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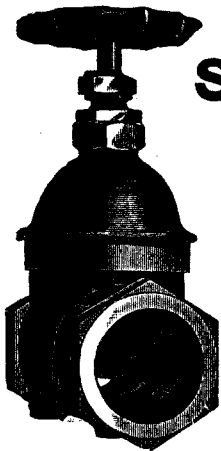
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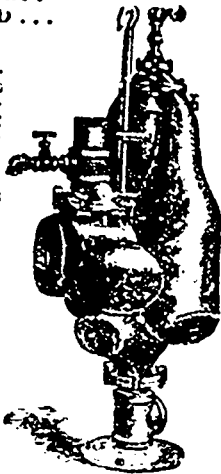
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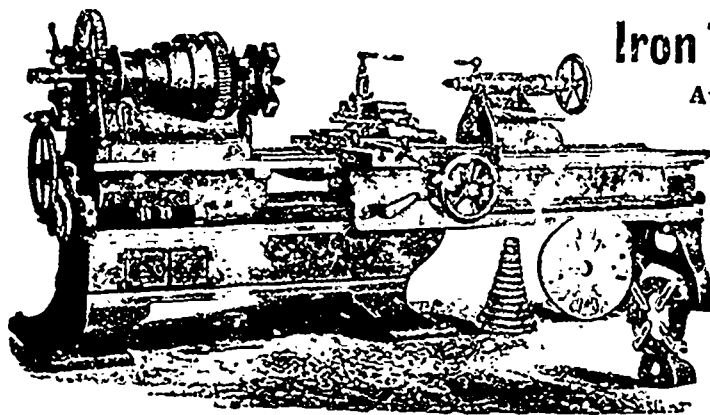
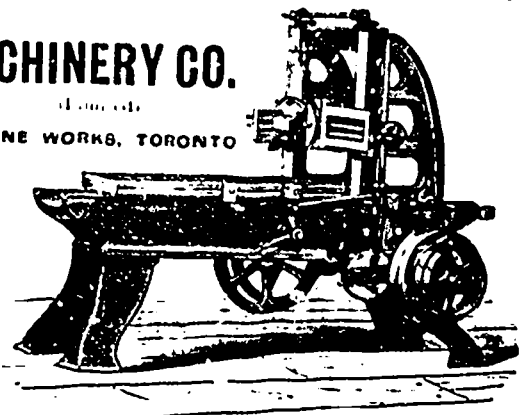
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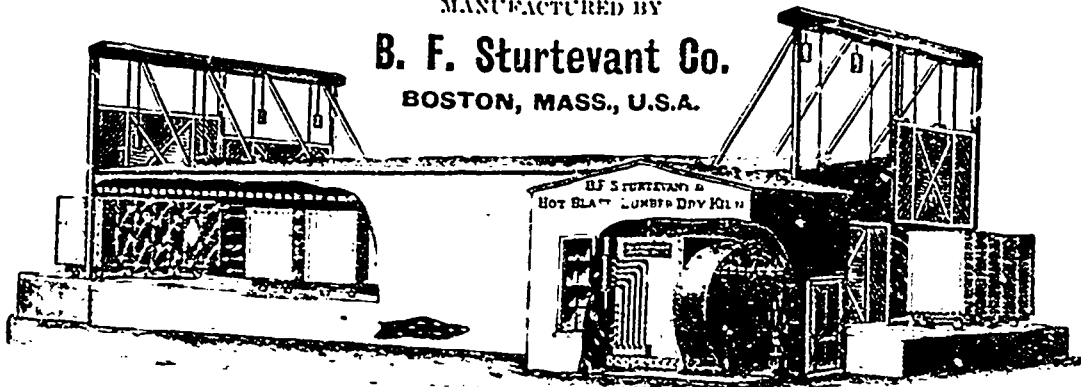
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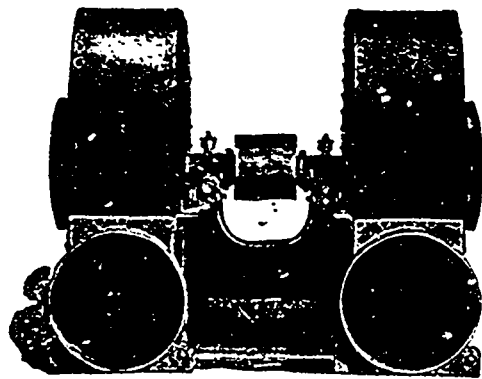
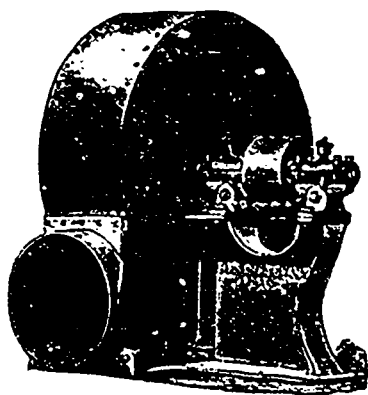
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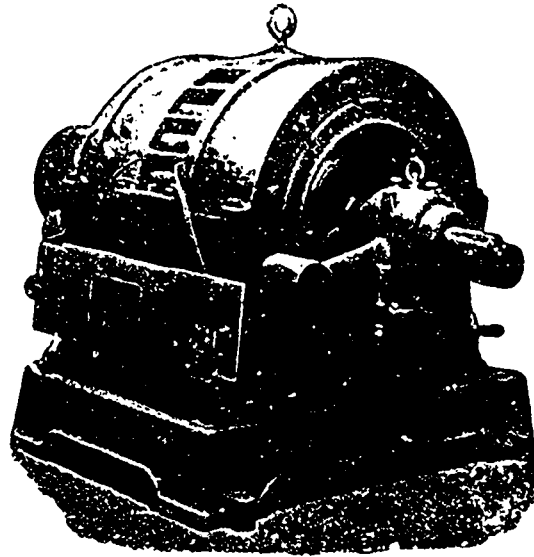
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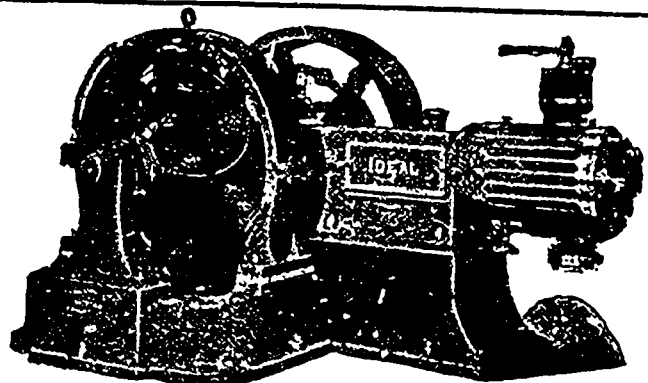
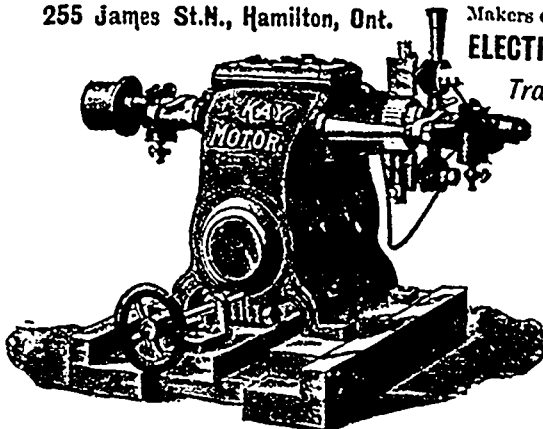
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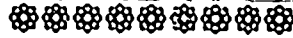
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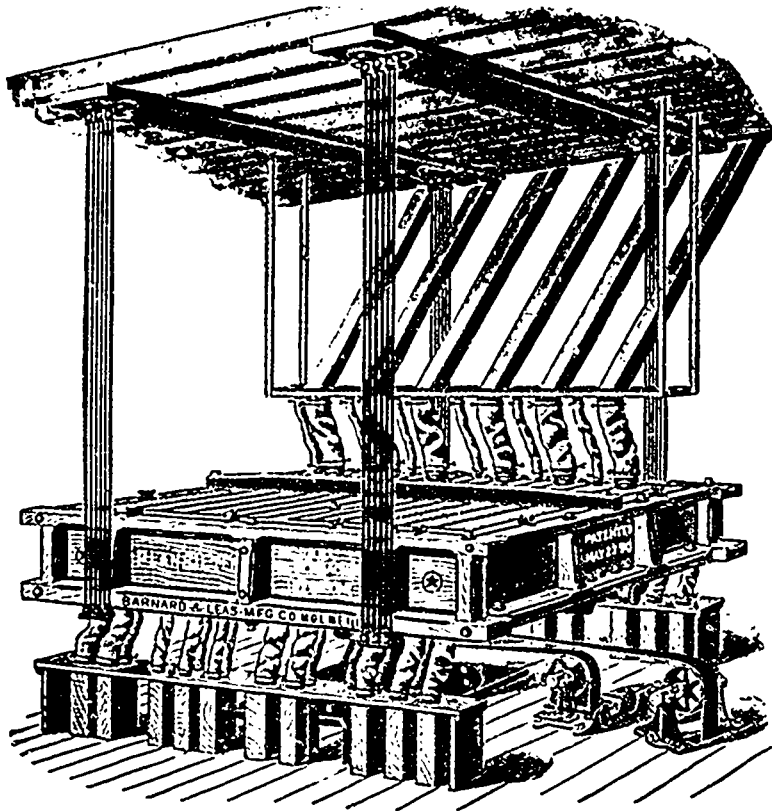


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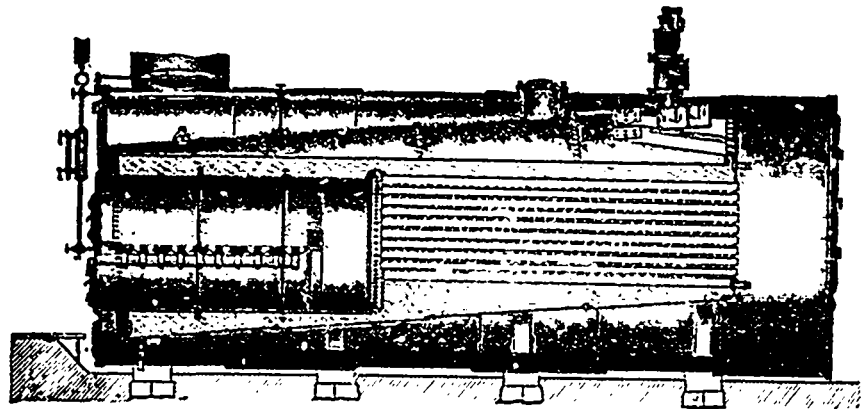
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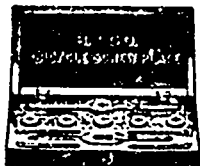
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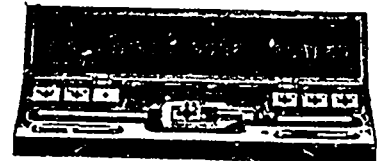
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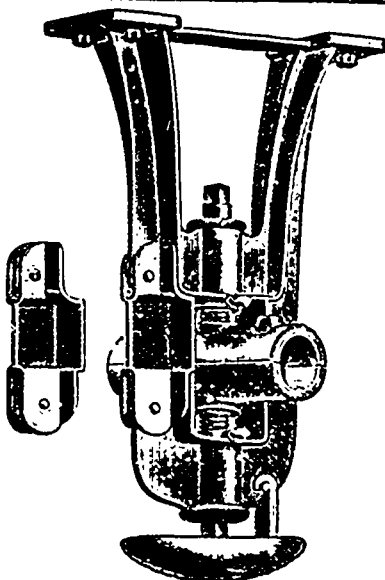
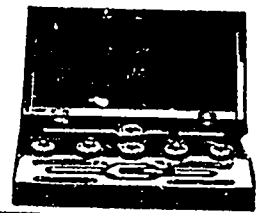


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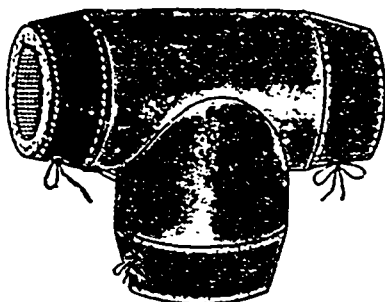
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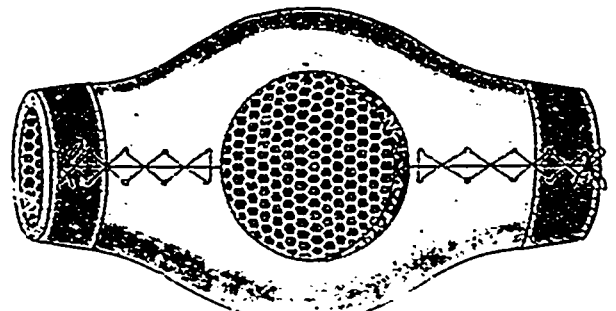


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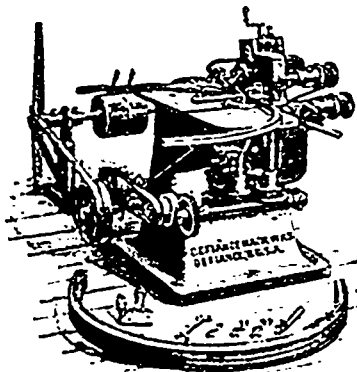
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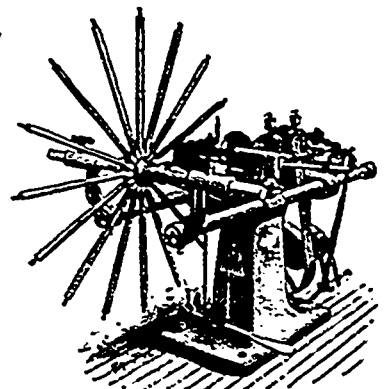
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PREFERENTIAL TRADE WITH GREAT BRITAIN.

