from any of the leading authorities on trade matters in the United Kingdom, that its operation produces very good results indeed. THE CANADIAN MANUFACTURER has all along advocated a Merchandise Marks Act for Canada, and we are glad The Globe realizes the necessity that Canadian made articles should be given all the advantages of their recognized merit.

THEY SEE THEIR MISTAKE.

We quote below from The London Iron and Coal Traders' Review. The article was evidently written by way of reproach to British manufacturers and tariffs, but is there not in it food for the thought of Canadians who are interested in the development of intercolonial trade? Here is our English contemporary's view of the situation:—

The time has long gone past when the United States required to resort to "brag." They have for the last quarter of a century been earnestly and successfully translating theories and programmes into action. One of their theories, as a commercial people, was that they should capture the Canadian markets, which were up to that time almost exclusively held by England. That, however, is a theory no longer. Canada is already theirs, to a larger extent, at any rate, than it is the Mother Country's, so far as iron and steel are concerned. During the fiscal year, 1896, Canada imported from the United States iron and steel to the value of nearly thirty-five per cent more than was supplied by the Mother Country. Slowly but surely the Canadians have been yielding themselves up to the manufacturers of the United States, despite their professions of loyalty to the Mother Country, and their undoubted interest in giving English manufacturers the most favorable terms. And the principal markets of Canada are not near to the chief producing-centres of the American iron-trade. On the contrary, for all practical and economic pur-

poses Montreal and Quebec are farther from Pittsburgh—the centre of the American iron-trade—than they are from Glasgow, Cardiff or Middlesbrough. It is not, therefore, a question of mere geography. It is rather a question of the greater pliability and adaptability of American manufacturers, and probably, of the greater assiduity with which they cultivate a trade that they have resolved on securing, all other things being presumed to be equal.

EDITORIAL NOTES.

Two-thirds of the wheat-growing area of North America is in Canada. Why, then, should we allow the United States to do the wheat exporting trade for the continent?

The Continental Binder Twine works of Brantford, Ont., have been obliged to close down because of the removal of the duty and the competition of prison labor. This is the way reductions in tariff operate and the seventy men thrown out of employment will not be likely to look with great favor on the government action that leads to such results.

The president of the Shire Horse Association of Canada recently stated that the price of horses had advanced from twenty-five to fifty per cent. during the past year and attributed this increase to the demand for horses caused by the mining boom. Wheat is evidently not the only commodity that has advanced in value recently.

Don't cut prices yourself and don't be in too great haste to believe it when you are told by your customers that so-and-so your competitor, has quoted a price away below yours. Misapprehensions cause these mistakes and there have even been instances where deliberate misrepresentations have been made along this line. You can't do business without a fair profit on your goods and don't attempt it.

We regret to chronicle the death, after a couple of weeks' illness, of Mr. James Warnock, proprietor of the Galt Edge Tool and Axle factory. Mr. Warnock was born in Scotland, seventy-three years ago, and had lived for sixty-five years in Galt. He was a member of the Canadian Manufacturers Association and a staunch supporter of the National Policy and any and all measures for the progress of Canada.

The action of the Dingley tariff has caused a crisis in the orange and lemon trade in the southern provinces of Italy and in Sicily. In many places prices are so low that the fruit does not pay for the plucking.—Montreal Witness.

Great Britain is evidently not the only country that is losing trade through the Dingley tariff. Destitution in Italy has gone so far that bread riots have ensued and the Government are having trouble to deal with it.

The Black Rock Lumber dealers, to whom we have aforetime in these columns given credit for large perspicacity in matters of tariff, are again protesting and the Dingley discrimination against Canadian lumber, this time with special reference to stave and heading bolts. It is rough on our friends but Canadians cannot help feeling just a trifle of sneaking joy that the Dingley tariff hits some of those it pretends to protect.

The recent stand taken by the British Parliamentary leaders in regard to the aggressions of continental powers in China is no airy bluff, but is backed by substantial power. During the year just past the British government built forty-five new warships, at a value when completed of over \$33,000,000.—The American Artisan.

Our thanks to our contemporary. Uncle Sam's subjects are beginning to look at this question in a common sense fashion and realize what is bluff and what is fact.

The Canadian protectionists may well ask what would be the fate of their industries built up by the protective policy, if our manufactured products should be admitted into Canada free of duty or at low rates of duty?—Home Market Bulletin.

Here is something for our Canadian free trade friends to cogitate over. Perhaps it may be news to them that American manufacturers consider a lack of tariff in Canada would be more than detrimental to the manufacturing industries of the Dominion.

At the expense of British manufacturers American firms are making another gain. They are getting nearly all the orders from Canada now for coil chain of the larger sizes and also of $\frac{1}{2}$ and 5-16 inch sizes. As the British makers had the trade before it was supposed that they would be able to secure their hold on it as a result of the preferential tariff. But coil chain from the United States undersells the British article, the cost of $\frac{1}{2}$ inch American chain being 3 $\frac{1}{4}$ cents laid down in Montreal. The demand is chiefly on lumbermen's account.—The Iron Age.

Another case of the disparity between the degree of perfection attained by a manufacturing industry under free trade and under protection.

Exports of tin plate from the United Kingdom to the United States last year totalled \$5,475 tons which is 244 per cent. less than the total for 1896 and 61.7 per cent. less than the total for 1895. Production in the United States in 1897 was 446,982,063 pounds and in 1896 it was only 307,228,621 pounds. Protection effected both changes. Free traders will say that the people of the United States paid enough too much for their tinware to make it up. In Dec. 1892 the average price of tin in New York was 20.60, in Dec. 1897 the average price was 13.67. In Dec. 1894 when the industry started in the United States the average New York price was 18.08.

Old Country firms are beginning to realize that Canadian pork is up to and above the standard of pork sent out by United States firms. A big Liverpool house had a representative in Toronto for a week and he placed orders here for smoked meats, etc. This one firm has been importing about 200 tons of these meats weekly from the United States. Better knowledge of Canada is resulting in the purchase of these goods here. We are glad to note this significant circumstance. Canada can supply the demand and our resources are capable of increase to meet any call made on them in the future. Give us more of the same.

In the course of the Yukon Railway debate in the House of Commons Dr. Montague made some very apropos suggestions. He quoted the United States mining law which forbids locations being taken by other than United States citizens, or

those who declared their intention of becoming such, and contended for the application of this principle in the Yukon to keep the wealth of that country for British subjects. He had himself been put to the test of citizenship when he attempted to locate a mine in the States, and he knew a gentleman in the House who had bought a mining property from an American citizen in Washington, and when that property proved valuable the state turned round and legislated him out of it, so he lost everything. Let an anti-alien law be passed as regards the Yukon country and the people of Canada would support it.

Dr. Montague is taking the right stand. Canada should extend to the United States no favors not returned by the United States. It is next to impossible for us to go too far along the line of self-assertion.

The Canadian government institutes regulations requiring the purchasers in Canada of supplies for the Klondike to travel in British vessels or else pay full duty on their outfit. In forty-eight hours the Payne bill is before the House at Washington. It provides that all commerce between United States ports and Alaska shall be in United States ships. Why should Canada hesitate to deal with the alien labor question. Let us follow the example of the United States and act quickly.

J. Hamilton Lewis, of Seattle, Washington, has been at Ottawa. J. Hamilton is in a terrible way about the treatment of the poor inoffensive United States by that overbearing inconsiderate Canada. Because American miners must personally take out licenses at Canadian ports, Seattle is aggrieved. This is a "hardship" and miners have been "compelled to purchase their supplies on the Canadian side when personal preference and the benefits of competition would necessarily compel them to buy their outfits in the American market." The taxation of Canadians for merely crossing American territory has not been mentioned by J. Hamilton. The hardship is all one way and the long-suffering and down-trodden United States at last rebels against Canadian injustice. Messrs. Newman and Wilson, representing the Alaska Commercial Company, of San Francisco, are also down on their marrow bones to the Ottawa government to plead for a change of customs' regulations to save their business from ruin. This is turning the tables very neatly upon the United States, and Sir Wilfrid and his advisers should see to it that not an ounce of the burden be lifted till the United States gives a quid pro quo for every favor they expect.

The recently reported discovery made by Edison of a process by which cast iron may be given the tensile properties of malleable iron will, if perfected, revolutionize the iron industry. Thousands of articles which are now forged or turned out on lathes, or other machines by a slow and expensive process will be cast as readily as common cast iron articles are now. Further than this the new alloy will do away with the slow process of making malleable iron, by producing at once from the melting furnace the desired articles, not only quickly and cheaply, but stronger and tougher than if malleableized.

The annual report of the Toronto Industrial Exhibition Association is to hand with full particulars of the last

exhibition and the progress of the Association during the past year. The exhibits and attendance were up to, and in fact, slightly exceeded, the year previous, but in one or two sources of inside revenue there was a falling off. The report expresses hope that the Ontario Department of Agriculture will shortly see fit to erect a permanent building on the grounds and recommends that the Jersey Cattle Breeders' Association be allowed one additional delegate and the Gardeners and Florists one delegate to the Exhibition Association. The present lease from the city to the Association expires this year and the report mentions several points which will have to be arranged in connection with the renewal.

The Toronto Industrial Exhibition is important to the manufacturers of this country, and it is to be hoped that its prosperity will increase and that the manufacturers will not fail to take advantage of it to place their manufactures before the public.

The establishment of a chicory factory in Toronto has been determined upon but the name of the company is kept secret. About one hundred acres is to be devoted to chicory culture within twenty miles of Toronto. Canadian chicory is pronounced by analysts to be even superior to that grown in Europe, and the four cents a pound duty on it when imported into Canada warrants the establishment of the industry here. In 1895 chicory to the value of \$7,720 was imported ready for consumption and a small quantity was imported green. Great Britain supplied us to the value of \$3,420 and the United States sent us chicory valued at \$2,500. The industry is capable of development and the superior quality of Canadian chicory should help us to become exporters.

It is encouraging to note that during January imports from Canada into Great Britain increased £147,582, or eighty-two per cent., compared with January, 1897. The chief increases were; Animals £7,000, wheat £35,000, wheat flour £4,000, bacon £4,000, butter £3,000, cheese £36,000, eggs £2,000 and fish £73,000. The principal decreases were: Wood £13,000 and hams £5,000. Great Britain's exports to Canada increased about seven per cent. during the same time. In 1896 Canada's exports to Great Britain amounted to \$66,690,288, and her imports from Great Britain were estimated at \$33,157,234. If Canada's increased exports to Great Britain holds good the rest of the year we shall see a surprising sum total result. At the rate of eighty per cent. increase over 1896 which was less than 1897, our exports to Great Britain for 1898 would be no less than \$119,322,518, a gain of \$53,032,230, or over \$10 for every man, woman and child in the Dominion of Canada. And yet some people say they would rather see Canada trade with Washington than with Westminster.

The Imperial Foreign Office have published Prof. D'Arcy Thompson's report upon the decision reached by the British, Canadian and American delegates to the conference respecting sealing off the Pribilof Islands. The report favors pelagic sealing and attributes the mortality among seals to the ravages of the parasite uncinaria. What will Uncle Sam do now about the difficulty? Will he abide by the decision or set up his own omniscient authorities as he usually does whenever he is decided against?

When the idea of a commercial union among European countries to shut out United States products was first broached the United States smiled a superior smile and intimated that it didn't make a particle of difference. On February 1, Dr. Miguel, who is the Prussian Minister of Finance, issued a decree which prohibited the importation of any kind of fresh fruit from the United States. United States Ambassador White, within twenty-four hours entered a protest that this action was a violation of the treaty. The Foreign Office pleads that German trees and fruit are in danger of infection with vermin brought in by American fruit and forbids American apples to cross the frontier. Berlin correspondents of London papers say the action is due to an agrarian demand for reprisals against the American tariff. How now, Samuel? A very amusing side issue in this difficulty is the lame attempt Americans are making to shoulder the responsibility for the San Jose scale upon European countries. The following dispatch, dated from San Jose, Cal., has been scattered broadcast by American news associations:—

San Jose has attained an undeniable and undeserved notoriety in connection with the name of a fruit tree pest which has spread terror in the official circles of the German Empire. It has been inferred that San Jose was the birthplace of the dreaded scale, and that the fruit trees in this city have been affected by it. The scale or shield louse was im-

ported to this State from Tasmania over twenty years ago and originally came from Europe. It is known among entomologists as a "speidous pernicious," and may be found in the works of Canstock.

A gentleman from the Georgian Bay district is impressed with the quantity of logs that will be sent from Ontario limits to Michigan sawmills. He makes a rough estimate of the cut as follows:—Alger Smith & Co., 8,000,000; Holland Emery Lumber Co., 20,000,000; Turner & Fisher, 20,000,000; S. C. Fisher, 1,000,000; William Peter, 15,000,000; Saginaw Lumber & Salt Co., and Loveland, Roys & White, 16,000,000; Ontario Lumber Co., 8,000,000; Arthur Hill & Co., 15,000,000; McArthur Bros. & Co., 14,000,000; Spanish River Lumber Co., 15,000,000; Central Lumber Co., 8,000,000; Conger Lumber Co., 20,000,000; Hale & Booth, 30,000,000; Eddy Bros. & Co., 14,000,000; Moore & Glover, 4,000,000; Victoria Lumber Co., 15,000,000; Georgian Bay Lumber Co., 20,000,000; Union Trust Co., "for Gates," 14,000,000; Hardy Lumber Co., 10,000,000; Pitts. & Co., 20,000,000. Total, 328,000,000. The Hardy Government decided that they could not stop the export of these saw logs but it is gratifying to know that in case the Ottawa Government should repeal the non-export clause Hon. J. M. Gibson stands committed to its re-enaction by order in council.

Emery

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CLOTH AND PAPER.
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"Atlas Brand"

"FLORA" Knife Polish
in 3d. Gl. & 1/2 Tins.

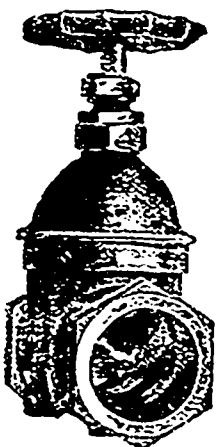
Ground, Washed & Flour

WHEELS of highest
quality for general
& special purposes.

Grinding Machinery.

LONDON, E. C.

The WEBBER Patent Straitway Valve



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Steam,
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OR
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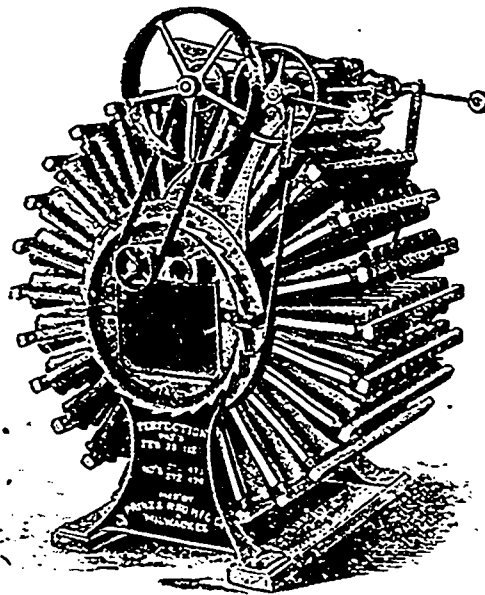
EVERY
VALVE
TESTED.

The Kerr Engine Co., (Limited),

WALKERVILLE, ONT.

Sole Manufacturers for Canada. Send for
Price List.

The Perfection Dust Collector.



Patented.

The only machine with a perfect Automatic Cloth Cleaning Device.

We Guarantee it to collect absolutely all the Dust, and discharge the air free and clean.

We Guarantee it will not make any back pressure against the fan.

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TORONTO, - ONT.

Sole Licensees for Canada.

CAPTAINS OF INDUSTRY.

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

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

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

A charter has been granted to the Davies Furniture Company, Limited, of Toronto.

The Ontario Rolling Mills at Hamilton were destroyed by fire last Sunday. The loss is estimated at \$30,000, and some 280 men are thrown out of work. The Grand Trunk Railway owned the building, which was valued at \$6,000.

The town of Beeton, Ont., has carried a by-law to establish an electric light system to be installed this summer.

The trade statistics of a country are the record of its prosperity or retrogression. They are valuable as a key to influences and their results upon commerce. To the collection and compilation of interesting data of this kind, the Bradstreet Company have for twenty years devoted their organization, and the little booklet they have just issued is an interesting collection of valuable information which draws many interesting conclusions that become apparent to the student of statistics, as an analysis of Bradstreet's own work and a proof of its accuracy and efficiency. It is gratifying to note the immense reduction in the number of failures and the amount involved, which is indisputable proof of the return of prosperity.

Hamilton Acetylene Gas Machine.
SIMPLE, ECONOMICAL, DURABLE AND SAFE.



Adapted for PRIVATE HOUSES, OFFICES, STORES, CHURCHES, or any building where a clear, bright and steady light is required.

300 in use in Dominion of Canada.
Address Communications to
HAMILTON ACETYLENE GAS MACHINE CO., Limited.
71 York Street, HAMILTON.

LIGHT YOUR
FACTORY WITH

LUXFER PRISMS

The latest device for

LIGHTING

dark rooms and
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By Daylight

For catalogue
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Luxfer Prism
Co., Limited.

58 Yonge Street, - TORONTO.

ESTABLISHED 20 YEARS.

A. KLIPSTIEN & CO.

122 Pearl St., New York.

ANILINES, DYESTUFFS,
AND
CHEMICALS

Of every variety, of the best quality
and at the lowest prices.

Delivery made at New York, Montreal
or Hamilton.

WRIGHT & DALLYN,
AGENTS,
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GEORGE WHITE-FRASER.

Member Can. Soc. C.E.
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**CONSULTING AND
CONSTRUCTING Electrical Engineer.**
Railways, Lighting, Power Transmissions,
Factory Plants, Reports, Specifications, Tests.
18 Imperial Loan Building,
TORONTO.

H. F. STRICKLAND, Electrical Contractor.

77 ADELAIDE ST. E., TORONTO.
Generators, Motors, Dynamos,
Electric Exhaust Fans, Fire Alarms, etc.

A SNAP...

25 to 30 Light
BALL ARC DYNAMO

In first-class condition. 6 Ampere.
Cash price, \$50. Address: Box 19,
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Progressive Manufacturers use the....

Blackwell up-to-date VARNISHES

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Pianos, Carriages and Railway Coaches.
MADE IN TORONTO.

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FACTORY—Sheppard Street, Toronto.
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WHOLESALE DEALER IN
DOMESTIC
and FOREIGN WOOLS
Sumac, Japonica, etc.

SMITH WOOL-STOCK CO.

210 FRONT ST. EAST, TORONTO
Makers of... WOOL STOCK, SHODDIES, Etc.
All lines of Graded Woolen Bags, Carbonizing and Neutralizing, Barrows of Wool Pickings, All lines of Hard and Soft Waste.

The shoe factory of James McCready & Co., of Montreal, suffered \$6,000 in a recent fire.

Mr. Alex. Macpherson, secretary-treasurer of the Alpha Rubber Co., of Montreal, has resigned to come to Toronto as manager here of the Canadian Rubber Co.

The Canadian Pacific Railway Co., have ordered forty new locomotives and propose to overcome any difficulty the loss of their North Bay route may cause them.

The Standard Chemical Works, of Fenelon Falls, Ont., are at work manufacturing acetate of lime, wood alcohol and charcoal.

Messrs. S. F. & W. E. Roop & Co. of Middleton, N.S., are likely to erect a warehouse at Windsor, N.S.

J. Y. Griffin & Co., of Winnipeg, will instal an immense refrigerating plant which they expect to have ready for work by April next. They consider that times are good and propose to be ready to handle their share of the trade in the most effective manner.

The Wanzer Lamp Co., of Hamilton, have changed their style to Empire Lamp Co.

The Lang Tanning Company propose shortly to erect in Berlin a monster tannery where they expect to employ three hundred hands.

Among the advertisers in this issue of THE CANADIAN MANUFACTURER will be found the London Emery Works Co's, of London, England. Under the coming reduction in tariff their wares should find a ready market among Canadian manufacturers. They manufacture all kinds of abrasives, and have a world-wide reputation for the excellence of their products.

Mr. Edward Boisseau, of Boisseau & Co., wholesale clothiers, 18 Front street east, Toronto, proposes to establish a big manufacturing industry in Toronto. He will erect a six-storey building on the corner of Yonge and Temperance streets, where The John Eaton Co's store stood, and will employ four or five hundred hands in the manufacture of clothing. A wholesale and a retail department will be established, and the factory will be equipped with all the latest machinery and conveniences.

A 7x4x10 inch steeple compound engine for the Muskoka Navigation Company, of Gravenhurst, and a 13x16x20 inch compound engine for James Playfair and Capt. Burke, are occupying the attention of the J. Bruce Hanly Engine Works at Midland, Ont.

The Lake Superior and Rocky Mountains Navigation Company is applying to Parliament for incorporation. Its aim is to build a canal system from Lake Superior to Calgary.