During July and August of last year this journal discussed the question of preferential trade with Great Britain at considerable length, and published a large number of extracts from leading commercial papers in England commenting on the proceedings and speeches at the Third Congress of Chambers of Commerce of the British Empire which was held in London in June. At that meeting, Mr. Joseph Chamberlain, Secretary of State for the Colonies, expressed the opinion that the best course to pursue in order to effect Imperial

Commercial Federation was by the "creation of a Zollverein or Customs' Union which would establish at once, practically free trade throughout the British Empire, and would leave contracting parties free to make their own arrangements with regard to duties upon foreign goods, with this as an essential part of the proposal, that Great Britain shall consent to replace moderate duties upon certain articles of large production in the colonies. The articles upon which such duties should be levied coming from abroad would be grain, meat, wool, sugar and other articles of enormous consumption in this country, which are largely produced in the colonies, and which might be wholly produced in the colonies and by British labor. On the other hand, the colonies, while maintaining their duties upon foreign commodities, would agree to a free interchange of commodities with the rest of the Empire, and cease to put a duty upon any product of the British Empire." At the same meeting, Mr. Osler, President of the Toronto Board of Trade, moved a resolution containing the following clause: Resolved, "that in the opinion of this Congress the advantages to be obtained by a closer union between the various parts of the British Empire are so great as to justify an arrangement as nearly as possible of the nature of a Zollverein, based upon the principles of the freest exchange of commodities within the Empire, consistent with the tariff requirements of the local government of each Kingdom, Dominion, Province or Colony now forming part of the British family of nations." This clause in Mr. Osler's resolution very fairly represents the sentiment of the great majority of the people of Canada on this question. Mr. Chamberlain's proposition would involve the adoption of a policy of direct taxation in order to meet the serious loss of revenue from customs which would result. Without attempting to discuss the merits of direct taxation, it may be unhesitatingly affirmed that Canada, at least for the present, is neither inclined to or adapted for such a policy.

Among the many extracts formerly selected from British journals and published in these pages, we reprint the following:—

The British Trade Journal said: The Empire cannot be confederated commercially except by a tariff against the rest of the world, and the question now is: What are the colonies prepared to do in the matter, and what are the people of this country ready to do on their part? Unless sacrifices, which may be very nominal, are made on both sides, Imperial commercial federation may be put upon one side. . . . Are the people in the colonies prepared to differentiate in their tariff in favor of British manufactures against similar goods from foreign countries: and are the people of this country ready to differentiate by a duty, however small, in favor of the colonies and dependencies, and against the rest of the world? The governments of the colonies should move in the matter, if the chambers are really in earnest. . . . They should, in the first place, pass bills imposing lower duties upon British than upon foreign goods. They should enforce such duties. This would bring the question of the German and Belgian treaties to the front, and it would force the hands of the home government. If the colonies wish the people of this country to use their produce in preference to that from foreign countries, they must show in a practical way their readiness to give advantageous terms to British manufactures. . . . The colonies cannot, for the sake of their revenue, do away with their tariffs.

The most they can do is to show that blood, as the German Emperor has recently discovered, is thicker than water, and that they are prepared to treat the Mother Country in a spirit of generosity. Then they can rest assured that the claims of the colonists for more favorable treatment in this country will come with a force which no government here will be able to resist."

The London Economist, one of the ablest and most influential free trade journals in the world, made the following remarkable admission with respect to the proposed change of policy: "We are perfectly willing to consider all proposals for minor modifications of the policy on their merits. We have no patience with those who shout down such proposals with the cry that they are contrary to free trade principles, as if those principles were necessarily incapable of the slightest alteration. . . . In truth, freedom of trade is only good for the country when its effects are good."

The Chamber of Commerce Journal, London, said: "The highest anticipation formed by its conveners were realized by the Third Congress of Chambers of Commerce of the British Empire. . . . It is no part of our task now to attempt a review of discussions which must be, for some time to come, a source of inspiration on one subject, that of Commercial Union within the Empire. . . . A distinct and definite opportunity is now given to the colonies generally, to seek for a discussion as a matter of high policy, and in leading up to that invitation, the Congress has advanced the question considerably on its way to a final determination."

The Textile Mercury of Manchester, which has probably the largest textile circulation in the world, published a series of articles on the Commercial Federation of the Empire, and said: "It has always been affirmed by free traders that free commercial intercourse would inaugurate an era of peace among the nations, but so far as free trade principles have been tried, the opposite has been the result, for although we have opened our ports to all comers, we are hated more thoroughly and universally than any other people. . . . Competing plans should be submitted to the country for securing its interests, and amending, not destructive criticism should be offered to them. . . . The commercial federation of the British Empire is one of these measures, and if the Radical and the Free Trade party cannot produce better, they ought to help to improve, and assist in securing its adoption, because the conditions and circumstances of the nation imperatively demand some such measure if they are not to be blindly allowed to drift to destruction."

Invention, of London, an illustrated weekly review of industrial and scientific progress, said: "Our patriotic feelings would lead us to see a nation banded together by a strong Imperial Federation, the stepping stone to which lies in the Imperial Zollverein discussed by the Congress which has been sitting in our metropolis. From a practical commercial standpoint, such a union would be an inestimable benefit both to the Mother Country and to the colonies which are her offshoots. . . . What we wish to secure first is, that the goods which are imported by the United Kingdom from any other portion of her empire shall enjoy preferential treatment over like goods which may be imported from foreign countries; secondly, that exports from the United Kingdom to any other portion of the empire shall receive the same preferential treatment; thirdly, that intercolonial trade shall be similarly favored in the matter of tariffs."

From the above, and numerous other expressions in British journals, this journal had no difficulty in arriving at the conclusion that the time is opportune for taking decisive action, and, as our readers may remember, we have time and again urged, that, without waiting for the co-operation of any of the other colonies, the Canadian Government should at once submit to the Imperial Government, practical propositions for a mutually preferential tariff. We said, in one instance: "In approaching the British Government with a trade proposition we are appealing to men who have a warm sympathy for Canada, and who will have pleasure in acceding to our proposals, if they are found to be reasonable. The time seems opportune for the Canadian Government to take the initiative in this direction, and it will be to the disgrace of our politicians if they fail to avail themselves of the present favorable sentiment in the United Kingdom." All of the expressions in favor of Imperial Commercial Federation which we have seen in British journals, or have heard from the advocates of this policy in Canada, admit that there is nothing in the present fiscal policy of England which entitles that country to preferential treatment from the Dominion, as Canada does not enjoy any preference there. The contention has rather been that under present conditions it is not only possible but advisable that both countries should establish preferential treatment towards each other, and that on the adoption by any colony of a tariff granting material differentials in favor of Great Britain, it would become the duty of that country to devise some means by which she can grant an equivalent privilege to that colony.

The action which this journal has advocated would be accomplished by a short Act of the Dominion Parliament, reciting that "inasmuch as Great Britain receives the produce of Canada free of duty, it is hereby enacted that a rebate of 25 (1) per cent. from the regular rates of customs duties established under existing tariffs shall be allowed and granted on all merchandise imported from Great Britain, being the produce or manufacture of that country." While the Act should not make any stipulation or condition that the rebate is conditioned on some corresponding preference to be received from Great Britain, it should be frankly and clearly stated in the preamble that "Canada entertains the confident belief and expectation that this action on her part will lead to a policy of preferential trade in her favor." Such a course would not be without precedent. In 1842 Canada enjoyed a material preference in the British market over foreign countries in the duties upon grain, animals, timber, etc.: but the duties on Canadian wheat and flour were still high, being five shillings per quarter on wheat, and proportionately on flour. One reason which Great Britain had for imposing these duties was that Canada admitted United States wheat free of duty, and so long as this was the case, Britain might be largely supplied with United States wheat, or flour made in Canada from American wheat, exported from Canada, and imported into Britain under the duties established for colonial produce. Having ascertained that this was the main objection to the reduction of the duties, the Canadian Legislature passed an Act, 6 Vic. cap. 31, imposing a duty of three shillings sterling per imperial quarter, on all foreign wheat imported into the province. The preamble of the Act recited, among other matters, "Whereas the chief objection to the free admission of wheat and wheat flour into the said United Kingdom from Canada

arises from the free admission of foreign wheat into Canada; and whereas a certain dispatch addressed to the Governor of this province by Her Majesty's Secretary of State for the Colonies, dated the second day of March last, a copy whereof has been laid by His Excellency's command before the Legislature of this Province, affords the strongest ground for the confident belief and expectation that upon the imposition of a duty on foreign wheat imported into this province, Her Majesty will be graciously pleased to recommend to Parliament the removal or the reduction of the duties on wheat and flour imported into the said United Kingdom from Canada."

This Act was reserved by the Governor-General for Her Majesty's assent and approval; was assented to by Her Majesty in her Privy Council on July 15, 1843; and was followed by an Act of the Imperial Parliament 6 and 7 Vic. cap. 29, which, after reciting the action of the Canadian Legislature, reduced the duties on Canadian wheat and flour to one shilling per quarter on wheat, and four pence, half-penny per cwt. on flour.

Why should not a similar course have been followed now? Why should the policy of preferential duties have been embodied in the tariff, and made applicable to all countries at the discretion of the Controiler of Customs, when the wishes of the people are that it should be confined to Great Britain alone? Why should there have been any concealment of the real object of the policy, which is to obtain preferential treatment for our produce in England? Why should the value of the preferential duties to Great Britain be minimized by the extension of the privilege to Belgium, Germany, and no one appears to know how many other countries? If Canada can obtain preferential treatment for her products in Great Britain, it becomes a matter of indifference what the policy of other European countries may be. England affords a market for all the surplus which Canada can raise, and if England can be induced to impose a moderate duty upon foreign breadstuffs, provisions, etc., this would not raise the prices but Canada would realize through the duty, and to extent of the duty, just so much more than her competitors, the United States, Russia, Danubian provinces, Argentine, etc. By the generalizing terms of the preferential clause in the tariff the claim for preferential treatment from Great Britain is sadly weakened, the danger to our manufacturing industries from competition with cheap-labor countries largely increased, and a most dangerous power left at the discretion of the Controiler of Customs, which parliament ought to have reserved exclusively under its own control.

RECIPROCITY WITH GREAT BRITAIN.

Broomhall's Corn Trade Year Book for 1896 devotes a large space to the letter of a correspondent on the subject of "A National Reserve of Breadstuffs," in which a history of the agitation in favor thereof is given. At a meeting of the Unionist members of the House of Commons who represent agricultural constituencies, held on April 21st last, a resolution was unanimously adopted urging the appointment of a committee of Naval and Military experts, together with gentlemen of experience in commerce and agriculture, to consider any schemes that may be submitted for the purpose of making Great Britain independent of the foreigner for its food supplies in time of war. A meeting of the Council of the

Central and Associated Chambers of Agriculture was held on June 2, 1896, at which were present twelve members of the Central Chamber, with the Secretary, and thirty-nine members representing Associated Chambers, and several members of parliament. A motion "That the Government be requested to institute an inquiry into the question of National Granaries" was carried, there being only twelve votes in opposition. At the annual conference of the Conservative and Constitutional Associations of England and Wales, held at Rochdale on November 17th, there were present 1,070 delegates, of whom 600 represented counties and 470 cities and boroughs. A resolution was moved by Mr. Yerburgh, of Chester, seconded by Mr. D'Arey Wycill, M.P., (Otley division of Yorkshire), and carried unanimously, urging Government to appoint a Commission to inquire and report on the subject. Previous to any of the above meetings, on February 27th, Mr. Seton Kerr (St. Helens), had, in the House of Commons, asked the First Lord of the Treasury, whether the Government would appoint a Select Committee of the House to consider the advisability of erecting State granaries, and Mr. Yerburgh (Chester) asked whether, in case it should be found that the question of national defence was involved, would the enquiry be entrusted to some body in which the naval and military authorities would be represented. Mr. Balfour replied: "I think it might be desirable that the opinion of military experts should be expressed in such a tribunal, but, as at present advised, Her Majesty's Government do not think that such an enquiry could lead to a useful result." It is evident that the advocates of a national reserve have not been daunted by the position of the Government, but are determined to continue the agitation, as they believe that Great Britain would be in a perilous condition in case of war.

Their argument is, that England now requires to import more than three-fourths of the wheat required for its consumption, and that with an annual increase in population this proportion must increase every year; that with the numerous sources now available, the demand is continually becoming more and more of a hand to mouth character, so that stocks at the ports amount to barely three weeks' consumption for the kingdom; that this state of things is extremely dangerous; that forty government granaries should be established in different parts of the kingdom into which should be gradually collected eighty million bushels of wheat, one-third of which should be sold in each year, to be replaced by fresh supplies. They contend that the revenue derived from a duty of one shilling per quarter on foreign wheat would meet all the expenses. They propose that terminable annuities for fifty years should be issued, which, if on a basis of two per cent. interest, would make an annual charge of £969,951, or if at 2½ per cent. interest, £1,012,576. The capital outlay for granaries and annexes for drying wheat is estimated at £3,900,000. For 10,000,000 quarters of wheat, at 35s. per quarter, (this is surely much too high a price for wheat) £17,500,000. Total outlay, £21,400,000. The annual expenditure for working the granaries, for maintenance, depreciation and insurance, wages and local superintendence, coal and material, central administration and brokerage on annual sales of wheat is estimated £288,046; the annual charge for interest and sinking fund on 2½ per cent. basis, £754,530. A duty of one shilling per quarter on foreign

wheat—leaving all other grain untaxed—would yield between £1,100,000 and £1,200,000, which is more than sufficient to cover the amounts required for interest and sinking fund payments and working expenses. At the end of fifty years the whole debt would be extinguished, and the granaries and reserve of wheat would form a national asset of the value of £21,400,000 which would cost only £288,000 a year for its support.

Quite a strong argument is offered in proof of the contention that the duty of one shilling per quarter will not necessarily add to the cost of wheat. For more than twenty years, during which time a Liberal Government was in power more than sixteen years, (Mr. Gladstone, Chancellor of the Exchequer more than ten years), the one shilling per quarter registration duty on imported wheat was allowed to remain untouched, and it is hardly credible, that the great Liberal Party, pledged to free trade as the chiefest principle of their policy, would have consented to a protective duty. Mr. Lowe, in taking off this duty, said that this would have the effect of "creating that abundance to which the existence of an entrepot so largely contributes by circulating traffic and sensibly lowering prices." The correspondent of the Corn Trade Year Book very tersely remarks:—"It has not made the country an entrepot of wheat, but it is not so certain that it has not largely contributed to the hand to mouth dealing with our daily bread, which, circumstanced as we are, is a simple negation of all thrift." He adds:—"Mr. Corrance, the member for East Suffolk, who took a prominent part in the discussion upon Mr. Lowe's budget, when challenging the contention that the remission of the one shilling duty on wheat would reach the consumer, said, "By Sir Robert Peel, and if I mistake not, by Mr. Gladstone, it was, I say, held that this small duty could be levied for purposes of revenue, and that it did not in any way affect the price." Mr. Gladstone made no disclaimer, either on Sir Robert Peel's behalf or his own, of the opinion thus attributed to them. The article goes on to say: A rise of 5s. per quarter in the price of wheat justifies an increase in the price of bread of 1d. per four-pound loaf. . . . The truth seems to be, that while a one shilling duty will not increase the price of the bread of the people, its effects on the profits of merchants, millers and bakers will be governed by the relation of supply and demand. In a rising market the buyers in this country will have to pay it; in a falling market, it will be paid either in part or in its entirety by the sellers in the country where the wheat is grown.

Reference is made to the conclusion of a very able writer, who, in speaking of freight rates and the average price of wheat, says—"Of course any reduction of the freight rate would tend to keep up the price of wheat in Chicago." To this, the Corn Trade Year Book says:—"This is quite true, and subject to conditions of supply and demand, it would raise the price; and the corollary is, that an increase of the freight rates, or an additional charge such as a one shilling per quarter duty, would, under the same conditions, tend to keep down and lower the price."

This journal publishes the above, because the agitation referred to, and the arguments used, have a close connection with the quite extensive discussion of the question of preferential trade or reciprocity between Great Britain and her colonies. It is true that the question of national reserve of wheat has again been recently brought up in the House of

Commons and rather flippantly treated by Hon. Mr. Balfour, who thinks such a policy unnecessary because of the friendly feeling between the United States and Great Britain, and because Government would become a large grain-broker. It may suit politicians to shirk from dealing with the question but there is evidently a growing feeling of alarm in commercial circles over England's possible position in case of war, and a very determined opinion that some steps must be taken to guard against deficient food supplies in that event. May it not be, that the action of the Canadian people in tendering preferential trade to the mother country will materially strengthen the hands of those who are in favor of restoring the one shilling per quarter on foreign wheat? So far as Canada is concerned it would be of great benefit to her if this were done, even if coupled with the provision that the duty should not apply to foreign wheat, if loaded at and shipped from a British seaport. This would attract to our St. Lawrence route an immense traffic in grain, and add largely to the revenue of our canals and railways, forwarding companies, etc. Canada may reasonably claim some consideration from the people of Great Britain, not only because of its recent enactment of a preferential tariff in favor of the mother country, but because of its enormous expenditure on railways and canals which for thirty years past have contributed largely to the cheapening of the supply of breadstuffs and provisions. By the spring of 1899 the completion and extension of the canal system will be accomplished. With a fourteen foot channel from the head of Lake Superior to Montreal, the transportation of grain from the far west to Europe will be reduced in cost, as compared with the present, fully two cents per bushel, or more than one-half of the duty suggested to be levied in England. Such considerations may be reasonably expected to carry some weight in inducing Great Britain to grant some preferential treatment to Canada. Under such a policy, Montreal and Quebec, in the season of lake and canal navigation, and Halifax, St. John and Sydney in the winter months, would become extensive storehouses for grain reserves for England. The United States would have no right to complain, as Great Britain would only be treating Canada in the same way as the former country treats her Western States; nor could the United States retaliate by export duties, as these would fall on her own farmers, nor could she do so by increased import duties on British merchandise, as these are now prohibitory on everything except on the few classes or styles of goods which she cannot produce herself.

COMMERCE BETWEEN THE UNITED STATES AND CANADA IN AGRICULTURAL PRODUCTS.

If the arrangement of the respective tariffs of Canada and the United States were left to men of extensive practical experience, there can be doubt that with respect to all agricultural products common to both, there would be a unanimous agreement that all such products should be free of duty. In both countries the prices of nearly all of this class of merchandise are determined by the values for export to Europe. On account of the difference in the earliness or lateness of the seasons, on account of the somewhat better adaptation of soil and climate to a few special products, on account of the contiguity of portions of the one country pro-

ducing a surplus of certain products to a section of the other country deficient in the same products, a very natural and extensive interchange should be encouraged. Nor would this result in any material disturbance of values in the general markets. Unfortunately the discussions and decisions on this feature of the tariffs have been entrusted to politicians who have treated it rather with a view to party advancement than as a business question to be dealt with only on commercial considerations. In the United States the argument in favor of high duties is sustained by a stupid appeal to the fears of the farmers, on the ground that the free imports from Canada would seriously depreciate the values in the home market. In Canada a political party and press have labored for years to humbug the farmers with the impression that free trade with the United States would restore the high prices of thirty years ago, leaving out of view the fact that general prices of produce have declined fully as much in the United States as in Canada. In both countries these parties pose as the special friends of the farmers, whose votes they hope to secure by promising in the one case to protect against imaginary danger, and, in the other, to secure for them impossible advantages.

We quote the following taken from the Home Market Bulletin of Boston :—"Hon. James Wilson, Secretary of Agriculture, thinks there is something wrong with the American farmer, when we are importing so many things that can be produced as well in the United States. For example, last year, 800,000 eggs from Canada, 950,000 bushels barley, \$466,000 worth of beans and peas, \$556,000 worth of cabbages, \$100,000,000 worth of sugar, \$2,773,535 worth of hay, \$600,000 worth of hops, nearly \$2,200,000 worth of rice, \$1,547,741 worth of cheese, \$2,673,000 worth of flax and hemp, and \$2,683,000 worth of seeds."

It can hardly be supposed that Mr. Wilson ever stated that all these imports came from Canada, or were produced there, but rather that our contemporary, in condensing his remarks, omitted reference to other countries. But it is just this style of loose assertion that assists the unscrupulous politician in misleading the farmer. When reference is made to imports from Canada, why should there not be given at the same time a candid statement of the exports to that country?

The annual report of the Commerce and Navigation of the United States for the year ending June 30, 1896, shows that the value of the imports and exports of agricultural products from and to Canada during that year were as follows :—

Imports into the United States from Canada.	Exports to Canada from the United States.
Animals of all kinds. \$1,399,380	\$827,521
Eggs 83,360	30,392
Provisions 223,006	2,807,714
Field products: bar- ley, rye, wheat, other grains, flour, fruits and nuts, hay, vegetables, etc 5,688,437	9,706,255
\$7,394,183	\$13,371,882

From the above statement it might be argued, if the politician's style of argument be adopted, that Canada purchased nearly twice as much in value of agricultural products from the United States as that country purchased from Canada. But, in the case of both imports and exports, a considerable portion of them consisted of products which merely passed

through either country, on their way to foreign countries, viz.: Wheat, corn, flour, provisions, etc. Making due allowance for such deductions it will be found that the value of the imports for actual consumption into the United States from Canada was a little less than the imports into Canada from the United States.

The two most important items of imports into the United States from Canada were live animals, \$1,399,380; and hay, \$2,646,834. Strange to say, these two items appear to furnish to some of the politicians there their principal arguments against free admission of Canadian produce. If they had any experience in practical business they would see that they furnish strong arguments in the opposition direction.

Nearly the whole value of the live animals consists, as may be easily seen from their average value per head, of young cattle and sheep, imported into the United States, to be fed into a marketable condition for home consumption or export. The United States exported during the above year, 25,126 horses; 5,918 mules, 491,565 sheep, 372,461 cattle, besides an immense value of animal products. With respect to imports from Canada of live young cattle, and of hay, it does not require much sagacity to decide that this is more conducive to the prosperity of the United States farmer than it would be to have these animals fed, and the hay consumed in Canada, thereby increasing Canadian competition in the foreign markets in which the United States finds sale of these products.

If the United States Secretary of Agriculture would consult the statistics published by his own Government, relative to commerce between Canada and the United States, in a pamphlet entitled, "Review of the World's Commerce" during the years 1895-1896, he will find on page 99 the following facts :—

The United States exported to Canada in 1895..	\$58,398,009
" 1896..	62,574,084
Total	\$120,972,093
The United States imported from Canada in 1895.	\$40,748,940
" 1896.	37,353,317
Total	\$78,102,257
Excess of exports from the United States to Can- ada in two years nearly fifty-five per cent.	42,669,836

What can be thought of the statesmanship of the politician who would argue in favor of the exclusion of two or three million dollars' worth of certain foreign products, and thereby imperil the sale of about sixty million dollars' worth of his own country's produce or manufacture?

THE TARIFF ON MINING MACHINERY.

A Special General Meeting of the members of the Federated Canadian Mining Institute was held in Montreal, on May 7th, at which there was a good attendance. Mr. Geo. E. Drummond, president, occupied the chair.

The Secretary, having read the notice convening the meeting, submitted the following telegram from Major Leckie, President of the Mining Society of Nova Scotia :—"Am strongly opposed to admitting mining machinery free. Mining industry has not greater claims than others to exemption. Entirely unjust to Canadian miners to admit American coke and ore free, and in addition, pay two dollars bounty on their product. Export duty unjustifiable; should be opposed most strenuously."

Mr. Jas. F. Lewis, of the Canadian Rand Drill Company, stated that a representative meeting of Canadian mining machinery manufacturers had been held that afternoon, when a resolution was adopted asking the government to specify for duty the following articles: Ore and rock crushers, stamp mills, Cornish and belted rolls, rock drills, air compressors, and percussion coal cutters. The list was an exceedingly modest one, and it was hoped it would receive the support of the Institute. If all mining machinery were admitted free, his company would simply shut down their Canadian Works and ship their drills and compressors from the other side.

Mr. Wm. Hamilton, of the Wm. Hamilton Manufacturing Co., Peterborough, Ont., stated that during the past year his company had gone to considerable expense in fitting up their works for the construction of special lines of mining machinery under the E. P. Allis Company's patents. The introduction of free mining machinery would entail serious loss to his company.

After considerable discussion it was moved by Mr. J. E. Hardman, Montreal, seconded by Mr. John F. Stairs, Halifax:—

Whereas the items relating to mining machinery in the tariff just superseded were susceptible of misinterpretation by the different collectors of customs, thereby creating occasional annoyance and delay in passing entries and whereas the language of item 535 of the present tariff is likewise susceptible of misinterpretation; be it resolved that the Federated Canadian Mining Institute respectfully suggests to the Federal Government the advisability of re-constructing this item to read as follows:

(a) That ore and rock crushers, stamp mills, Cornish and belted rolls, rock drills, air compressors and percussion coal cutters be specially enumerated as dutiable;

(b) All tools, machines or appurtenances to be used exclusively for mining, milling, smelting, reducing or refining, or materials used in the construction of the same, n. e. s. Free.

The motion was carried unanimously.

The question of the provision in the tariff for an export duty on iron and steel made from Canadian ore was next considered, and after discussion

Mr. A. W. Stevenson, Montreal, moved, seconded by Mr. Jas. S. Mitchell, Sherbrooke: Resolved—That the members of the Institute respectfully urge upon the Federal Government the necessity of cancelling the clause relating to the imposition of an export duty on iron and steel made from Canadian ore and fuel, fully believing that such an export tax would prevent the full development of our iron mines and industries which the proposed bounties are meant to encourage.

The motion was carried unanimously.

It having been intimated to the Convention that the Minister of Finance and the Controller of Customs would receive a deputation from the Institute on the following day, on that day a large deputation waited upon the Ministers. When the views of the Institute and the forgoing resolutions were presented, Mr. Lewis submitted a list of machinery and appliances which he suggested should be admitted duty free, when for use in mining operations as follows:

All pipes of wrought iron above two inches (but or lap-welded) and used exclusively in mining.

Pressure or exhaust fans for ventilating mines, exclusive of power.

All coal cutting machines, except percussion coal cutters.

All machinery for coking ovens.

Stanley and other coal-heading machines.

Miners' safety lamps.

Coal augers and rotary coal drills.

Diamond and all other core drills.

Machinery used in the washing and dressing of coal.

All electric or magnetic machines for the separation or concentration of iron ore.

Drying and ore roasting machinery.

Blast furnace blowing engines and all rotary pressure blowers.

Blast furnace water jackets.

Jigs, classifiers, separators, buddles.

Slime tables, vanners.

Amalgamating and settling pans, used for ore dressing.

Ball grinding machines.

Machinery for the extraction of the precious metals by the chlorination or the cyanide processes, excepting power.

Copper plates, electroplated or otherwise, for use in reduction works.

Automatic samplers for ores containing precious metals, excepting power.

Amalgam safes.

Retorts.

Automatic feeders.

Amalgam cleaners.

Mercury pumps.

Bullion furnaces.

Bessemer and other convertors for iron and copper ores.

Briquette making machines for fuel and ore.

Sheet-iron pipes, monitors, giants, and elevators used in hydraulic mining.

Pyrometers, gauges (spring and mercury) used in furnace work.

All safety appliances for mining.

All materials imported for the manufacture of the above machinery.

This memo was signed by Mr. Geo. E. Drummond, president of the Federated Mining Institute, Mr. James Cooper, chairman and Mr. J. M. Jenckes, secretary of the committee of Canadian Mining Machinery Manufacturers; Messrs. J. E. Hardman and J. J. Penhale, members of the Mining Committee, and Messrs. J. F. Lewis and Wm. Hamilton, jr., members of the Manufacturer's Committee.

It is to be observed that in the amended tariff resolutions submitted to Parliament on May 25th, the views of the institute were incorporated in the following items relating to mining machinery:—

Item 305.—Steam engines, boilers, ore crushers, stamp mills, Cornish and belted rolls, rock drills, air compressors, cranes, derricks, percussion coal cutters, pumps, n.e.s., windmills horse powers, portable engines, treshers, separators, fodder or feed cutters, potato diggers, grain crushers, fanning mills, hay tedders, farm wagons, slot machines and type writers, and all machinery composed wholly or in part of iron or steel, n.o.p., twenty-five per cent ad valorem.