The Hamilton, Grimsby and Beamsville Electric Railway have a new palace car which Ahearn & Soper, of Ottawa, built for them at a cost of about \$4,500.

An electric light plant will likely be installed by M. S. Cornell, of East Starbridge, Ont., next spring.

Chatham, Ontario, wants a city engineer.

The Deschenes Electric Light Company, of Deschenes Mills, Ont., are preparing plans for dams and a power house at Deschenes Rapids. It is expected to secure 3,000 h.p. They want to compete with the Ottawa Electric Company in supplying electricity to the capital.

The Ottawa Car Company are making five new cars for the Hull Electric Company.

St. Mary's Cathedral, Halifax, is being fitted up with a complete electric system by Johnston, Son & Co., Limited, of Halifax.

The Cornwall Electric Railway Co. have on foot a project to lease the Chemong and Lakefield line from the G.T.T. and make it an electric line.

The Hudson Bay Company is having two river steamers built by the British Columbia Iron Works, Vancouver, B.C.

John Johnston, a well-known Orillia lumberman will have a planing mill running at Ahmic Harbor this summer.

THE - - - -

WM. HAMILTON MANUFACTURING CO., Limited

MANUFACTURERS OF

THE "RELIANCE"

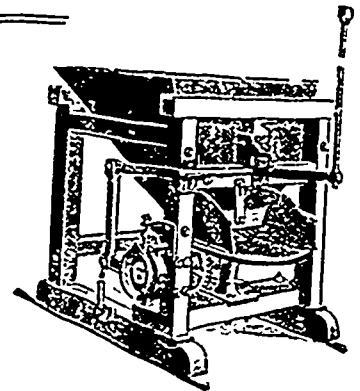
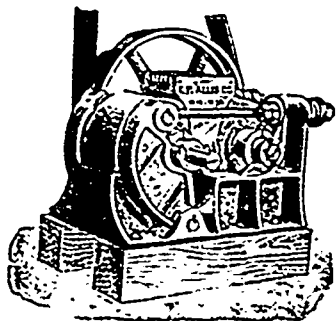
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FOR THE DOMINION OF CANADA

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Crushers, Rolls, Jigs, Concentrators, Screens, Stamps, Pumps
Compressors, Hoists, Boilers, Engines, Water Wheels, Etc.

Branch Office
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 PETERBOROUGH, ONT.

Report has it that the Dauphin Railway will be extended to the Saskatchewan.

The premises of the Eclipse Office Furniture Co., Ottawa, recently suffered a slight damage by fire.

The American Artisan's House-Warming Manual is just to hand. It contains a series of essays on hot water, hot air, and steam-heating systems. The essays were contributed by experts to the Artisan's prize competition. A house plan was given, and the contestants were required to arrange a system of heating for it. There are five essays on hot water heating, three on steam heating, and fifteen on hot air; all of them illustrated by diagrams and giving estimates of expense. The book contains much valuable information, and should be in the hands of every plumber, steam fitter and furnace maker in the country. —American Artisan Press, Chicago.

A fire started in the japanning room of the Kemp works at Gerrard and River streets, Toronto, on the morning of Sunday, Feb. 13th. The big works had a close call, as in the next room was a stock of benzine and other explosives. The damage was about \$700.

The stock of Henderson & Potts, paint manufacturers, Montreal, was slightly damaged by smoke in a recent fire.

The telephone supply factory of Messrs. McLaren & Bato, of Montreal, was burnt out by the same fire.

T. D. Thurston & Co's boot and shoe factory also, was badly smoked and damaged by water.

The Jones & Moore Electric Co., of Toronto, have just installed a 250-light plant for the Lambton Woollen Mills Co., and have orders for a 300-light plant for D. Maxwell & Sons, St. Mary's, and a 150-light plant for Chas. Boeckh & Sons, Toronto.

J. F. Funerton & Co., of Glenboro, Man., will build a large brick store as soon as spring opens up in the prairie province.

Several seizures of tobacco smuggled from the United States have been made among the Mennonite settlers in Southern Manitoba.

The Manufacturers' Life Insurance Co. are making a special rate for Klondike risks. For particulars, see their advertisement in another column.

Rat Portage despatches announce that during the coming spring the Keewatin Power Company will erect, at the location of their \$300,000 dam, on the Lake of the Woods, one of the largest pulp mills in America.

A large pulp mill will likely be erected at the outlet to Rainy Lake, where there is a fall giving a minimum of 20,000 horsepower.

The Fearman Packing Co., of Hamilton, have offered to erect, in East Hamilton, a plant to handle 4,000 hogs, 500 sheep and 100 cattle weekly, on condition that the city take over the firm's property on Rebecca street, Hamilton.

The Packard Electric Co., of St. Catharines, Ont., are distributing a monthly blotter and a neat, little vest-pocket blank book entitled "Daily Notes," which form a very handy memorandum for the month of February.

The McIntyre block, the finest in Winnipeg, succumbed to the flames on February 2nd. The loss is estimated at about \$400,000 with insurance at \$225,000. The building alone was valued at \$125,000.

MACHINERY and EQUIPMENT

FOR

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MANUFACTURED BY

Canadian Rand Drill Co.,
MONTREAL.

ATTENTION CENTRAL STATION MANAGERS!

A GOLDEN OPPORTUNITY!

Are you desirous of purchasing

ARC LIGHTING MACHINERY, LEATHER BELTING,
WATER WHEELS, or SHAFTING?

If so, you cannot afford to miss this opportunity. Owing to extensions necessitated at our generating station we are obliged to discard the above-mentioned material. Communicate with us at once for all information and particulars.

THE MONTMORENCY ELECTRIC POWER CO., - - QUEBEC.

Phosphorous,
Sal. Ammoniac,
Muriate Ammonia,
Sal. Soda,
Bicarb. Soda,
Hyposulphite Soda, Epsom Salts.

FINEST QUALITY.

Manufacturers Prices and Terms.

Arthur P. Tippet & Co.,
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Canadian Agents.

ABBEY IMPROVED CHILLED SHOT CO.
(LIMITED)

NEWCASTLE, GREAT BRITAIN.

THIS SHOT IS NOW MADE BY A NEW PROCESS.

Samples sent on application.

Read the following Reports on our New Make of Shot:—
Sporting Goods Review states:—"The size and shape of pellets are good and are exceedingly hard. We understand that the demand for this shot has considerably increased and gaining in favor with sportsmen, to whom its excellence of manufacture appeals."

Arms and Explosives states:—"For soundness and general regularity of surface the pellets possess a very high degree of excellence."

W. W. GREENER, "the Great Authority on the Gun," speaks highly of Chilled Shot, and strongly recommends it in preference to soft shot.

VALUABLE ELECTRICAL BOOKS.

Any of the following Standard Works on Electric Light and Power, Electric Railways, Telephones, etc., sent post-paid on receipt of price :-

- Allsop's Practical Electric Light Fitting. A treatise on electric light wiring and fitting. \$1.50.
- Bull's The Dynamo Tender's Hand-Book \$1.00.
- Bull's Electric Transmission Book-Hand. \$1.00.
- Bull's Incandescent Wiring Hand-Book. Containing full instructions for incandescent wiring. \$1.00.
- Noll's How to Wire Buildings. \$1.50.
- Crocker-Wheeler's Practical Management of Dynamos and Motors. Description and directions. \$1.00.
- Buckley's Electric Lighting Plants. Cost and operation. \$2.00.
- Thompson's Polyphase Electric Currents, etc. New. \$3.50.
- Crocker's Electric Lighting. For the use of electricians, students and others interested in the installation or operation of electric lighting plants. \$3.00.
- Lutime's Incandescent Electric Lighting. A practical description of the Edison System. 50 cents.
- Perry's Electric Railway Motors; their construction, operation and maintenance. \$1.00.
- Merrill's Reference Book of Tables and Formulas for Electric Street Railway Engineers. \$1.00.

- Trevert's Electric Railway Engineering, embracing practical hints upon powerhouse dynamo, motor and line construction; for the use of students. \$2.00.
- Verity's Electricity Up-To-Date, for Light, Power and Traction. \$1.00.
- Hutchinson & Phillip's Westinghouse Electric Street Car Equipments. \$1.00.
- Allsop's Telephones: Their Construction and Fitting. \$2.00.
- Hopkin's Telephone Lines and Their Properties; design and construction of city lines. \$1.50.
- Poole's Practical Telephone Hand-Book. New edition. \$1.50.
- Webb's Telephone Hand-Book. \$1.00.
- Haskin's Telephone Troubles and How to Find Them a complete hand-book for telephone inspectors. 25 cents.
- Bennell's Telephone Systems of Europe; new and very complete. \$4.50.
- Preced & Stubb's Manual of Telephony. \$4.50.
- Cushing's Standard Wiring. \$1.00.
- Thompson's Dynamo Electric Machinery. \$6.00.
- Unwin's Development and Transmission of Power from Central Stations; a new and timely book. \$3.50.
- Meadowcroft's A B C of Electricity, 50 cts.
- Tesla's Inventions and Researches, by T. C. Martin. \$1.00.
- Elementary Electro-Technical Series, by Edwin J. Houston, Ph.D., and A. E. Kennedy, Sc.D. A complete electrical library for the student, engineer, and general public.

- Magnetism.—291 pages; 94 illustrations.
- Electric Heating.—290 pages; 86 illustrations.
- Electric Telegraphy.—448 pages; 163 illustrations.
- The Electric Motor.—377 pages; 122 illustrations.
- The Electric Telephone.—412 pages; 163 illustrations.
- Electric Arc Lighting.—383 pages; 155 illustrations.
- Electric Street Railways—367 pages; 158 illustrations.
- Electricity in Electro-Therapeutics.—452 pages; 147 illustrations.
- Alternating Electric Currents.—225 pages; 77 illustrations.
- Electric Incandescent Lighting.—449 pages; 146 illustrations.

The general public, students of elementary electricity and the many interested in the subject from a financial or other indirect connection, as well as electricians desiring information in other branches than their own, will find in these works precise and authoritative statements concerning the several branches of applied electrical science, of which the separate volumes treat.

The entire issue, published in a series of ten volumes, is nevertheless so prepared that each book is complete in itself and can be understood independently of the others. The volumes are profusely illustrated; printed on a superior quality of paper; handsomely and substantially bound.

The entire set for \$10.00, or separately at \$1.00 each.

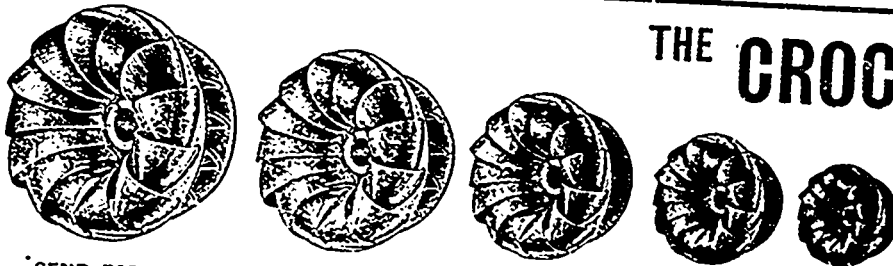
Canadian Manufacturer Publishing Co. (Limited), McKimmon Building, TORONTO.

BRYANT . . . ELECTRIC . . . SUPPLIES . . .

By special arrangement with the manufacturers, we are placing in stock on Montreal, a complete line of Bryant specialties, including K. W. Rosettes, Bryant Sockets, Branch Blocks, etc., etc. Our catalogue B. showing Bryant goods is now ready, and is the most complete catalogue ever published for the Canadian trade. Write for one.

The IMPERIAL INCANDESCENT LAMP IS WINNING FAST FRIENDS WHEREVER USED.

JOHN FORMAN, 644 CRAIG ST., MONTREAL.



THE CROCKER IMPROVED . . . TURBINE.

A HIGH-GRADE, MODERN WHEEL—ECONOMICAL AND EFFICIENT IN THE HIGHEST DEGREE. The best combination of hydraulic science with practical results now on the market. Complete Water Power Plants built and installed.

The JENCKES MACHINE CO., 28 Lansdowne St., SHERBROOKE, Que.

SEND FOR OUR NEW CATALOGUE JUST ISSUED. It will interest you. Our Prices will Please, and to Purchase Our Machinery will Pay you.

LUXFER PRISMS.

"Luxfer." Did it ever strike you that "lux" means "light," and "fero" means "I carry"—so that "Luxfer" means light carrying? If it didn't, and you are building or rebuilding and require better light in your premises you should investigate the merits of Luxfer prisms.

When daylight enters a room through ordinary glass, it strikes the floor close to the window at a greater or less distance,

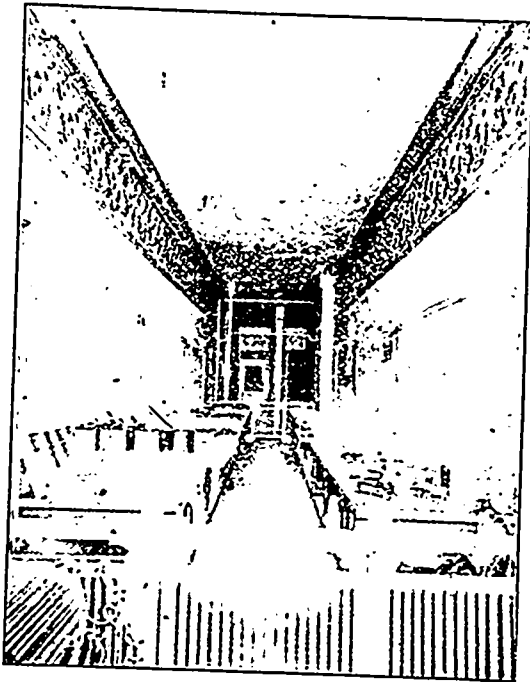
refraction. They consist of plates of glass having the outer surface plain and the inner surface moulded into semi-prisms. In passing through the prisms, the natural light is refracted so as to travel horizontally into the interior of a room, diffusing light to every part of it.

To accomplish this under the varied conditions where windows open on a wide or narrow street, facing low or lofty buildings, a variety of prisms are necessary, and the success in getting desired results depends on the

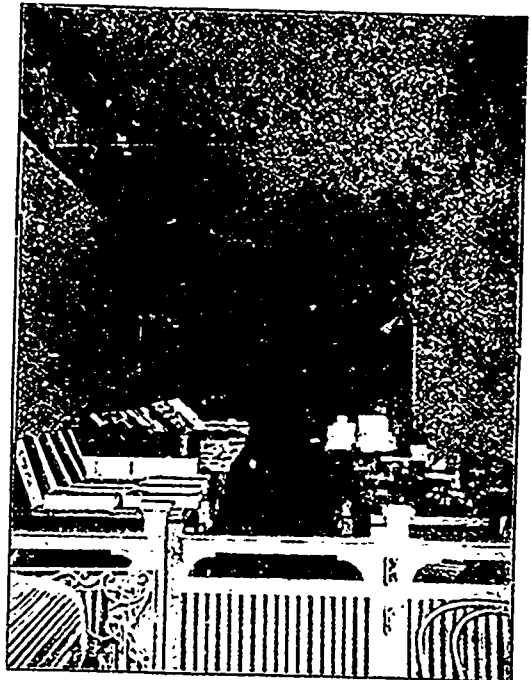
proper calculation of the degree of refraction needed and the proper installation of a prism having a corresponding refracting angle. This requires scientific treatment, and the necessary data were only obtained after a long series of careful and expensive experiments.

In a large majority of cases the prisms are glazed in sheets placed in sash instead of the ordinary glass. This is the cheapest and most simple way in which Luxfer Prisms can be installed. A curious feature of the glazing of these sash is that it is done with copper by electricity, thus securing a close joint with a minimum of metal to exclude the light. In stores the prisms are, in nearly every case, placed in transoms over the show windows. Where it is

front window diffuse a good light to the extreme rear of the sample room, through a screen partition sixty feet from front and to the rear of a back room, in all 100 feet from the front window. The prisms, being hung on hinges, can be removed, and in this way the comparison between the difference in conditions of light with and without Luxfer Prisms can be seen. Without prisms the sample room is dark and useless as a sales-room. With prisms we have all the light we desire for business purposes. We would not



Sample Room with Prisms.



Sample Room without Prisms.

according to the width of street or yard on which the window opens. In each case the light is reflected throughout the room and a greater or less percentage is absorbed, the result being that the rear portion of the room or premises becomes dark in proportion to the distance from the window.

A light ray passing from a rare medium, such as air, to another more dense, such as glass, becomes refracted or bent upwards. Luxfer Prisms are constructed on proper scientific principles, to utilize this effect of

necessary, the upper part of plate glass window is cut off, a light transom bar fitted in, and the prisms installed in the transom light, or upper portion of window.

The handsome new catalogue issued by the Luxfer Prism Company is replete with testimonials from which the following from the Ion Specialty Company, 58 1/2 Yonge street, is selected:—

"Our sample room is long and narrow, the dimensions being fifteen feet wide by 100 feet deep. The prisms installed in the

rent our premises without the prisms, unless the light could be otherwise improved."

The writer of these lines himself can vouch for the truth of this letter. A couple of illustrations show the exact facts of the case. The photographs were taken within a minute of each other and the change is solely due to the swinging of the prism shutters into place. Other information is to be obtained from the Luxfer Prism Company, 58 Yonge street, Toronto, whose advertisement appears in another column.

Do You Realize the Advantages **CORRUGATED IRON**

TO BE GAINED BY USING OUR.....

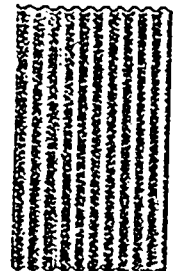
For Roofing, Siding, Ceilings, Partitions, Etc.

Note that ours is **PRESSED**—not rolled.—the corrugations are all uniform, fitting squarely at the ends and sides without waste.

It is **Fire Proof and Durable**—as strong, good-looking and serviceable on exterior or interior finish, as can be found.

We supply almost any sized sheets according to your needs—painted or galvanized—straight or curved.

Let us give you fuller descriptions and prices—send for our Catalogue.



METALLIC ROOFING COMPANY, Limited,
 TELEPHONE 5481. TORONTO.

The Mac Machine Company are removing from Trail to Rossland, B.C.

Cornwall and Hull are both trying to secure the Port Dalhousie branch of the Toronto Rubber Co's factory which will likely be removed to some place where a large waterpower is procurable.

The New Brunswick Granite Works of St. Stephen, N.B., have sold out to C. W. Young, president of the company, who will continue the business under its old style.

The Montreal Stock Exchange Building at 13 St. Sacrament St., Montreal, is to be rebuilt. David Ogilvie is architect in charge.

The Taylor Air Compressor Company, of Montreal, are installing a 500 h.p. plant at Ainsworth, B.C., and expect to distribute the power to mines within a radius of five miles.

Mr. Timothy Eaton, head of the T. Eaton Co., of Toronto, will have one of the prettiest yachts in the country if the Polson Iron Works Company build it according to the plans they have prepared. It is to be fifty-five feet long, eighteen feet beam and three feet six inch draft, and the speed is to be sixteen miles an hour.

The Kingston and Montreal Forwarding Co., are building a big elevator and warehouse at Coteau Landing.

The Marine Department at Ottawa is considering the advisability of building a light-house at Kilbear Point on Georgian Bay and range lights west of that and Depot Bay.

Holmes Bros., box manufacturers and brass finishers, Montreal, have dissolved partnership.

The National Wharf and Warehouse Company, of Victoria, B.C., has been incorporated.

The R. McDougall Company, Limited, has been incorporated at Galt, Ont., to manufacture heating and ventilating apparatus and carry on the general business of iron founders.

Lucknow, Walkerton and Kincairdine have voted for the establishment of a House of Refuge for Bruce County.

It is likely that House & Fisk, of Lansing, Mich., will start an acetylene gas generator factory in Galt.

The Presbyterians of Chesley, Ont., are about to build a \$4,000 Sabbath School building.

The burning of Dawes block, Bloor and Dovercourt roads, Toronto, caused about \$18,000 loss, only partially insured.

The firm of Viger & Beauchemin, carriage manufacturers, Montreal, have dissolved partnership.

A. C. NEFF, Chartered Accountant
 JAMES WOOD, Late Sec. The T. Eaton Co., Ltd.
NEFF & WOOD
 PUBLIC ACCOUNTANTS, AUDITORS
 ASSIGNEES, ETC.
 Room 500 McKinnon Bldg., Toronto

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BY ANY MEANS
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Central Business College

OF TORONTO, for the Current Session.
 Members may enter at any time.

Telegraphy, Business Practice, Short-hand, Typewriting, etc.,
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 W. H. SHAW, Principal,
 Yonge and Gerrard Sts.

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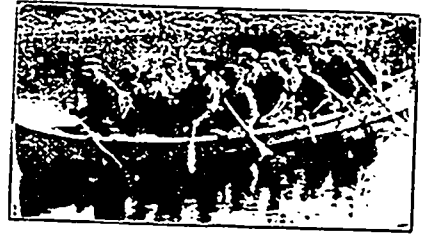
INCLUDING
 Wool-Washing, Drying, Combing, Back-washing, Gill Boxes, Drawing, Spinning and Twisting.