Item 535.—Mining, smelting and reducing machinery, viz:—Pressure or exhaust fans, rotary pressure blowers, coal cutting machines except percussion coal cutters, coal heading

machines, coal augers and rotary coal drills, core drills miners' safety lamps, coal washing machinery, coke making machinery, ore drying machinery, ore roasting machinery, electric or magnetic machines for separating or concentrating iron ores, blast furnace water jackets, converters for metallurgical processes in iron or copper, briquette making machines, ball grinding machines, copper plates, plated or not, machinery for extraction of precious metals by the chlorination or cyanide processes, monitors, giants and elevators for hydraulic mining, amalgam safes, automatic ore samplers, automatic feeders, jigs, classifiers, separators, retorts, buddles, vanners, mercury pumps, pyrometers, bullion furnaces, amalgam cleaners, slime tables, blast furnace, blowing engines, wrought iron tubing, butt or lap welded, threaded or coupled or not, not less than 2½ inches diameter, when imported for use exclusively in mining, smelting, reducing or refining.

CONVICT LABOR.

On account of the recently renewed interest in the question of prison labor and its effects on various lines of industry in the United States, the American Manufacturer has been making some enquiries relative to the trades pursued, and it finds that the work of the convict, aided by improved machinery, has told severely in more branches than one. Recently enacted legislation has done much toward restricting what was fast becoming quite a trouble to several important industrial lines, but the aggregate production of prison labor is still large enough to surprise those who have not looked into the matter. Thus our contemporary finds that 90 to 92, if not 95 per cent. of the black cast iron and hollow ware used in the United States, is made in the state prisons of Ohio, Indiana, Maryland, Illinois, and in New York until January 1, 1897, when the new convict labor law went into effect, stopping the manufacture of all goods in the prisons of that state. Large quantities of plumbers' castings were manufactured until that time at the Auburn, Elmira and Sing Sing prisons, and the manufacture of these articles is still carried on extensively at Baltimore, Md., Jeffersonville, Ind., and Sterling, Ill. At Elmira plumbers' brass goods were also manufactured. The largest industry in the penitentiary at Joliet, Ill., is stone cutting, the manufacture of shoes, rattan chairs, and furniture. At the Baltimore prison large quantities of plumbers' iron ware, stove plate, cast iron sinks, plumbers' marble slabs and furniture tops are being manufactured, and before the passage of the new law, large quantities of waggon hardware, axles, etc., were turned out at the Auburn prison. But in Pennsylvania competition with free labor has come less from prison labor within the state than from prison labor outside of it. The principal products of Pennsylvania state prisons are mats, matting, kegs, barrels, shoes, hosiery, brushes and brooms.

What is making the effects of prison labor so severely felt by free labor is the fact that the most improved machinery is used under the most favorable circumstances for cheap production. Another peculiar evil is that the industrial work done in prisons is concentrated on a few lines, with the result that several branches of free industry have been absolutely ruined thereby. As has been stated the manufacturers of cast iron hollow ware have keenly felt prison competition. Recently quite a number of prominent prison offi-

cial have been heard from on this question. Several have very justly made the plea that it would be nothing short of cruelty to put a man in a cell and compel him to be idle. Experience has shown that absolute idleness soon brings insanity, hence the convict must be given something to keep his faculties employed. But how to do this without injury to free labor is the question. Undoubtedly, says our contemporary, the first step towards a solution of this problem is to take power driven machinery out of the prisons, and substitute hand labor exclusively.

One of the prison officials recently quoted stated that "if prison labor is to compete with outside manufactures, it must have up to date machinery." In this the official showed an entire misapprehension of the situation. The first object of prison labor is the physical and moral good of the prisoner, not "competition with outside manufactures." And this can be accomplished as well, and perhaps better without machinery than with it. The prisoner who is taught some branch by which he learns to use his hands is certainly better fitted for resuming life in the world, than one who spends years in the automatic work of tending a machine. The discussion of this subject will doubtless bring out one fact which seems to have been lost sight of, and that is, that when the state for the protection of society, locks a man up it should seek to reform him rather than make him a source of profit.

The conditions in Canada are much worse than in the United States, for the penal institutions of this country have been made active competitors against free labor in many industries, many of which have already been driven out of existence by the competition of convict labor. It was difficult enough when higher tariff duties prevailed, to exclude the importation of convict made goods into the country, but now when the duties are merely nominal there can be nothing that can prevent our markets from becoming flooded with the products of American, German and other prisons. Such articles as our contemporary enumerates as being the products of American prisons are imported into Canada in large quantities, and as it is practically impossible to distinguish their disreputable origin, it will be found that the difficulties under which Canadian manufacturers now have to labor under a greatly reduced tariff, will become most painfully accentuated by the competition of prison made goods from the United States and elsewhere. The outlook is not encouraging, but there appears to be no present remedy for it.

MADE IN GERMANY.

The American Manufacturer has an interesting article showing how German manufacturers are driving certain lines of British goods out of some of the markets of the world. It says that German hardware manufacturers are considerably stirred up over the account of an interview which a representative of The Ironmonger had recently with a Sheffield manufacturer who had just returned from a business trip to Brazil and the Argentine Republic. In this interview the Sheffield gentleman stated that the German manufacturers secured most of the British trade by fraudulently imitating English marks, and by marking their goods with English words. He further made the sweeping assertion that ninety per cent. of the German export trade is transacted on false representations. *Stahl und Eisen*, the leading German iron trade paper,

waxes wrothy at hearing these charges, and after branding them as barefaced lies quotes the statement of a leading German hardware manufacturer, who has branch houses in South America. The latter deals with the question of trade marks at length, and refutes the charge that the Germans are the only traders who use the marks of other countries. This gentleman declares that the well-known firm Nettlefold, of Birmingham, at the head of which Mr. Joseph Chamberlain stands, marks wood screws for export in French after the pattern of a French firm. The legend "Made in Germany," has proved something of a boomerang to its authors, for the customers, discovering that what they had believed to be British goods were made in Germany, they proceeded to order direct from Germany, thus cutting out the English jobber.

Continuing, the writer in the journal mentioned gives some interesting details regarding the present position of the English in the South American markets, as compared with former times. Twenty-five years ago razors were imported exclusively from England; to-day Germany supplies ninety per cent. and Great Britain ten per cent. Twenty-five years ago all scissors for the South American market were imported from Great Britain; to-day there are none, the trade being about equally divided between Germany and France. Twenty-five years ago all butchers cutlery was taken from England; to-day South America takes none, France supplying eighty per cent. and Germany twenty per cent. Plantation knives (machetes) England supplies hardly any to-day, and that only of the poorest grades, Germany supplying sixty per cent., the United States forty per cent. Twenty-five years ago all axes were imported from England; to-day none, the trade being controlled altogether by the United States. All these German goods bear the name of the manufacturer.

The German journal, in concluding its answer, very reasonably argues that if the German trade in South America and other countries had been built on fraud it would have collapsed long ago. It is evident that British cutlery manufacturers are keenly feeling German competition, and while there may be some fraudulent practices in the trade, it is plainly a case of the survival of the fittest.

EXPORT DUTY ON PULPWOOD.

A valuable contribution to the current tariff discussion is a letter written by Mr. E. B. Eddy, a large manufacturer of pulp, paper, indurated ware, etc., at Hull, Que., regarding the export duty that, in his opinion, ought to be imposed on pulpwood. He says:—

Within the last few months I have noticed quite a feeling expressed and considerable discussion in the different newspapers of the day, and different meetings of Boards of Trade and deputations to wait upon the Government, in relation to the advisability of placing an export duty on pulpwood, and, being one who feels a great interest in the prosperity, welfare and increased population of this Dominion, I wish to submit a few plain facts, which will, to my mind, show anyone, no matter what station he may occupy, whether it be the Government, merchants, manufacturers, or farmers, that the prosperity and growth of this country demands an export duty on pulpwood of at least \$4 per cord, if not \$5, thus compelling the manufacture of pulp in our own country.

The consumption of the United States is about four million tons of mechanical ground wood pulp annually, and of this quantity not less than 25 per cent. of this pulp comes from wood the growth of this country. In the past year about

600,000 cords of pulpwood has been exported to the United States, besides which a quantity of the pulp has been ground here, principally in Nova Scotia.

The cost of production of these 600,000 cords of wood into pulp, with the freight from the mills to the border, will amount to about \$5 per cord, thus depriving us of the circulation of money in labor and freights of some \$3,000,000 in the past year.

If an export duty is levied to the extent I have stated it would lead immediately to the investment of some five or six million dollars in the erection of mechanical pulp mills, stretching all the way from St. John, N.B., in the east to the Lake of the Woods in the west, and this would lead to the building up of scores upon scores of villages where waste lands now exist and give employment to thousands upon thousands of the laboring class, and the demand for labor would be more than we could supply.

The labor required to manufacture one million tons of pulp and to freight to the border would necessitate an outlay of some \$5,000,000 annually, and this alone would make a little country of itself.

Some people are under the impression that this export duty if put on will leave the farmers and those who have wood to sell no market, but I venture to say that if this duty is placed on pulpwood, in a few months' time the price of pulpwood would be enhanced very much above the price that is now paid, for the consumption of the mills that would be erected in Canada. We would find that we would require no alien labor law passed in this Dominion as the influx of capital and labor into Canada for the express purpose of manufacturing mechanical wood pulp would exceed by far anything that has transpired to the growth and prosperity of this country prior to this time.

I do not advocate the export duty because I am a manufacturer of pulp myself, nor for any personal reason whatever, for the competition we would have in the manufacture of pulp would increase the price of wood over and above what we now pay. There is no doubt at all about this. Neither do I advocate it in any spirit of retaliation in any way, shape or form, but I do advocate the protection of rights and privileges in the interest and welfare of our own Canada, entirely independent of what the effect may be on any foreign country.

Some pretend to say that they have enough pulpwood in the United States to last a score of years or more. This to my knowledge is not so, if the present consumption of pulp continues, which, no doubt on the other hand, will very much enlarge.

The State of Maine has the largest supply of pulpwood of any State in the Union, and she at this time cannot supply herself with wood, but is importing quite a large percentage of wood from the Province of New Brunswick for the manufacture of pulp in her own state.

In the State of New York the Adirondacks forests are next, and in this very State over 60 per cent. of the pulp that is used is made from Canadian timber, which is taken from the Province of Quebec and the Province of Ontario.

In many localities in the United States they are reserving their pulpwood, and will do so, so long as they can continue to draw their supply from Canada free of duty. We also have another large market open to us, and that is Great Britain.

People are looking forward with anticipation to the growth of our Dominion in population and wealth, but I for one would like to know how this can be done, or can be expected, when our natural resources are allowed to be taken from us and manufactured in another country, which is thus benefited thereby, to the detriment of Canada, and millions of money annually paid out to foreign laboring classes which might and should be paid out to and circulated in our own country, benefiting all classes of the community, either directly or indirectly, and making a demand for labor far beyond what we are able to supply.

THE BEET SUGAR INDUSTRY IN THE UNITED STATES.

Referring to the rapidly growing beet sugar industry in the United States the New York Journal of Commerce says :

"A gentleman, very closely allied with the Sugar Trust, stated to a representative of this journal that the Sugar Trust regarded the growth of the sugar beet with more concern than any other form of competition. The reason for this condition was the fact that the beets could be grown and the sugar refined sufficiently to go immediately into consumption in the adjacent territory without being subject to the freight charges from the seaboard or from the South that competing sugar would necessarily be subject to. The question that confronted the sugar refiners, according to the gentleman in question, was whether the refiners by entering upon beet growing on an extensive scale, by selecting land especially suited for the best development of the beet and by erecting an extensive refinery, could compete favorably with the growers and secure a profit at prices that the growers could not.

"Another member of the sugar trade who was conversed with declared that the only way the Sugar Trust could meet this competition was by keeping the price of beets down and then establishing refineries or sugar houses at points tributary to the growing districts. It is learned from responsible authority that neither the Sugar Trust nor the outside refiners (with the exception of Claus Spreckels) are interested financially in any of the beet sugar factories at present in existence. It is understood that special efforts are to be made to make the growth of sugar beets an important industry in Florida in the near future. Thus far, sugar factories are in operation in California, Nebraska, New Mexico, Utah and Virginia, and new factories are approaching completion in New York State, Wisconsin and California.

Following is a list of the present factories and the factories in course of construction, as compiled by Messrs. Willett & Gray :

Western Beet Sugar Co.....	Watsonville, Cal.
Chino Beet Sugar Factory.....	Chino Valley, Cal.
Alameda Sugar Co.....	Alvarado, Cal.
Norfolk Beet Sugar Co.....	Norfolk, Neb.
Oxnard Beet Sugar Co.....	Grand Island, Neb.
Eddy Beet Sugar Factory.....	Eddy, N.M.
Utah Sugar Co.....	Lehi, Utah.
O. K Lapham & Co.....	Staunton, Va.

New factories approaching completion are:—

- At Rome, N.Y., factory formerly in Canada.
- At Menominee Falls, Wis. (Wisconsin Beet Sugar Co., Milwaukee, Wis.
- At Alamitos, Cal. (the Alamitos Sugar Co., Los Angeles, Cal.)
- At Salinas City, Cal., proposed by Mr. Claus Spreckels.

"The following figures show the growth of the beet root sugar industry in the United States, from its first inception in 1830, when but a few hundred pounds were made to the present time, when 40,000 tons are manufactured :

	TONS.
1830....A few hundred pounds.	1883535
1831-7...None.	1884953
1838-9...1,300 pounds.	1885600
1839-62..None.	1886800
1863-71..300 to 500 tons per annum.	1887255
1872....500 tons.	18881,910
1873.....700 tons.	18892,600
1874-7...Under 100 tons per annum.	18902,800
1878....200 tons.	' 915,359
1879.....1,200 tons.	189212,091
1880....500 tons.	189320,453
1881-2...Under 500 tons.	189420,443
	189530,000
	189640,000
	(estimated).