CHANGE WHEELS FOR WORSTED MACHINES
 KEPT IN STOCK.

Apply to **EDWARD JEFFERSON & BRO.**

28 Strawberry St., Philadelphia Pa., U.S.A.

Sole Agents for
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Canoes for Alaska and Cold Regions

This cut is one of our 19 foot No. 63xx Canoes, and shows carrying capacity.
 Write for our catalogue and discounts.

Peterborough Canoe Co., Limited, Peterborough

**ELECTRIC MOTORS,
 WATER MOTORS,
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Hand-Feed and Automatic..... **ELECTRIC LAMPS,**

Cinematographs,
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WRITE FOR PRICES.

A. SCHNEIDER & CO.,
 21 and 26 Pearl St., Toronto.

TANNERS!

Grinders and other parts for Tunkhannock Bark Mills.

Guaranteed to be superior to the American in WEARING QUALITY and at LESS COST.

DAVILLE TANNING CO., write:-

"The Grinders LAST MUCH LONGER and GRIND MUCH BETTER than any we have ever had."

J. FLEURY'S SONS,

Founders and Machinists, - - - AURORA, ONT.

The Packard Electric Co., Limited.

MAKERS OF

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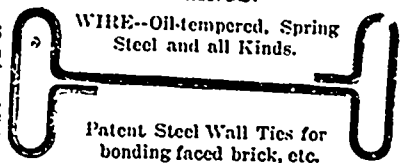
CLEVELAND WIRE SPRING CO.,
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Tempered Steel Machine Springs
 A Specialty.

SPECIAL SPRINGS of all description to order, and for Upholstery, Furniture, Beds, Chairs, etc. Close prices upon application.

TEMPERED STEEL MACHINE SPRINGS.



WIRE--Oil-tempered, Spring Steel and all Kinds.

Patent Steel Wall Ties for bonding faced brick, etc.

The American Patent and Investment Co.,

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

Sheldon & Gross, iron founders, Aylmer, Ont., are moving into larger premises.

A stone building to cost \$12,400 will be erected by Edison Fitch, Etchemin, Que., for use as a woodworking factory.

The city of Belleville is anxious to hear from manufacturers who desire to change the location of their factories.

The town of Bowmanville, Ont., wants a fire engine, and Woodstock wants a road roller.

One of the handsome calendars of the season is that issued by the Canadian Photo-Engraving Bureau of Toronto, which is a very fine specimen of the engraver's art.

The Canada Switch & Spring Co., of Montreal, have put in a Bessemer steel plant.

The Hamilton Spectator is authority for the announcement that F. W. Fearman & Sons, the big Hamilton pork packing house, are considering the establishment of a branch in Toronto.

Mr. G. W. Sills, of Chicago, has leased premises on York Street, Ottawa, and proposes to establish a mica manufactory.

The Berlin Waterworks Co., of Berlin, Ont., will build a waterworks plant for Waterloo this summer.

The B. I. Kennedy Co., Limited, of Toronto, have obtained a charter.

A charter has been granted to the Saugeen Electric Light and Power Co., Limited.

The Power House of the Citizen's Light & Power Company, at St. Henri, Montreal, was recently destroyed by fire. Mr. W. McLea Walbank, Managing Director of the Lachine Rapids Hydraulic & Electric Co., which controls the Citizen's Co., estimates the loss at \$100,000.

The Jacques Cartier Pulp & Paper Co., of Montreal, is applying for incorporation.

Engineer Wickstead has before the town council of Cobourg, Ont., a scheme for securing a big waterpower. He proposes to tap the Baltimore creek and bring the water in two fourteen-inch pipes down to Cobourg. The estimated expense is \$55,000, and it would supply 400 h.p.

The stave mill at Alvinston has some thirty teams at work hauling logs.

The Bushnell Oil Company's Works at Sarnia are now lighted with electricity supplied by their own dynamos.

It is stated that men testing the strata on the left bank of the Trent Valley Canal near Armour hill, struck quite a flow of natural gas.

Messrs. Geo. White & Sons, of London, Ont., propose to purchase the threshing machine factory of Messrs. McPherson & Co., of Fingal, Ont., and remove that business into London. This will necessitate a large addition to their premises and an addition of some thirty or forty hands to their staff.

The township of Westmeath has just completed a Grafton Truss Suspension Bridge over Mill Creek near Point Westmeath. Mr. Grafton, of Mount Charles, Ont., is the inventor and contractor.

A waterworks appropriation by law has been endorsed in Port Colborne.

The Toronto Rubber Company will put up a factory in Hull, P.Q., at a cost of \$30,000 for the building alone. They will expend \$75,000 a year in wages.

The DRIER the STEAM the GREATER the POWER.

"Eureka"



OUR SECTIONAL PIPE AND BOILER COVERING

Almost Entirely Prevents Condensation of Steam when Passing Through the Pipes

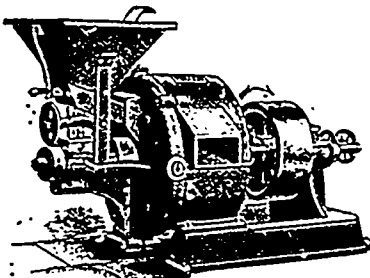
EUREKA MINERAL WOOL & ASBESTOS CO.

132 BAY STREET TORONTO.

ASBESTOS GOODS.

MINERAL WOOL

ENGINE PACKING.



ROCK

CRUSHERS

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MILLS

AND MILLSTONES.

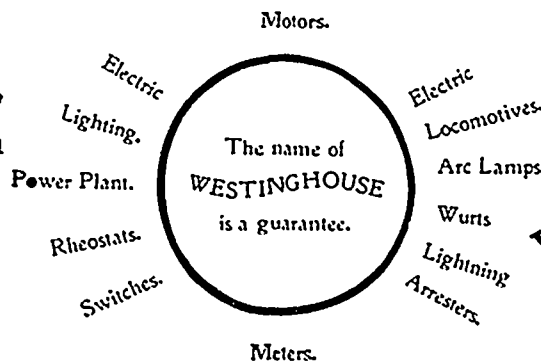
FRENCH BUHR AND ESOPUS STONES. *Send for Circular.*

STURTEVANT MILL CO.

BOSTON, MASS.

Don't use old methods, use new, and keep up with the times.

Drive all your machinery by electricity.



Everything Electric.

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Pittsburgh, New York, Boston, Philadelphia, Chicago, Buffalo, Syracuse, St. Louis, San Francisco, Tacoma, Atlanta, Mountain Electric Co., Denver, Canada, Ahearn & Soper, Ottawa. Westinghouse Electric Co. Ltd. 32 Victoria Street, London.

VALUABLE MECHANICAL WORKS.

Any of the following valuable books sent post-paid on receipt of price.

Art of Coppersmithing. A practical treatise on working sheet copper into all forms. By John Fuller, sr. Cloth; 10 x 6 1/2 inches; 327 pages; 474 engravings. . . . \$3.00

Steam and Hot Water Fitters' Test-Book. Prepared for the steam and hot water heating course at the New York trade school, with supplementary chapters on house heating, specifications and surface estimating. By Thomas E. McNeill. 140 pages; numerous illustrations and diagrams; 5 x 7 inches; cloth. . . . \$1.00

Domestic Electrical Work. Concise and practical explanations for plumbers, tinners and hardware dealers, on how to wire buildings for bells, alarms, annunciators, and for gas lighting from batteries. Illustrated with 22 diagrams. By William A. Wittebecker. In paper, 25c.; cloth, 50c.

The Mineral Industry. An encyclopedia of mining and metallurgy. Vol. I.—From the earliest times to the close of 1892, \$2.50. Vol. II.—Supplementing Vol. I.; to the close of 1893, \$5.00. Vol. III.—Supplementing Vols. I. and II.; to the close of 1894, \$5.00. Vol. IV.—Supplementing Vols. I., II., and III.; to the close of 1895, \$5.00.

Hicks' Builders' Guide. Comprising an easy, practical system of estimating materials and labor for carpenters, contractors, and builders. By I. P. Hicks. 160 pages; 114 illustrations; cloth. . . . \$1.00

Practical Gas Fitting. Describing how to run mains, lay pipes, and put up gas fixtures. 54 illustrations; 116 pages; 5 1/2 x 8 inches; cloth. . . . \$1.00

Illustrated Natural History, (The). 3 Vols. Vol. I.—Mammalia. Vol. II.—Birds. Vol. III.—Reptiles, Fishes, Insects, and etc. 1,500 illustrations. Royal, Svo; cloth. By Rev. J. G. Wood. Each Vol. . . . \$5.00

Illustrated Natural History of Man, (The). Being an account of the manners and customs of the uncivilized race of men; with hundreds of illustrations. 2 Vols. Royal, Svo; cloth. Vol. I.—Africa. Vol. II.—Australia, America, Asia, and etc. Each Vol. . . . \$5.00

New Illustrated Natural History, with many hundred illustrations. Svo; cloth. \$3.50

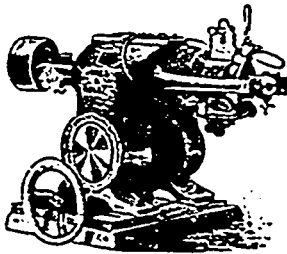
Popular Natural History. Profusely illustrated, with handsome cover. Svo; cloth. . . . \$1.75

Illustrated Natural History for Young People. 110 illustrations and 4 colored plates. 4to; cloth, with design in colors. . . . \$1.00

Illustrated Natural History, with an anthropological and ethnographic introduction by C. H. A. Byerregaard. 12mo; cloth. 75c.

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Manufacturers

Dynamos and Motors

Direct Connected or Belt Driven.

COMPLETE PLANTS INSTALLED

At Lowest Prices.

A few Second-hand Machines in stock.

22 ADELAIDE ST. WEST, TORONTO.

METAL
STAMPS,
SOAP DIES, AND BRASS SIGN
MANUFACTURERS

PATTERSON & HEWARD
40 WELLINGTON ST. WEST, TORONTO.

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Manufacturers of . . .

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For IRON FENCING,
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Address..

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**VALVES AND
PIPE . . .
FITTINGS**

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**RICE LEWIS
& SON, Limited**

Corner King and Victoria
Streets
TORONTO

BROWN & CO.

Manufacturers of

Square and Hexagon

HOT PRESSED NUTS.

PARIS. - ONT.

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Galvanized Steel Pails..

FOR FIRE PURPOSES ONLY.

NO HOOPS TO FALL OFF.

PRICES ON APPLICATION.



TRADE MARK.

ATLAS METAL

Speak
louder
than
words
and

ATLAS does not rely on empty
talk for its UNSURPASSED
REPUTATION.

It Has Been Undeniably
Proved that ATLAS METAL
is Superior to all and has
stood under Enormous Pres-
sures and Phenomenal Speed.

TRY ATLAS METAL
WHERE
ALL OTHERS HAVE FAILED.

WE CHALLENGE A TEST

Against any Anti-Friction
Metal on the Market.

THE ATLAS METAL CO., Limited
75 Queen Victoria St., London, Eng.

H. G. McLAREN, General Agent
for Canada,
318 ST. PAUL ST., MONTREAL, QUE.



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Is unwise in not equipping your premises
with Fire-Fighting Apparatus.

FIRE PAILS

are always necessary. Those of Eddy's
Indurated Fibreware have many advan-
tages over others: do not leak—imper-
vious to liquids—hoopless.

The E. B. EDDY CO. Limited
HULL, MONTREAL, TORONTO.

Mr. F. J. Long, of New York, is in Toronto buying a quantity of supplies for the Goleconda of the far north.

The snowshoe industry is receiving quite a boom from the demand for Klondike outfits and prices have advanced from thirty to fifty per cent.

A number of new companies are gazetted in the Ontario Gazette. The Essex Basket Company, Limited, will manufacture baskets and woodenware on a capital of \$25,000. The Windsor Brewing Company, Limited, will have a capital stock of \$20,000. The Dundalk Woollen Mills Company, Limited, will have a capital stock of \$25,000. The Black River Creamery Company, Limited, and the Ross Building Company of Caledonia, Limited, will each have \$2,000 capital stock.

The Ontario Wind Engine and Pump Co's new factory on Liberty street is about completed. The foundry is in operation and the woodworking shop is almost ready for use.

The Renovo Machinery Company of Philadelphia, Pa., have concluded to open a factory in Toronto.

The Canadian Oiled Clothing Company will remove their oiled clothing factory from Port Hope to Toronto. Their sandpaper factory at Hamilton will also be brought to the Queen city.

Mr. W. H. Shaw, principal of the Central Business College, Toronto, has issued a neat pamphlet entitled "Get a Good Start on the Road to Success." It contains a concise and business-like statement of facts in connection

with the College which are of interest to the student of business who desires a business education.

WANTED

Mechanics, Engineers and Firemen to enclose ten cents in stamps for Working Model of Valve for Steam Engines.

Address, H. F. LOWE, M.E.,
Patent Solicitor,
Confederation Life Bldg., Toronto, Canada.

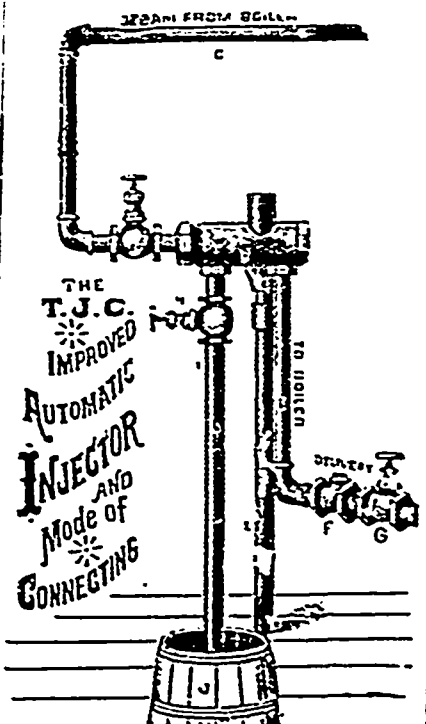


THE IMPROVED AUTOMATIC INJECTOR,

Pat. by T. J. CARROLL

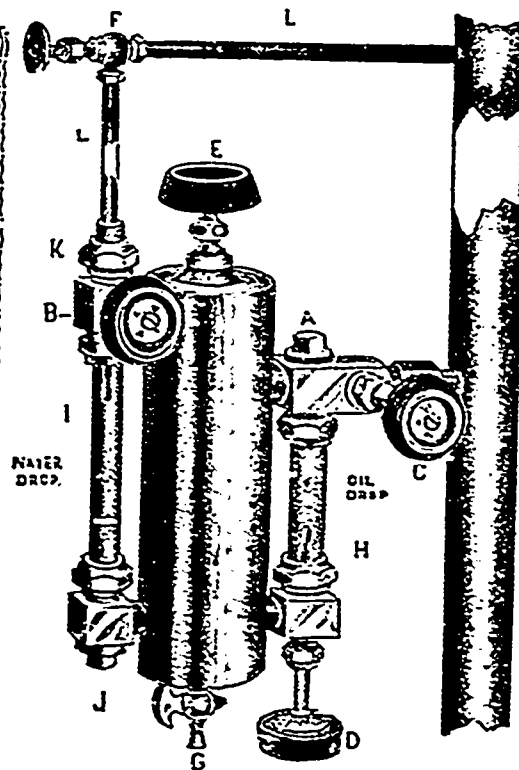
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No.	Price.	GAL. PER HR. @ 100 P.S.I.	SIZE OF PIPE CONNECTION.	HOISE POWER.
10	\$1.50	120	1 1/2"	8 to 10
15	1.75	300	2"	10 to 15
20	2.00	500	2 1/2"	15 to 20
25	2.25	700	3"	20 to 25
30	2.50	900	3 1/2"	25 to 30
35	2.75	1,100	4"	30 to 35
40	3.00	1,300	4 1/2"	35 to 40
45	3.25	1,500	5"	40 to 45
50	3.50	1,700	5 1/2"	45 to 50
55	3.75	1,900	6"	50 to 55
60	4.00	2,100	6 1/2"	55 to 60
65	4.25	2,300	7"	60 to 65
70	4.50	2,500	7 1/2"	65 to 70
75	4.75	2,700	8"	70 to 75
80	5.00	2,900	8 1/2"	75 to 80
85	5.25	3,100	9"	80 to 85
90	5.50	3,300	9 1/2"	85 to 90
95	5.75	3,500	10"	90 to 95
100	6.00	3,700	10 1/2"	95 to 100



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Michigan, Eagle, and Queen Lubricators.



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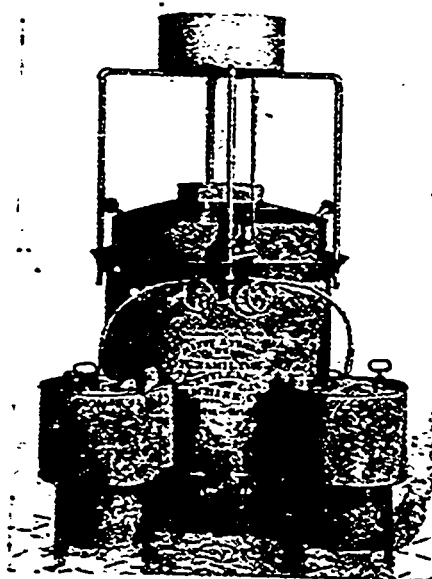
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Are You Sure THEY ARE **SAFE** AND IN Good Condition?

Head Office, TORONTO

ACETYLENE GAS APPARATUS.

With the present interest in illuminants, some information about this comparatively new medium will doubtless be interesting to our readers. The source of acetylene gas is calcium carbide, which is a hard, porous, grayish black material made from a mixture of lime and coke (the proportion being 100 pounds of lime to an average of sixty-eight pounds of coke), fused in an electric furnace. To generate acetylene gas it is brought in contact with water. Calcium carbide yields about five and one-half feet of gas to the pound, leaving a residue of lime. Acetylene gas is clear and colorless, requiring no purification, and is not affected by change of temperature. It is concentrated essence of coal and water gas, both of which



owe their illuminating properties to it. As an illuminant it makes a satisfactory showing, both from the standpoint of light and from the standpoint of expense. One hundred pounds of the calcium carbide will cost but three dollars, and each pound generates five and one-half feet of gas. A twenty-five-candle-power Naphy burner will consume one-half foot in one hour. Thus you see that the light costs three cents for twenty five-candle-power for eleven hours.

In the January number of The Canadian Engineer Prof. E. B. Shuttleworth discussed acetylene from the underwriter's standpoint. The three Welland factories cost \$30,000 each, so the industry bids fair to become important. Mr. Shuttleworth thinks that, for insurance purposes, buildings for the manufacture of carbide should be constructed under the combined conditions necessary in foundries and in electrical-generating depots. As to storing the carbide water and fire together constitute the only element of danger. Ether alone is not dangerous, and proper water-tight, wood-covered tins are preferable for cases. The gas is manufactured and used at low pressure. The point of ignition is 200 degrees, and the flame is very luminous, and yet not so hot as that from other gas.

The purity of the carbide, proper apparatus, and ordinary care in its operation will remove all danger. Prof. Shuttleworth's general conclusions were:—

KLONDIKE

Parties going to or visiting the Klondike would find it to their interests to communicate with

THE MANUFACTURERS' LIFE INSURANCE COMPANY.

HEAD OFFICE, - TORONTO.

GEO. GOODERHAM, President. J. F. JUNKIN, Gen. Manager.
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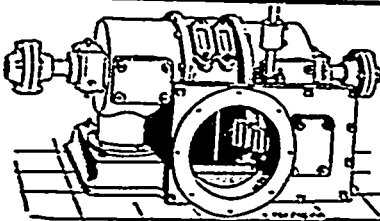
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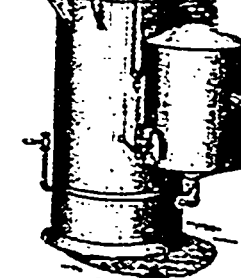
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Toronto and District.
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Write us for Quotations.
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This is the
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little or no atten-
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made in 10 sizes
costing \$15 and
upwards.

Acetylene Gas the Coming Light.
CHEAPER THAN ELECTRIC LIGHT
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For Private Dwellings, Business Houses
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For particulars write to the
NIAGARA FALLS ACETYLENE GAS MACHINE CO.
NIAGARA FALLS, ONT. LIMITED.

Sub-
scribe for The Canadian Manufacturer

(1) Calcium carbide factories may be classed in the same category as iron foundries, with the additional risk incident to electrical plant.

(2) The storage of carbide should be subject to the conditions governing that of inflammable liquids. Packages to be of sheet steel of, at least, twenty-seven gauge, well-tinned, having seamed and soldered joints, and furnished with water-tight metallic caps. Packages to be further protected by being enclosed in strong wooden cases. Place of storage to be well ventilated, dry and well-drained.

(3) Carriage of carbide, by water, to be held to involve extra risk.

(4) Carbide to be free from phosphoretted or siliciuretted compounds, as determined by analysis, or assured by guarantee.