MR. RICHARD COBDEN.

The London, Eng., correspondent of the Boston, Mass., Home Market Bulletin has been writing that journal a chapter about Mr. Richard Cobden—the decay of his theories, and how his life proved a failure.

A year ago, says this writer, the followers of Cobden—wherever they may still be found were celebrating the 33rd anniversary of his death, while it is 92 years since his birth. Sufficient time has now elapsed to be able to judge this man's work from an impartial standpoint.

In England, Cobden's name is no longer one to arouse enthusiasm. The British workingman points to the glut of foreign made manufactures in the English stores as his answer ; the agriculturist merely needs to glance at the millions of acres of good land scattered all over this country which are out of cultivation, with every promise of remaining so for years to come. It is a platitude to say that free trade has ruined our agriculture. All the world knows that ; but it is too often thought that it has fostered our national manufacturing industries. That is a complete fallacy, as has already been amply demonstrated in these columns. But it has not really helped us in any way permanently. We have certainly been able to get our raw materials cheap, but foreign countries are now able to reproduce cheaper still. The United States can obtain coal more economically than we can, while they have excelled us in the output of pig iron, etc. India can beat us in the manufacture of the commoner sorts of cotton goods and has already taken away the export trade of Lancashire in these goods, not only with British India, but with the far East. And now we have Japan threatening to compete not only against England but against India herself. We have lost our agriculture and we seem in a fair way to lose our manufacturing supremacy.

The recent dispute between this country and the United States has brought out very clearly the absolute dependence of England upon America for her food supplies and her raw cotton. During the crisis the technical press was full of articles on this very question, and a country which has enjoyed protection for many years is now in the proud position of being able to supply a free trade nation with its food, its material for cotton manufacture, and many manufactured goods besides. If all the American ports were blockaded by Europe her people could still exist ; but can we say the same of England ? We all know that this country could not exist under such conditions for many days.

These then are some of the points of Cobden's teachings. He laid it down as a certainty that, directly European countries found out what a blessed thing free trade was, they would also adopt it. But that time has not come, although Cobden has been dead for thirty-three years. Instead of that we see the most determined efforts made to exclude British goods from foreign markets by means of tariffs, while the same plan has been followed by our own colonies, which have built up high tariff walls against the mother country.

Cobden was a failure in his own business, which was that of calico printer, etc. This smashed up entirely and left Cobden with heavy debts. A subscription was raised which amounted to between £70,000 and £80,000 (\$350,000 to \$400,000). The most singular thing is that Cobden, who professed to believe that free trade would bring in its train

abounding prosperity to the trade of his country, deliberately, ten years after the repeal of the corn laws, preferred to invest his funds in a very doubtful undertaking in a foreign protectionist land! A few years later all this money had disappeared and his position was again serious. His friends once more subscribed, and this time it amounted to £40,000 (\$200,000). Cobden thought that all the ills of humanity were to be cured by the repeal of the corn laws, and he was dominated by the idea that "there never was a duty that was not paid by the consumer." He tried to convert Europe to free trade, but failed. He wanted them to cease manufacturing and to simply grow corn for the English market. England, in return, would buy her raw materials cheap, pour her manufactures into these foreign markets, dictate the price of wheat to the Continental grower, and thus grow rich by leaps and bounds.

It is hardly to be wondered at that Cobden failed to convince European governments. They were quite agreeable to our opening our ports to their grain; but naturally resented the suggestion that their ports should be open to our manufactures.

MEETING OF THE SHAREHOLDERS OF THE CANADIAN MANUFACTURER PUBLISHING COMPANY, LIMITED.

THE Shareholders of the Canadian Manufacturer Publishing Co., Limited, are hereby notified that a General Meeting of the Company will be held on Monday, the 14th day of June, 1897, at the hour of 11 o'clock in the forenoon, at the Head Office of the Company, Room 408 McKinnon Building, corner Jordan and Melinda Streets, Toronto, for the purpose of receiving and considering a report from the Directors upon the affairs of the Company, to elect a Board of Directors for the ensuing year, and generally to consider other business of importance to the Company.

J. C. GARDNER,

Secretary.

Dated this 4th day of June, A.D. 1897.

EDITORIAL NOTES.

Mr. A. C. Neff, chartered accountant, Toronto, for many years most favorably known in this city and province, has associated with him Mr. James Wood, their firm name being Neff & Wood, and their place of business McKinnon Building, Toronto. These gentlemen offer their services as public accountants, auditors, assignees, etc. Many years' successful service and experience in office and financial management for prominent Toronto manufacturing and mercantile concerns were the foundation of their now well-established reputation as expert accountants.

It will take four more sugar factories the size of the Lehi plant to supply the home market in Utah, and it is proposed to locate one of these at Mount Nebo. Work has begun on the foundation of the new factory at Alamitos, Southern California, which it is said will have a capacity of over five hundred tons of beets daily. The campaign at Chino has closed with total deliveries of nearly 50,000 tons of beets, while shipments at Anaheim were 16,500 tons. At the Lehi factory 1,000 head of cattle will be fattened on the pulp this winter; receipts of beets have been running 1,500 tons per day, and a Provo ranchman reports receipts of \$190 from two acres. Sugar manufacturers in Germany are organizing a trust to co-operate with the Austrian and Russian trusts to compete with American-grown sugar in the United States.

Many propositions are on foot for factories in Nebraska, especially one at Chadron. Several Virginia places are anxious to secure beet sugar factories. The harvest for the Watsonville factory will be wound up this month, the total production probably exceeding 130,000 tons this year. Beet growers in Contra Costa county are so pleased with the returns from the Alvarado factory that they will plant a very much larger acreage next year. A projected sugar factory at Ashland, or elsewhere in Jackson Co., Oregon, is being pushed by A. C. Coleman.—American Agriculturist.

California seems determined to lead in the beet sugar industry. Active work has begun on Spreckels's great plant at Salinas, which will be one of the largest beet sugar factories in the world. It is to be a quadruple mill, each of 750 tons capacity daily, and will thus be able to work up 3,000 tons of beets per day. It will be ready for the 1898 crop. Ventura farmers, who have had great success raising beets for the Chino factory, are trying to induce Spreckels to put one up for them. A large plant has already been begun at Long Beach, Los Angeles Co. The Pajaronian of Watsonville, Cal., thinks that "when this beet season is closed, it will be found that the Watsonville factory has the largest daily capacity of any factory, that it holds the American record of greatest number of tons crushed (probably 150,000 tons this season) largest tonnage of sugar produced with corresponding high saccharine percentage, and best beet yield per acre." We have received hundreds of letters from enterprising people in various towns and counties all over the arid west, the central west, the middle south and the middle states that are anxious to secure beet sugar factories. They are ready to make any reasonable concession to secure a beet sugar factory. In many of these localities beets have already been grown in an experimental way for several years, and the farmers are ready to contract to raise any amount of beets for a series of years at \$4 to \$5 a ton. In some communities, local capital is ready to co-operate with outside capital, while in nearly every case, a site, water, fuel, lime, etc., are offered on the easiest of terms. If Congress will so legislate as to protect against the competition of the export-bounty fostered sugar of Europe, we hope to see many new factories established within the next few years. Our suggestion of a national organization of sugar beet growers and others, for an effective campaign all along the line, seems to meet with favor. Something of the kind is necessary to best results.—American Agriculturist.

CORRESPONDENCE.

RE THE IRON DUTIES.

Editor THE CANADIAN MANUFACTURER.

SIR.—The new tariff threatens to destroy what can fittingly be called the minor metal industries. These are the users of bar and rolled iron, such as the rivet, bolt, nut, tack and other makers, as well as the cut nail, iron axle, horseshoe and hinge manufacturers. So also will it be with the various articles used by carriage makers. As bar iron is their raw material on the one hand and the products of their factories are the raw material of the agricultural implement makers and others, they are really and truly "between the devil and the deep sea." It is now known that the representations of the Massey-Harris and Noxon companies have largely shaped the Government policy in this respect. But it would have been well for the Government to have gone more closely into the figures before making such a sweeping and radical change. The implement maker has certainly had a right royal time of it if we can judge by the financial results. In a short space of twenty-

five years the Harris Company of Brantford, were able to show a balance in favor of the individual members of the company of over one million and a quarter of dollars. The Massey Company of Toronto, claimed to have done a great deal better. By their own sworn statement, on exported goods the average duties paid on imported goods used in their machines was only a trifle over \$3.75 on each machine, and this gave them the greater part of their material all but ready for use. The amount of duty or rather cost of a number of articles thus used was in reality but a bagatelle over the cost of the raw iron, had they purchased it and completed the work themselves.

And yet, although the farmers of Canada have contributed all these millions to their coffers, and their workpeople cannot be said to have become too wealthy, these cormorants have no hesitation in making such representations as will destroy over a million dollars worth of property in the smaller industries.

The Hon. Mr. Jones erstwhile treasurer of the grit Government of Manitoba, a member of the Massey-Harris Company is the moving spirit in this crusade. This huge concern has always some leverage with either Conservative or Reform Government as they have succeeded in dividing rather neatly on the political question. When all else failed to dragoon the Conservative Government, the threat of removal to Niagara Falls, N.Y., or Chicago was tried, but did not succeed. Now the Hon. Lyman Jones is getting in his work and he seems to be doing it well. The owners of a number of establishments have been to Ottawa to put their side of the case, and we see that the Hon. Mr. Jones has again appeared upon the scene. The result of the deliberations of the Cabinet is, of course, awaited with great anxiety, as ruin stares many of our manufacturers in the face.

May 31, 1897.

IRONWORKER.

Outing for June is full of the breezy, wholesome literature of the great out-doors. The frontispiece, "The Spirit of the Age," and the poem with which the number opens are a tribute to King Bicycle. Other interesting features are: "Intercollegiate Cycle Championships," by Dixie Hines; "Wheeling in the Mikado's Land," by T. Philip Terry; "Bass and Bass Fishing," by Ed. W. Sandys; "Champion Canoes of To-day," by R. B. Burchard; "Inter-University Rowing in '97," by Chase Mellon; "Across the Alleghanies Awheel," by Jno. Carrington; "Sport on the Mosquito Coast," by Stevens Vail; "The Advent and Status of Golf," by "Albion"; "Driving Four-in-Hand," by A. H. Godfrey; "Sea-fishing Off San Clemente," by S. M. Beard; "Frankie's Wooing," by Louise D. Mitchell; "A Bicycle Factory;" and the usual editorials, poems, etc.

The Methodist Magazine and Review for June completes its forty-fifth volume with one of the best numbers yet issued. It opens with a generous appreciation of "John Wesley," by Dean Farrar, and a splendid frontispiece portrait of the Founder of Methodism. The Queen's highway across the continent, and the Empire of Japan are illustrated with numerous engravings. "The Land of the Sky" has several illustrations of the picturesque mountain-region of North Carolina. "The Problem of the Poor," by the Rev. H. A. Fish, is of much interest. "The Latest News from the Moon" has graphic engravings of our nearest celestial neighbor. Another stirring paper on "The Gold Boom in Cariboo," by Rev. A. Browning, is given. Reviews of such important books as Captain Mahan's "Life of Nelson," and others, are given, with illustrated notes of "World's Progress" and "Science Notes." Published by William Briggs, Toronto: \$2 a year.

The June Ladies' Home Journal presents an infinite variety of interesting features. It opens with an article by William George Jordan on "What Victoria Has Seen," which graphically recounts the progress of the world in the past sixty years, since the coronation of the English Sovereign. Coming on the eve of the Queen's Jubilee it is especially timely. The establishment of Methodism in America is told in an interesting article, "When John Wesley Preached in Georgia." It narrates Wesley's great work, his forceful preaching, describes the first Methodist sermon in America, which was delivered by Wesley, and his Sunday-school, which was the first in the world. "Uncle Sam's Confessional" describes how the money paid into the Conscience Fund of the United States Treasury is received, and how its guilty senders carefully avoid revealing their identity. Charles Dana Gibson's drawing—"The People of Dickens"—most interestingly pictures Mr. and Mrs. Micawber, David Copperfield and Traddles, and a page of Mr. Woolf's waifs gives a most touching insight into what summer means to the children of the poor in cities. A song, "Wake Up! Cupid," by Willard Sponser, will be welcomed by every lover of music. Along the more practical lines are Mrs. Rorer's "Cooking Lessons," "A Simple Way to Swim," "The Backyard as a

Summer Retreat;" "Lamp-Shades for Summer Cottages," "The City Woman's Garden." The Curtis Publishing Company, Philadelphia. One dollar per year.

"The ingredients of that composite thing that Princeton men worship under the name of Old Nassau" is the theme celebrated in J. W. Alexander's article on "Undergraduate Life at Princeton," which leads the June issue of Scribner's Magazine. According to some authorities Stephen Crane depicted the feelings of a soldier in battle better from his imagination alone, than others had done it from actual experience. Those who read "The Open Boat," in this number, will agree that he has pictured the sensations of the shipwrecked better from his own experience of it, than others have achieved it by force of imagination. This is the first elaborate account of his terrible experience, after the wreck of the steamer "Commodore" when on its way to Cuba. No question is more insistent at this time than the relations of Corporations to Labor. Octavo Thanet has written five complete stories on phases of this problem, the first of which appears in this issue under the title "The Non-Combatant." This story shows how really insignificant is the gap between the laboring man and capitalist. Mr. Howell's "Story of a Play," gives an amusing picture of life in a New York flat on the upper West Side somewhere in the Eighties. C. D. Gibson's glimpses of "London Salons" give an idea of what London is at the height of the season. A picture and poem by the late Theodore Robinson, a long lyric by George Cabot Lodge, other poems and the departments complete this varied and entertaining number.

Electricity says that a new process of coloring leather by means of electricity is being exploited in Germany. "The leather is placed upon a zinc table, which forms the positive pole. The dyeing material is poured over this, and the negative pole connected to the leather. Under the action of the current the coloring matter penetrates the leather, and patterns may be designed upon the surface by covering it with a pattern plate connected to the negative pole."

THE WONDERS OF PULP WOOD.