(5) Apparatus for generating acetylene to be inspected and approved before use, and to embody certain general features of construction to be hereafter specified.

(6) Rooms for the installment of apparatus to be well-drained, free from dampness, and provided with sufficient overhead ventilation communicating directly with the open air. No fire, flame, or artificial light to be allowed in apparatus room, nor are such places to be used for any other purposes than that indicated.

(7) Manufacture of gas to be carried out by a properly-instructed and capable person, and never to be attempted except by daylight.

(8) Residues from generator to be removed by daylight, and directly deposited at a proper distance from any building.

(9) The use of acetylene gas for lighting purposes, need not be placed under any special restrictions when the apparatus is not located in the building, and at a safe distance from it.

Some of the claims made by the Hamilton

Acetylene Gas Machine Co., whose generator is herewith illustrated, are:—

The light is the same every day in the year.

It gives the brightest light for the least heat.

It burns free and needs no chimney.

It gives a light nearer like daylight than any other illuminant. It has no soot.

Color values are the same by acetylene light as by daylight.

Decorations are the same by night as by day when you use acetylene.

“PEERLESS,” LUBRICATING

“R. R. R.,” DYNAMO
“PEERLESS” ENGINE
“DARK VALVE”

“DARK PEERLESS,” CYLINDER

“ATLANTIC” RED, “BAYONNE” ENGINE

“RENOVN” ENGINE AND “CAPITOL” CYLINDER

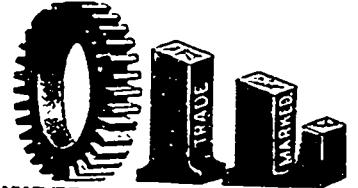
THE VERY BEST THAT IS MADE.

If our travelers fail to call in time, write for samples and prices. We can fit you out.

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...The Canadian Manufacturer...

SEND FOR RATES.

THE DIFFERENCE

The difference in taking down a section of line shaft, removing couplings, etc., and putting on solid iron pulley and then putting all back in place, and in putting on a “REEVES” Patent Wood Split Pulley, leaving the shaft unmolested, will in nearly every case pay for the “REEVES” entire.

REEVES PULLEY CO., Pearl St., - Toronto, Ont.

GET OUR CATALOGUE.

Candle power for candle power, it spoils only one-hundredth part of the air that open gas flame does.

It can be turned down without smoking. Acetylene is the cheapest illuminant known. It costs less than half as much as ordinary gas light does.

Acetylene consumes less oxygen from the air than any other gas.

It gives off but one-sixth as much carbonic acid and absolutely no poisonous carbonic oxide, as does either coal or water gas.

The temperature of an acetylene burner is but 3000 degrees, while an ordinary gas burner is 1,400 degrees; thus it will be seen that it heats the air much less.

A DUST COLLECTOR.

The dust collector is a necessary concomitant of mill equipment. Messrs. Wm. & J. G. Greer, in another column, advertise the Perfection dust collector, which is simple, durable, economical and accessible. In order to insure perfect work at all times, they have constructed the frame work of the perfection dust collector of iron, so that the shrinking and swelling of the wood is entirely overcome. The knockers for the cleaning apparatus are on top, therefore their own weight will give the required jar to the cloth or cross bars without the use of any springs. The machine does not need very much space, and in most places can be set on top of purifiers; the fan of the purifier blowing straight into the dust collector makes a very short connection and avoids crooks or bends in spouts. The air is blown into the centre of a large drum and then expanded outwardly through the openings and discharged through the bags on a large surface. The work of the dust collector is done easily, and no moving air is felt anywhere around it.

The arrangement to fasten the bag is very convenient; on the small end of the bag is an iron ring fastened to the cloth, leaving an opening for the air to enter. This end of the bag is put into the opening of the drum, and the other end, which is shut by a 7-inch wooden plate, is stretched with a bolt to the cross bar on the outside. After the bag is in place it is not possible for any leakage around it. This arrangement makes it very easy for the operator to replace any or all of the tubes without disturbing or tearing any cloth.

A MODEL ISOLATED PLANT.

The Gutta Percha & Rubber Company, of Toronto, have now installed and completed one of the most perfect electric plants in Canada. The Company started out with the motto that "whatever is worth doing is worth doing well" and with that end in view awarded the contract to a reliable contractor.

A feature of the system is the perfect system of wiring. It is all "clean work," but in place of ordinary weatherproof wire, solid rubber core wire has been used throughout. This gives them the best results when taken together with the fact that all wires are well supported and insulated. Although there are several buildings to be lighted, not a single feeder is exposed to the weather.

The dynamo is located almost exactly in the centre of the buildings making the distribution especially even. It is a seventy-five k.w., direct connected machine and is contained in a new brick power house built specially for it.

The switch-board is a very fine piece of work, being of white marble 5½x3½x1½ feet

thick, and contains instruments and switches. There is a main switch and there are seven circuit switches, being one switch to each individual circuit.

The whole switch-board is highly finished and presents a handsome appearance, well in keeping with the rest of the work.

The plant at present is wired up and is operating about 600 incandescent and fifteen enclosed arc lamps and some small motors.

The work is a credit to its installers. It was executed throughout by H. F. Strickland, electrical contractor, 77 Adelaide St. East, Toronto, who has already satisfactorily executed some very important work in Toronto.

A CURIOUS RAILWAY.

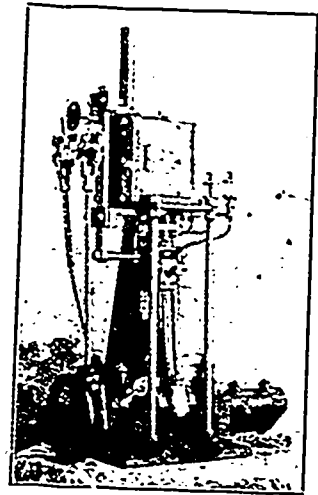
Some of the English papers have much to say concerning the new Halford system of railway construction; the plan, as briefly outlined in the London Times, being one in which gravity is the motive power, and the cars are always running down hill. This result is achieved by making the permanent way in sections, hinged together and at each end supported on hydraulic rams. As the train reaches the junction of two sections

it puts the hydraulic machinery in action, so that the ram rises, lifting the end of the section, together with the cars that are upon it; the train thus has a decline, down which it runs by its own weight, and, as the same

ALBERT BELL ENGINE WORKS

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YACHT ENGINES, 1 H.P. to 50 H.P.
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CARBONIZER A neutral substance, harmless to animal fibre or tissue, while it destroys burrs, etc., as efficiently as acid. It leaves the wool in fine condition. Manufactured by the Merrimac Chemical Co., 13 PEARL ST. BOSTON.



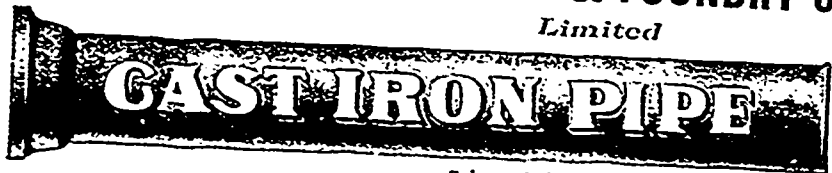
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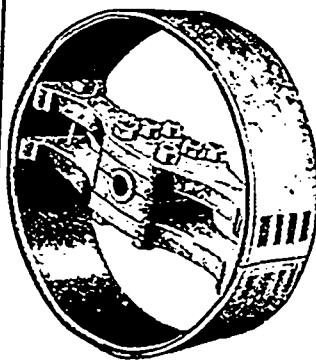
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For Water, Gas, Culverts and Sewers

Special Castings and all kinds of
WATER WORKS SUPPLIES

FLEXIBLE AND FLANGE PIPE.

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BENT WOOD SPLIT PULLEYS,
RIM... (REID'S PATENT).

The Strongest, Lightest and Best Belt Surface in the World

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

EVERY PULLEY GUARANTEED.

The Reid Bros. Manufacturing Co., of Toronto,
102-108 Adelaide St., West, Toronto.

process is repeated with each section, it is practically always running down a falling gradient, continuous, though of varying steepness. The hydraulic power necessary in carrying out this system is conveyed through a pipe which is laid beneath the rails, and the admission of water to the cylinders of the rams is controlled either by electrical means from the cars themselves, or by the weight of the train depressing the section it is about to leave, and in this way actuating the supply valve.

SKATES OF GLASS.

"I believe the death knell of metal and wooden skates has been rung," said one of the largest skate manufacturers to the writer recently.

Several practical inventors have been experimenting on these articles for years past, and the latest result is a skate made of glass, hardened by a recently discovered process to the consistency of steel. The entire skate is of this substance, the upper part resembling a slipper, open behind, with a split 'lace-up' front cap.

Among several advantages stated are, that they are much faster than steel blades, and so extremely slippery that they will run almost equally as well over rough, snow-covered ice, as upon smooth, and also easily over inequalities, broken twigs, and other obstructions. They are made very sharp, and owing to their extreme hardness, it is impossible to blunt them; and, unlike steel skates, they never want grinding, and cannot rust.

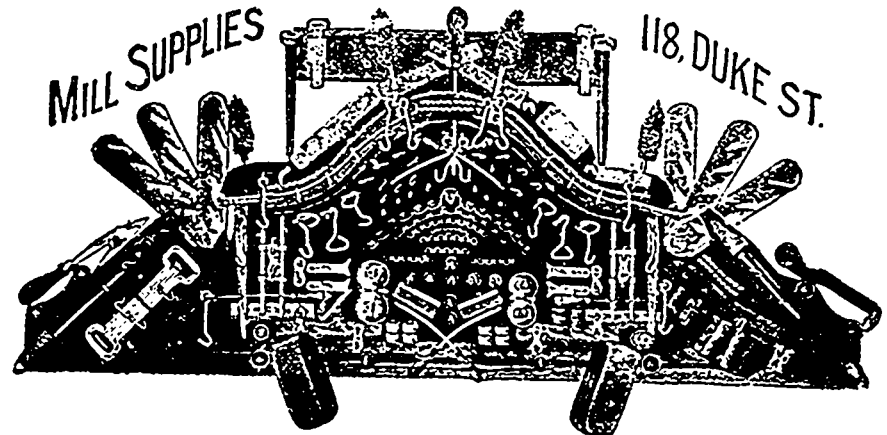
These "crystal" skates are really beautiful in appearance, being nearly transparent; the substance also has, while in the liquid state, been variously colored. They have already been privately tested. A famous skating champion recently tried a pair at the Niagara ice rink, using mahogany colored ones, to avoid attracting attention, the time being hardly ripe for exhibition. A private trial has been made in Paris at an ice rink especially hired for the occasion, several ladies—among them a celebrated continental lady skater—taking part; their skates were colored blue, crimson, brown, etc., to match their costumes.

Three offers of £6,000 and £7,000 have been made, it is said, by certain capitalists for a third share in the invention, but it is believed a company will be floated.—Pottery Gazette.

PERSIAN COTTON.

A report by the United States Consul-General in Teheran on the cultivation of cotton in Persia, and the native spinning and weaving industry there has been published by the Department of State in Washington. Cotton is indigenous to Persia and will thrive in any part of the country where the soil is suitable and irrigation possible. Owing to scarcity in the supply of proper manure the same land is not sown with cotton two years in succession, but is allowed to remain fallow for a year. Planting takes place at the commencement of April and continues for about a month, according to the varying circumstances of latitude and situation. The harvest begins with the last week in September and is finished everywhere by the end of October. The method of picking the cotton is much the same as that in use in other countries. After it is gathered and dried the cotton is put through a cleaner consisting of two parallel rollers, between which it passes, and a box to receive the seeds. The contrivance is an inefficient

GEO. REID & CO. Successors to The PAUL FRIND
Woolen Machinery Co., Limited,
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SPECIALTIES: Hamilton Cotton Co's Beam Warps.
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All Kinds of Textile Machinery. Machine Shops in Connection.

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Warp Yarns of all descriptions, in Skein, Chain or on Beams.
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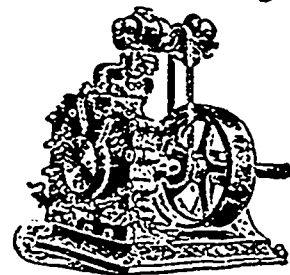
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The **Dake Engine**

For Running Dynamos in



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CONTRACTORS' HOISTS

STEADY AND EVEN MOTION,
ALSO FOR
Attachment Direct to Fans, Blowers, Centrifugal
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THE JENCKES MACHINE COMPANY
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Succeeding
THE PHELPS MACHINE CO., Eastman, Que.

one, but it cleans about 100 pounds in a day. The spinning for manufacturing purposes is by a hand-wheel, worked by females who are taught the work at a very early age. The cotton seed is usually given to the camels who are said to like it better than any other food. In Ispahan and a few other places, oil for lighting is extracted from the seed, but this industry is still of very small dimensions. The area under cotton in any given year is estimated by the Consul-General at nearly 37,000 acres, but, as much of this remains fallow every alternate year, the total area devoted to cotton cultivation would be about 60,000 acres. Even under the most favorable conditions of soil and climate the cultivation is very limited, except on the shores of the Caspian where the soil is moist, rain frequent, and artificial irrigation

unnecessary. The estimated average annual yield per acre is 500 pounds; this is probably seed cotton, which is equivalent to 150 pounds or 160 pounds of ginned cotton, and the yearly product is about 8,200 tons.

The Northey Manufacturing Co. are now building gas and gasoline engines. They will shortly issue a new catalogue.

The American Patent & Investment Company, J. A. McMurtry, manager, have opened offices at 71 Adelaide street, East, Toronto. They carry a big assortment of investor's samples and models and deal in home and foreign patents.

Stewart & Reeker are beginning the lumber business at Roland, Man.

Hamilton Blast Furnace Co.

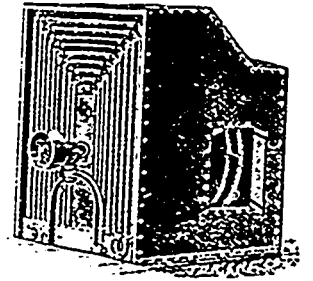
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The Fan System of Steam Heating for Heating of factories and all classes of buildings.

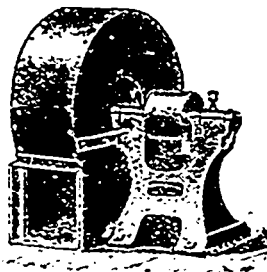


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Drying apparatus for drying of

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HAIR, SOAP, GLUE, Etc.



Fan.

VENTILATING...

Ventilating Fans for removal of dust, foul air, etc.

Write for Catalogue and Prices.

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GALT, ONT.

The Pulsometer

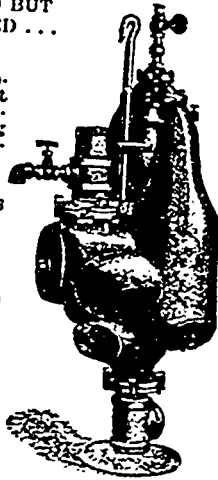
STEAM PUMP

OFTEN IMITATED BUT
NEVER EQUALLED...

The handiest simplest and most efficient steam pump for general Mining, Quarrying and Contractors' purposes.

Muddy or Crilly Liquids
Handled without wear.

Descriptive Catalogue
with prices, furnished on application.



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A. R. Williams Machinery Co.

Toronto and Montreal,
Selling Agent for Canada.

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Blue and Cream Laid and Wove Foolscaps, Account, Envelope and Lithographic Papers, etc.

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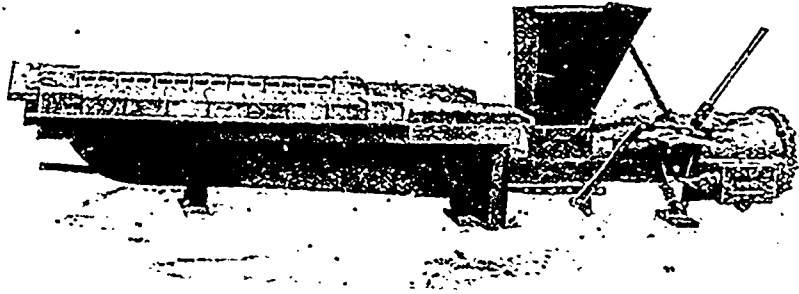
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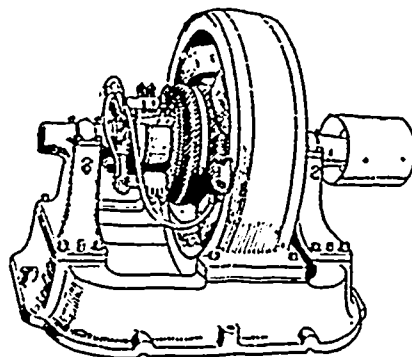
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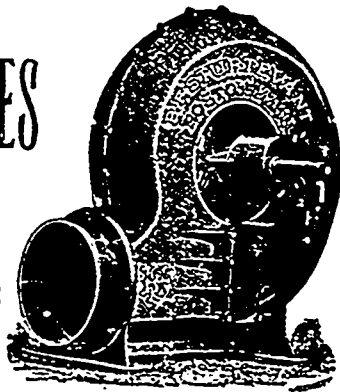
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TWENTY-FIVE SIZES AND STYLES

HAND POWER AND BELT POWER

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FOR FORGES



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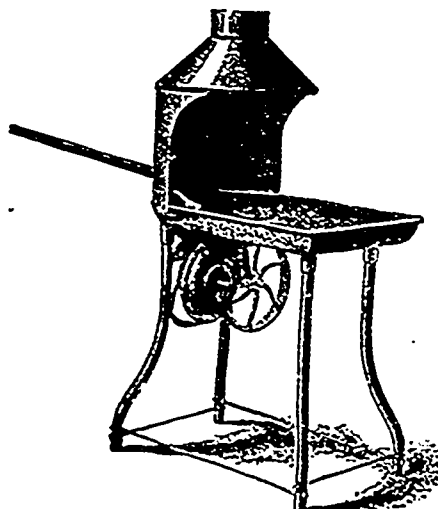
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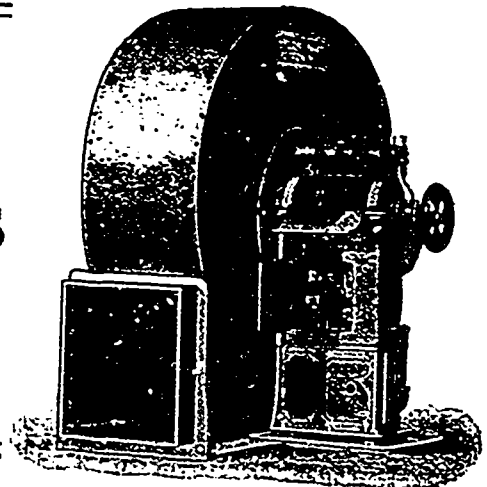
Boston, Mass., U.S.A.



The STURTEVANT Blowers and Exhausting FANS

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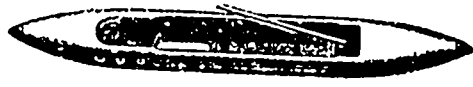
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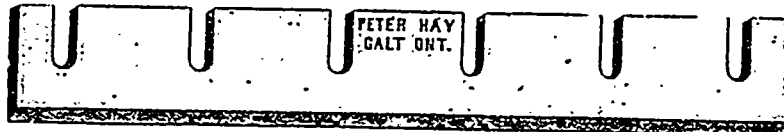
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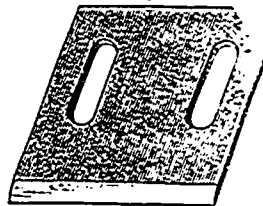
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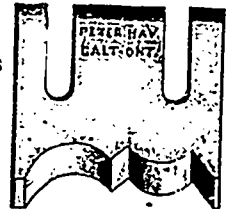
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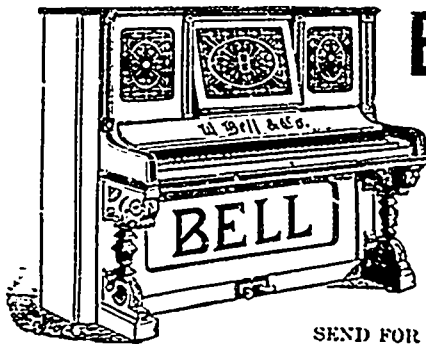
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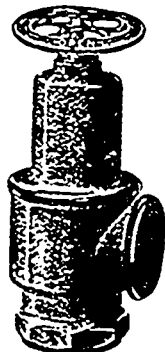
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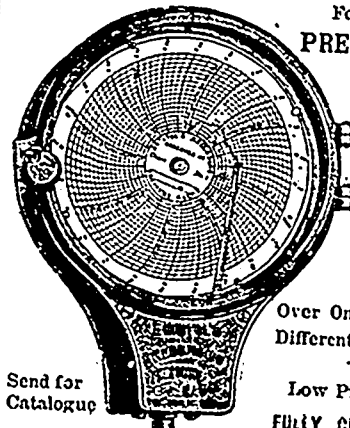
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