The announcement made recently in England and in France that the discovery of a process for the manufacture of silk directly from wood pulp has proven an unquestionable commercial success, means not only that the silk worm industry, as well as the silk worm itself, is doomed, but it marks the latest step in that wonderful advance, within the last ten years, in the use of wood pulp as a material for manufacture. Very few people probably are aware of the varied uses to which this product technically known as "cellulose," is now put—that from it now comes the larger part of the paper which we now use, and also many of the car wheels of the coaches upon which we ride and rails for railways, and wagon wheels, and horse shoes, imitation porcelain ware, barrels, boats, window panes, furniture of many kinds, telegraph poles, drain pipes, and tiling, paving brick, coffins, carpets, thread, heavy guns, matches, portable houses, paint, artificial teeth and oven bicycle frames.

And still those engaged in the industry regard it as yet in the stage of short dresses. The latest application to the manufacture of silk, seems to confirm this view. Almost all the uses of cellulose, indeed, aside from that for paper making, have come within the last ten years and probably the last year has seen more new uses made of this remarkable substance than in all the other ten put together. New patents are being taken out every month, and with the enormous extension that will be made by the invasion of the vast spruce and fir forests of the North Pacific coast in this country and of Siberia, it is entirely probable that the next few years will witness a still more remarkable advance.

Paper is now only one of the countless forms in which wood pulp or wood fibre is now made up. Probably the next and most important employment is that for car wheels. These are, as a rule, made from straw pulp and directly from strawboard. A solid disk or wheel made up of a number of layers, much in the same way as calendar rolls are made, is forced under strong pressure into a steel tire. Then into the centre of this disk an axle box is thrust, under similar pressure. When first the strawboard discs are put together they are thrust under a hydraulic weight of 8,000 kilograms, for an hour, and a pressure of ninety to 120 tons is employed in fitting the tires. In this way a wheel is made that is about three times as durable as those made of steel, and furthermore, far more elastic.

This elasticity not only greatly increases ease of railway travel, but it diminishes the vibrations of the axle and bearings, the effect of these vibrations being to crystalize iron or steel, where the wheel is made of these latter substances. At Pullman, Ill., the chief seat of manufacture in this country, a pair of paper wheels have a record run of almost a million and a half miles, a rec-

The 1897 Canadian Tariff

The 1897 United States Tariff

The British Tariff

As soon as the new Canadian Tariff Bill was presented in the House of Commons at Ottawa it became the Law of the Land, going into effect immediately. The Dominion Parliament being already in session, it is the intention of the Government to press the Tariff Bill to its final passage with as little delay as possible.

The new United States Tariff Bill has been already introduced into Congress, and it is expected that it will become law and go into effect at an early day.

AS SOON AS THESE TWO IMPORTANT MEASURES—The Canadian Tariff and The United States Tariff—becomes law

A SPECIAL EDITION OF THE CANADIAN MANUFACTURER

will be published containing both of them and also The British Tariff, all reproduced in full from authentic copies obtained from official sources.

The edition of THE CANADIAN MANUFACTURER of September 7, 1894, contained the full and entire texts of The Canadian Tariff, which was confirmed July 23, 1894, and The United States Tariff, which went into effect August 28, 1894; and there are thousands of copies of that edition to be seen at this time in business offices, workshops, mills, factories, electric light stations, and other industrial establishments in Canada, United States, Great Britain and other countries.

The importance and value to all manufacturers and business men of having the Tariffs of these three great countries—Canada, United States and Great Britain—published in full within one cover cannot be too highly appreciated. The Special Edition of THE CANADIAN MANUFACTURER containing them will be printed on heavy paper, and provided with loop for hanging in any convenient place.

This Special Edition will possess unique and exceedingly valuable advantages as an advertising medium to all those who desire to have their business brought to the attention of the managers of thousands of cotton and woolen mills, pulp and paper mills, flour and lumber mills, coal and gold mines, engine and boiler shops, machine shops, electric lighting and street railway stations, bicycle factories, etc., in Canada and elsewhere.

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Orders for copies of this Special Tariff Edition should be sent in without delay.

ord which is exceptional for any kind of metal.

This same wonderful hardness which is obtainable with paper, has very recently been turned to account in Berlin, Germany, in the making of paving brick. These latter are made from ordinary wood or straw pulp, to which sulphate of zinc is added as a preservative. The material being thoroughly mixed, it is put into a vat, where other chemicals are added and then subjected to a pressure of 2,000 to a square inch. The bricks thus formed are placed in a kiln and baked for forty-eight hours, much as bricks of clay. These wood pulp bricks weigh about three pounds, where those of the same size of clay weigh ten pounds, and are practically indestructible. Under this same process conduits for the use of electric or telephone cables are now being made, and drain tiling as well. Among the advantages claimed for the latter is its exceeding hardness, its light weight, its non-conductivity of heat or sound, and sufficient elasticity to meet all requirements. The dampness experienced usually in the case of stone is also absent, and in price and appearance the tiling takes rank over that made of clay. Similarly a dentist in Lubeck is a maker of paper or wood pulp teeth, said to be of fine quality.

A slightly different process is employed in the manufacture of wood pulp screws. These are usually of the larger size, and are made from a compound of fine pulp, clay, alkali, soda and glue. After casting, or rather pressing, the threads are cut and the stock then treated to a bath of sulphate of copper. An oil varnish finish completes the work, and a tough elastic screw valuable for various uses is the result.

Yet another successful application of this

curious substance is in the manufacture of telegraph poles. The latter are hollow and very much lighter than those that are made of wood; they are stronger and are said to be unaffected by sun, rain, or any other causes which shorten the life of the ordinary wooden pole. The pulp is cast in a mold with a core in the centre, forming a tube of the desired length. Collins, too, are now made in Europe of wood pulp which are susceptible of a high polish, look as well as the finest woods, and are much less expensive. Still another German genius has constructed a good sized cannon out of pulp, it having a steel core and the exterior being bound by five layers of metal wire. It is far lighter than a steel gun and is likewise said to be much stronger than a similar thickness of metal. Not to be behind the times a Chicago genius has constructed a bicycle frame entirely of wood pulp, and would like to start a factory for the manufacture of paper bikes. Bicycle handles made out of blotting paper, which in turn comes from pulp, are now not uncommon.

Every one is familiar with paper matches which have come into general use. Strips of paper, about half an inch wide, are first drawn through a combustible vat and are then by machinery turned into long, thin stems. These are cut into the right lengths and the heads dipped into a solution of phosphorus wax and dried. Paper matches are cheaper to make than those of wood, and within a few years this industry has assumed such proportions that it is not impossible that the familiar wooden match will become a thing of the past.

In its victorious advance, wood pulp now threatens to invade the cloth and leather industries, as it has that of paper, steel and

others. A Frenchman named Clavier has invented a process for making paper thread. Before being cut in strips, the paper is steeped in certain chemicals which give it tenacity and ductility, and it is then wound on bobbins and twisted into threads and afterwards passed through a pair of cylinders to coat it and give it a glossy appearance. This thread, the inventors claim, can be worked up into fabrics of various kinds and put to the ordinary uses. Still another Frenchman has found a way to make excellent sailcloth out of pulp and another genius makes a very good grade of carpet tiling, which furnishes a moth proof and elastic foundation for the carpet. Yet another inventor of Vienna has found a process for the manufacture of artificial leather from red beech and claims that a sole leather can thus be obtained superior to animal leather in firmness and durability.

Two English chemists have discovered a way to make a waterproof paint of wood pulp, which is sprayed over buildings, ships, and the like. The process is simple and inexpensive, and for painting large surfaces much is expected of it. Still again a Frenchman has found a way to make paper bags that are impervious to water, and a Berlin inventor has produced a fire proof paper, thin and of good quality. For that matter not long ago a wood pulp works constructed a stove out of paper, which answered every purpose as if it had been made of iron. It was, however, purely an experiment. Paper window panes were made several years ago in this country and these have latterly been much improved on in France. They have the appearance of milky glass and are admirable for greenhouse use. In the latter country, too, portable houses are now made

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CAPTAINS OF INDUSTRY.

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

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

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

of pulp wood, very successfully, and a good grade of pulleys as well.

Paper boats and especially paper canoes, are not at all new, but they have not come into general use, as it was expected a few years ago that they would. Paper cuspidors, however, are to be found everywhere, and pails, flower pots and similar articles are now in common use. Paper furniture, tables, chairs and the like are as yet a novelty; so, too, are imitation porcelain ware, paper barrels, wagon wheels, horseshoes and the like. But all of these are being made in a small way and indicate possibilities for the future.

The latest advance in the art, that of silk making, can now be said to be successful beyond question or doubt. Artificial silk is being made in considerable quantities by two English mills and by several others in France. There is really nothing so very wonderful about it, since it is simply doing mechanically and chemically what the silk worm does.— Wood Pulp News.

The Gartshore-Thompson Pipe Foundry Company's works at Hamilton, Ont., were damaged by fire a few days ago. Loss about \$4,000.

The Ontario Lithographing Company, of London, Ont., has been dissolved. Arthur J. Watts, and Chas. R. Tuson continue.

The Rondeau and Cleveland Steamship Company, Chatham, Ont., is being incorporated to establish a line of boats between Rondeau, Ont., and Cleveland, Ohio.

George Rogers' mill and elevator and the town electric light plant at Carberry, Man., were destroyed by fire a few days ago. Loss about \$15,000.

A considerable quantity of hard maple has recently been shipped from Lucknow, Ont. and from Quebec Province to England to be manufactured into blocks for printing wall paper. This industry might be developed to a considerable extent. England has been getting her supply of maple for this purpose from the United States.

The Montmorency Cotton Company, Lt., Montmorency Falls, Que., purpose erecting a new mill on the St. Francis River, at Drummondville, Que., to accommodate one thousand looms and to give employment to fifteen hundred hands.

The J. R. Booth Company, Ottawa shipped 6,000,000 feet of lumber to England last week.

Walter Stewart's saw mill and sash and door factory at Lucknow, Ont., was destroyed by fire June 1st. The electric light plant which supplied light to the town was in the same building and was also destroyed. Mr. Stewart's loss will be about \$12,000.

The Grand Falls Water Power and Boom Company will shortly begin the work of development of power from the Grand Falls, St. John River, N.B. They will also build a large pulp mill there. Mr. James Manchester, St. John, N.B., is a member of the company.

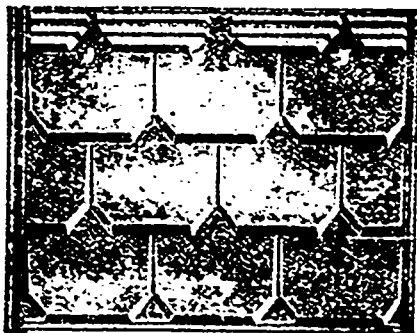
The G.T.R. oil house at Barrie, Ont., was destroyed by fire a few days ago. The Royal Oil Company, Toronto, and Messrs. Johnson & Warren each lose about \$400 on oil stored in the building.

UNQUESTIONABLY THE BEST FIRE-PROOF LATHING YET PRODUCED

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METALLIC ROOFING CO., Ltd., Manufacturers,

TORONTO

Louis Blue, Rossland, B.C. will erect a saw mill at Quartz Creek, B.C.

The town of Bowmanville, Ont., has voted a bonus of \$6,000 to the Bowmanville Rubber Manufacturing Company.

The Carborundum Company, Niagara Falls, Ont., have commenced the manufacture of carborundum at that place.

The Rainy River Navigation Company, Rat Portage, Ont., is being incorporated with a capital stock of \$150,000.

The Hamilton Iron Mining Company, Hamilton, Ont., has been incorporated with a capital stock of \$90,000 to do a general mining business.

Plans have been prepared for a sewage system for Aylmer, Ont.

The Brockville Light and Power Company Brockville, Ont., will put in machinery to furnish power to the industries of the town.

The Lunenburg Foundry Company, Lunenburg, N.S., is being incorporated with a capital stock of \$20,000, to manufacture stoves, machinery, etc., and to do a general foundry business.

We have received from Messrs. Wm. J. Matheson & Co., 178 Front Street, New York, a card of samples of handsome colors consisting of indigo blues and their combinations.

The Aylmer Electric and Manufacturing Company, Aylmer, Ont., has been incorporated with a capital stock of \$20,000, to manufacture all kinds of electrical machinery, supplies, etc.

The MacGregor-Gourlay Company, Galt, Ont., are putting an electric light plant into their foundry and machine shops.

The British Columbia Electric Tramway Company, head office England, has been registered in British Columbia.

The Mica Boiler Covering Company, Toronto, are working twenty-four hours a day on orders for export, one of which is a very large contract for Waterbury, Conn.

The blotters with calendar for June sent out by the Packard Electric Company, call attention to their new type "L" 60 cycle transformers made in all sizes from 1.5 K. W. to 150 K. W.

Samuel Higgins' carriage and bicycle rim factory at Woodstock, Ont., was burned June 1st, loss about \$5,000.

WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY
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THE LEADING MANUFACTURERS OF ELECTRICAL APPARATUS FOR ELECTRIC LIGHTING, POWER TRANSMISSION, AND ELECTRIC RAILWAY PLANTS

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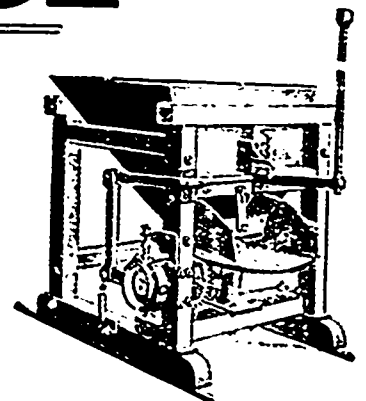
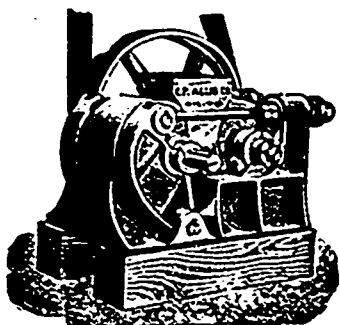
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PETERBOROUGH, ONT.

The Merchants Counter Check Book Company, Toronto, has been incorporated with a capital stock of \$90,000, to manufacture check books, manifold books, dies, printing presses, etc.

The McElroy Milling Company, Carp, Ont., are enlarging their mill and propose putting in additional machinery.

A private corporation, the principal members of which include Messrs. Griffin of the St. Thomas Car Wheel Works, St. Thomas, Ont., and Messrs. Drummond of the Montreal Car Wheel Company, Montreal, have leased from the Grand Trunk Ry. Company their car wheel works at Hamilton, Ont., which they purpose enlarging, and, in addition to manufacturing car wheels for the Grand Trunk Ry., will seek outside business.

W. A. Simpson's planing mill at Toronto was destroyed by fire May 24th. Loss about \$10,000.

The John Eaton Company's departmental store, Toronto, was destroyed by fire May 20th. Loss estimated at \$200,000. The building will be rebuilt without delay.

A new \$5,000 school building will be erected this summer at Petrolia, Ont.

Messrs. Clayton & Sons clothing factory at Halifax, N.S., was destroyed by fire a few days ago. Loss, about \$100,000.

The Canada Paper Company, Montreal, are erecting a new mill at Windsor Mills, Que.

The Warton Woollen Mills Company, Warton, Ont., has been incorporated with a capital stock of \$20,000, to manufacture woollens, etc.

The Verity Plow Company, Brantford, Ont., finding their present premises too small for their increasing business, are considering the idea of removing their works to some other place. They have received tempting offers from Toronto.

The Stratford, Ont., Water Supply Company are negotiating for the sale of their works to that city.

Messrs. D. Hibner & Co.'s furniture factory at Berlin, Ont., was damaged by fire a few days ago to the extent of about \$1,000.

The Crossen Car Company, Cobourg, Ont., have recently delivered two beautifully finished passenger cars to the Hamilton Radial Railway Company.

Waterville, Que., is agitating for a municipal electric light system. Power will be obtained from the Coaticook River.

Edmonton, N.W.T., has voted a bonus of \$25,000 towards the construction of a bridge over the Saskatchewan river at that place.

Negotiations are in progress between the city of Brantford, Ont., and the Gould Coupler Company, of Buffalo, N.Y., with the view to the company establishing a branch of their works at Brantford in the G.T.R. shops there soon to be vacated.

The Canada Western Telephone and Telegraph Company, Vancouver, B.C., has been incorporated with a capital stock of \$50,000, to do a general telephone and telegraph business.

The Dominion Elevator Company, Winnipeg, Man., is being incorporated with a capital stock of \$200,000, to build and operate grain elevators in Manitoba and the North-West Territories.

The McEachren Heating and Ventilating Company, Galt, Ont. recently received an order for fan and heater for a lumber dry kiln from Messrs. J. & P. Nadeau, Grand Casapedia, Que.

Hamilton Blast Furnace Co.

HAMILTON, - - ONTARIO (Limited)

Manufacturers of

HIGH GRADE PIG IRON

THE . . . IMPROVED DOMINION WATER

SPECIAL FEATURES

- Economy in Use of Water, Great Power
- Equal Efficiency at any Gate-Opening
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St. CATHARINES, February 9, 1897

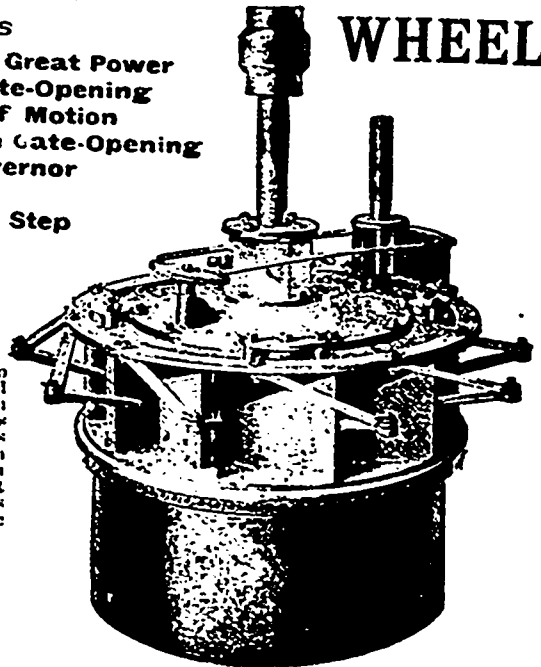
Messrs. Wm. & J. G. Greey, Toronto.

GENTLEMEN, - Your favor of the 5th to hand. Have been away from home, and hence delay in answering your letter. You ask us how your Dominion Wheel compares with the . . . Well, sir, the comparison is this—we have been using two 35 inch diameter, double wheel, and your 31 inch Dominion wheel we put in December last gives us as much power as both, and does not use but very little more water than one of the 35 inch wheels. Yours truly,

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An Electrical Engineer of wide experience desires a partner, with capital-knowledge of Electrical work not necessary - to take part share in purchasing and installing a modern Electric Light system in some good live town or city at present without same, or only having an Arc system. Such a plant managed in a thoroughly efficient manner, would yield large profits and make a splendid investment.

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You may want More Power now

The **Crocker Turbine**

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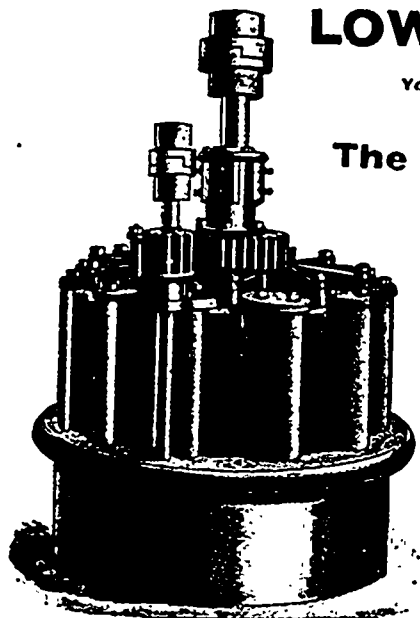
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The **Jenckes Machine Co.**, 28 LANSDOWNE STREET Sherbrooke, Que.

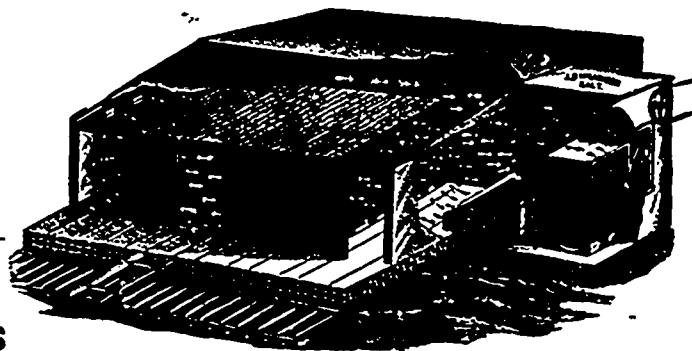
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MAKERS OF

**Lamps and
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ST. CATHARINES, ONT.

The Montague Mill Company, Lake Me-
gantic, Que., have commenced building a
new mill to replace that which was burned
in January last.

Messrs. Kerr & Morgan, machinists,
Montreal, have sold out to Messrs. Fred
Thompson & Co., and have started a saw
mill at Montfort, Que.

The Sherbrooke Gas & Water Co., Sher-
brooke, Que., have recently made extensive
additions and alterations in their plant.
Their station has been enlarged, and they
have also installed two additional water-
wheels. They have increased their electrical
plant by one 180 k.w. and one 75 k.w.
"S.K.C." two phase generators, in addition
to the 75 k.w. S.K.C. two phase generator
which they purchased about a year ago from
the Royal Electric Company, and which
makes their plant one of the most complete
incandescent plants in the Dominion. The
management of this company have installed
a power circuit from their alternating two-
phase apparatus, and are now serving power
and light successfully from the same gener-
ators and lines.

Messrs. Achille Gagnon & Co., of Victoria-
ville, Que., who began in December last
furnishing incandescent light to the towns
of Victoriaville and Arthabaskaville have
found it necessary to increase their plant
owing to the rapid increase of their lighting.
They have placed their order for a 75 k.w.
"S.K.C." two phase alternator with the
Royal Electric Company of Montreal, as it
is their intention to furnish power as well as
light from the same generator and circuit.
Their first installation was single phase
alternating, but finding that they could also
secure some power business during the day,
they decided to operate their plant twenty-four
hours per day, and for this purpose secured
an "S.K.C." two phase machine, from which
they can serve both lights and power from
the same line.

The longest electrical transmission plant
in the Dominion of Canada was put in opera-
tion a few days ago near Three Rivers,
Que. This plant was installed by the Royal
Electric Company, of Montreal, for the
North Shore Power Co., and transmits 700
h.p. from Grand Chute on the Batiscan river
a distance of seventeen miles to the city of
Three Rivers, Quebec, where the power is
used for arc and incandescent lighting, as
well as for power. S.K.C. two phase appar-
atus is used throughout. A full description
of this the first long distance, high voltage
plant in Canada, will be published very
shortly.

The Cleveland Wire Spring Co., of Cleve-
land, Ohio, U.S., whose advertisement can
be found in another page, are manufacturers
of twenty years' experience in the manu-
facture of wire springs of all kinds and this
insures an exactness of shapes and evenness
of temper to their springs that is particularly
appreciated by manufacturers of agricultural
implements and machinery. As manufac-
turers also, of oil tempered steel spring wires,
they are prepared to furnish a grade that
cannot be excelled. Gun screw, bright
machine screw rods and other wires, they
are also able to furnish.

Mr. Lawrence A. Wilson, Montreal, has
purchased the plant of the McDougall Dis-
tilling Company, Halifax, N.S., and has
formed a company to operate the same.

F. W. Galbraith's planing mill at Port
Hope, Ont., was destroyed by fire a few days
ago. Loss, about \$300.

Messrs I. Matheson & Co., New Glasgow, N.S., recently received an order for a pair of hoisting engines from the General Mining Association, and are also busy on an order for screens and picking tables for the Dominion Coal Company.

The Elgin Field Oil and Gas Developing Company, Dutton, Ont., has been incorporated with a capital stock of \$49,000, to develop oil wells, and to supply power, etc.

The twentieth convention of the National Electric Light Association will be held at Niagara Falls, N.Y., June 8th, 9th, and 10th instant. The following programme has been prepared for the occasion. Tuesday, June 8, 1897 Meeting of the Executive committee, at 9 a.m., in Secretary's office, International hotel. Morning Session, 10.30 o'clock, Convention hall, International hotel. Address by President, Frederic Nicholls; report, "Committee on Standard Candle-Power of Incandescent Lamps," Louis Bell, chairman. Report, "Committee

on Data," H. M. Swetland, chairman. Report, "Committee on Rules for Safe Wiring," William Brophy, chairman. Afternoon Session, at 2 o'clock, Report, "Committee on Finance," John A. Seely, chairman. Paper, J. B. Cahoon, Elmira, N.Y., "Standardizing Prices for Incandescent Light and Power." Topic, "Theft of Current and How to Deal with it." Paper, W. Worth Bean, St. Joseph, Mich., "Municipal Lighting." Questions and Answers, What is it you wish to know? Executive Session. Wednesday, June 9, 1897.—Morning Session, 10 o'clock. Paper, C. L. Edgar, Boston, Mass., "Correct Method of Charging for Product." Paper, J. G. White, New York, N.Y., "The Niagara Power Transmission Line." Paper, Arthur Wright, Brighton, England, "Profitable Extensions of Electricity Supply Station." Topic, "Commercial Results with Inclosed Arcs." Afternoon Session at 2.30 o'clock. Paper, Prof. Chas. A. Carus-Wilson, McGill University, Montreal, Can.,

"The Induction Factor, a New Basis of Dynamo Calculation and Classification." Paper, Prof. Elihu Thomson, Lynn, Mass., "Recent Progress in Arc Lighting." Paper, T. C. Martin, New York, N.Y. "The Daylight Work of Central Stations." Questions and Answers, What is it you wish to know? Executive Session. Evening Session, 8 o'clock, Lyceum Theater. Paper, L. B. Stillwell, Niagara Falls, N.Y., "Niagara Power." (Illustrated with stereopticon). Thursday, June 10, 1897—Morning Session, 10 o'clock. Paper, B. F. Lamm, Pittsburg, Pa., "Polyphase Motors." Topic, "Best Efficiency for Incandescent Lamps." Paper, Lieut. F. Jarvis Patten, New York, N.Y., "Frequency Transformation." Topic, "Are the Large Arc Lighters Commercially Desirable?" Afternoon Session, 2.30 o'clock. Topic, "Lamp Carriers other than Ordinary Posts." Paper, C. F. Scott, Pittsburg, Pa., "Rotaries for Transforming Alternating into Direct Current." Executive Session. Reports, Secretary and Treasurer, Executive Committee. Election of officers.

The Rainy River Navigation Company, Rat Portage, Ont., is being incorporated with a capital stock of \$150,000.

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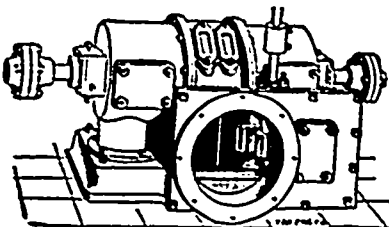


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H. G. McLAREN, General Agent for Canada, 318 ST. PAUL ST., MONTREAL, QUE.

Messrs. Sadler & Haworth, manufacturers of leather belting, Toronto and Montreal, have issued a neat booklet in which is printed a letter to them from Messrs. Goldie & McCulloch Co., Galt, Ont., in which they state the Sadler & Haworth Co. have sold to them over seven miles of belting during the last five years, the results of which have been most satisfactory.

Mr. Wilson, of the Wilson Carbide and Acetylene Works, St. Catharines, Ont., recently gave a demonstration of the new illuminant in the Parliament Buildings, Ottawa, before a large number of members of Parliament and Cabinet ministers. Replying to questions Mr. Wilson stated that acetylene gas can be burned at a cost of four-fifths of a cent an hour for a fifty-candle power light; that carbide will soon be on

the market all over Canada at four cents per pound retail, and that farmers will be able to light their homes more cheaply than with coal oil. At four cents per pound for carbide, the gas costs fifty-seven cents per thousand feet. The Company have recently purchased a water power in the Lake St. John district, Que., and expect within a year to develop 20,000 horse power to be used for the manufacture of carbide. A large quantity of the carbide is being exported to Europe.

The Lachine Rapids Hydraulic and Land Company's works at Lachine, Que., near Montreal, are nearing completion and the company will soon be in a position to supply light and power to that city. The works include a head race 4,000 feet long by 1,000 feet wide, having an average depth of thirteen feet of water; tail race 1,200 feet long

and from 1,000 to 1,500 feet wide, the main dam, 1,000 feet long, having over forty flumes in which are set 72 turbines, a power house 1,000 feet long, including three dynamo houses and three turbine sheds. There are twelve generators, to each of which are connected six turbines. The current will be conveyed to Montreal by an underground conduit. Among the contractors for different departments of the work are the following: for iron work, Dominion Bridge Company, Montreal; woodwork, the James Shearer Company, Montreal; water-wheels and hydraulic machinery, Stilwell-Bierce and Smith-Vail Company, Dayton, Ohio; electrical machinery, the Canadian General Electric Company, Toronto; wire, the Dominion Wire Works, Montreal; underground conduits, the National Underground Conduit Company, New York.

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Sulphuric, Nitric, and Muriatic
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Liquid Ammonia, Glauber Salts,
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Tin Crystals, Acetic Acid, Nitrate
Iron, Bisulphite Soda,
Acid Phosphate for Baking Pow-
ders and General Chemicals.
Fertilizers, etc.

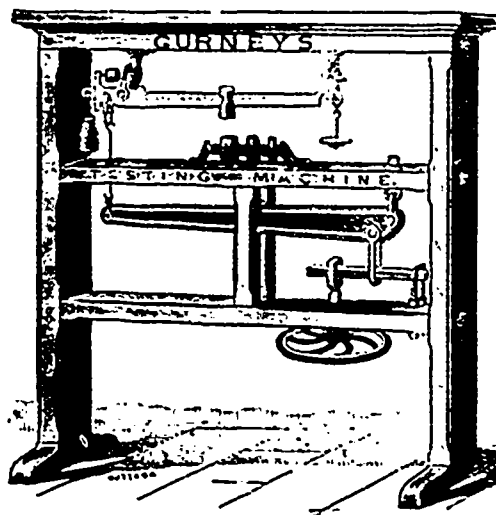
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FOUNDRYMAN'S TESTING MACHINE

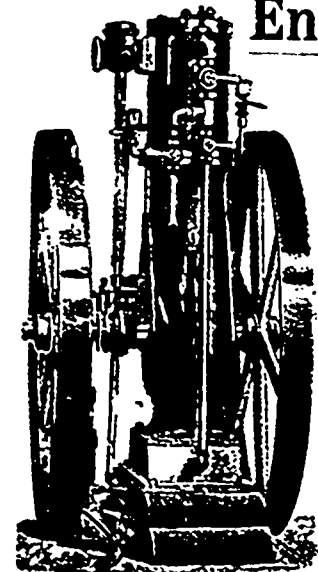
A Durable and Effective
Machine for the Use of Foundry-
men in Testing the Strength
of Best Iron, and
ascertaining the Best Mixture
of Iron for any work,
thus showing positively which is
the Best Iron for the Re-
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SUBSTANTIALLY CONSTRUCTED.
HIGHEST CLASS OF
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Engine**



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AND
TESTI-
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J. R. BAIRD
WOODSTOCK, . . . ONTARIO

AUSTRALIAN COAL FIELDS.

Coal was first discovered in New South Wales in the year 1797, near Mount Kiera, by a man named Clark, the supercargo of a vessel called the Sydney Cove, which had been wrecked in Bass's Strait. Later in the same year Lieutenant Shortland discovered the River Hunter, with the coal beds situated at its mouth. Little or no use, however, was made of the discovery, and in 1826 the Australian Agricultural Company obtained a grant of 1,000,000 acres of land, together with the sole right, conferred upon them by charter, of working the coal-seams that were known to exist in the Hunter river district. Although the company held this valuable privilege for twenty years, very little enterprise was exhibited by them in the direction of winning coal, and it was not until the year 1847, when their monopoly ceased and public competition stepped in, that the coal mining industry began to show signs of pro-

gress and prosperity. From the 40,732 tons extracted in 1847 under the monopoly of the Australian Agricultural Company the quantity raised had, in 1891, expanded to 4,037,929 tons, valued at £1,742,796. In 1892, however, the output was only 3,780,968 tons valued at £1,462,388; and in 1893 there was a further decrease to 3,278,328 tons, valued at £1,171,722. In 1894 the output increased to 3,672,076 tons, but owing to the fall in the price of coal the value of this production was only £1,155,573. The output for 1895 was 3,738,589 tons, valued at £1,095,327.

The coal-fields of New South Wales are situated in three distinct regions—the northern, southern, and western districts. The first of these comprises chiefly the mines of the Hunter river district; the second includes the Illawarra district and, generally, the coastal regions to the south of Sydney, together with Berrima, on the table-land; and the third consists of the mountainous

regions on the Great Western Railway, and extends as far as Dubbo. The total area of the carboniferous strata is estimated at 23,950 square miles. The seams vary in thickness. One of the richest has been found at Greta, in the Hunter river district; it contains an average thickness of 14 feet of clean coal, and the quantity underlying each acre of ground has been computed to be 63,700 tons. The average quantity of coal extracted per miner, calculated upon the basis of the output of coal during the ten years ending 1894, was 356 tons, which at the mean price of coal at the pit's mouth, was equivalent to £148 6s. 8d. This production compares favorably with the results exhibited by other coal-producing countries, as shown by the figures given by Mulkall.

Joseph Brunet and Chas. C. Pisen have been registered proprietors of the Montreal Aluminum Works Company.



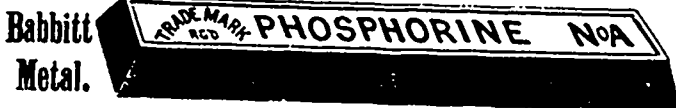
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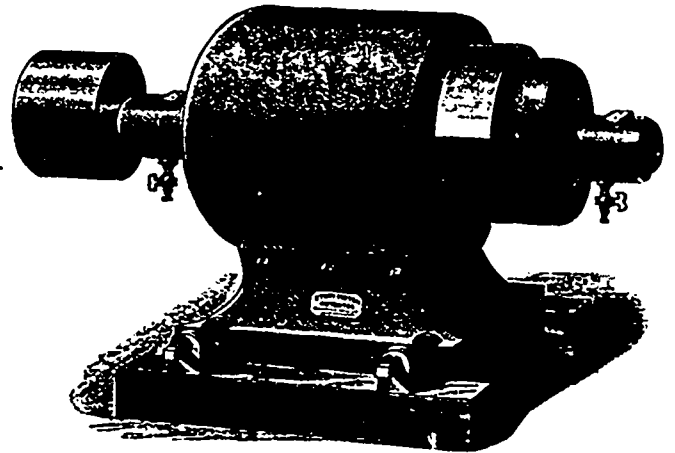
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1 ton of CRYSTAL CARBONATE contains as much Alkali as 2½ tons of Soda Crystals.

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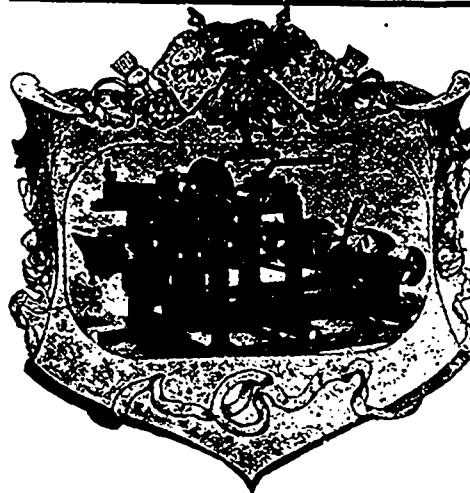
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A GIANT DRILL.

Speaking of the great work done by the giant Rand drill in the new tunnel of the Iron Colt mine in British Columbia, the Rossland Miner of May 11th, says:

There is some great tunnel work being done just now on the Iron Colt. The Miner announced several days ago that the Iron Colt people had made a contract with the

Alberta company for the use of their tunnel. This tunnel is 350 feet long, not 300 as first stated, and starting at the end of this, with a depth of 130 feet, the Iron Colt Tunnel will run 300 feet to connect with the shaft and pierce the ledge at a depth of 350 feet. Mr. Heacock, who ran the Alberta tunnel, has been engaged by the Iron Colt company to take charge of this work. He began the tunnel last Friday morning at seven o'clock

and yesterday afternoon he had run twenty feet, the tunnel being seven feet high and eight feet wide.

The work is being done with a Rand giant drill—the largest drill ever brought into camp—and some details as to the operation of this fine machine will be interesting. Its cylinder is 3½ inches in size, and with ninety pounds of compressed air it makes 300 strokes per minute, carrying 800 pounds with each stroke. It easily drills eighteen inches in five minutes, a wonderful performance in the hard rock of this camp.

Mr. Heacock mounts his drill at seven o'clock in the morning and he gets ten holes in by half-past two or about that time. He stops an hour for dinner, so that he is drilling just six hours and a half. Each hole is five to 5½ feet deep, and as there are ten of them it measures over fifty feet in the line mentioned.

The holes are placed in three tiers, three

The Thompson Electric Co.

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To burn 150 hours without Recarboning, for Series, Incandescent, Alternating and Power Circuits.

“Open Arc Lamps”

For all Circuits, Single and Double Carbon Lamps.

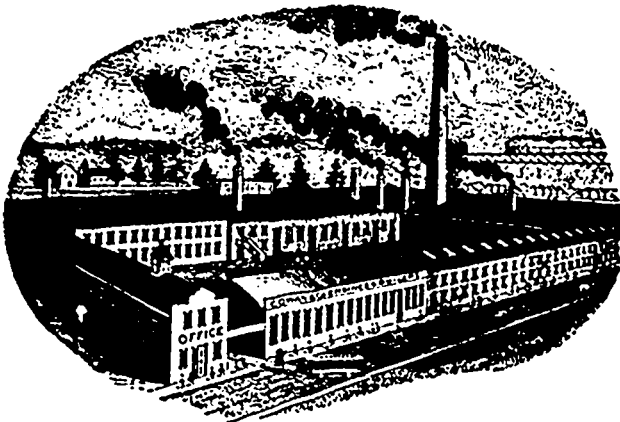
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- Patent Heaters
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Old Wood Tools, Engines and Boilers taken as part pay on new. We have on hand a number of . . .

Rebuilt Wood Tools Engines and Boilers

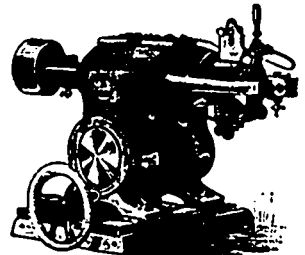
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ELECTRIC BARGAINS



Two Incandescent and one Arc Dynamo, in perfect condition, for sale at a sacrifice.

We also Manufacture a complete line of

MOTORS, DYNAMOS and PLATERS.

WRITE FOR PRICES.

THE JONES & MOORE ELECTRIC CO.

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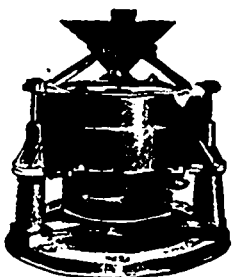
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FRENCH BUHR AND ESOPUS STONES. *Sent for Circular.*

STURTEVANT MILL CO.

BOSTON, MASS.

in the top row, four in the middle row and three in the bottom row. The four middle holes are loaded and fired first. The two centre holes are run in straight with the walls of the tunnel, but the two middle holes are run in with a slant to the centre. Four sticks of powder are put in each hole.

When these four holes are fired a core about three feet deep comes out. These holes are then reloaded and loads put in the upper and lower tiers of holes. Short fuses are attached to the middle holes, longer fuses to the top holes, and still longer ones to the lower holes. When the shot takes place the remaining two feet of the centre core is taken out and the top and bottom break easily, thus clearing out the entire five feet.

The firing is completed by half-past four and by six the muckers can go in. It takes all night to clean up the muck, filling twenty-five to thirty 17-A cars, and amounting to

thirty-five to forty tons. By six o'clock in the morning the tunnel is ready for the machine men.

This is the way Mr. Heacock is driving a double track tunnel at the rate of five feet every twenty-four hours. These are feats that can be verified by investigation. The amount of powder consumed is seventy-five pounds for every round of holes, and the entire cost is about \$12 per foot. Mr. Heacock estimates that the saving by the use of the big drill is \$15 a day. It is certainly a great drill for straight tunnelling, and will probably be used very extensively in this camp for work of this character.

These drills are made by The Canadian Rand Drill Co., Montreal.

The Barker Lumber Company, Burford, Ont., have added a stave and hoop mill to their factory.

The spring freshets on the St. Croix river, N.S., swept away two dams, the property of Mr. T.G. McMullen of Truro, N.S., and partially destroyed three other dams belonging to W. Hart, Nathaniel Spence and the St. Croix Woollen Mills Company, St. Croix, N.S. Total loss estimated at \$100,000.

The Chicoutimi Pulp Company, Chicoutimi, Que., has been incorporated.

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Patterns and Models of every description. Inventors assisted in perfecting their inventions. Good work. Close prices. Estimates given.

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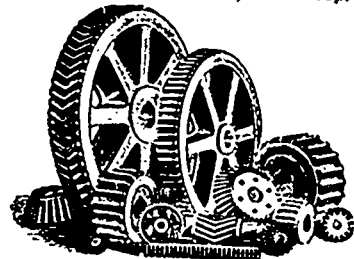
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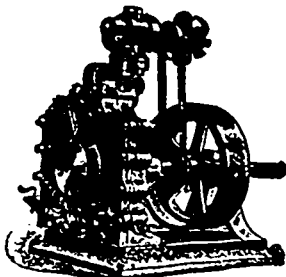
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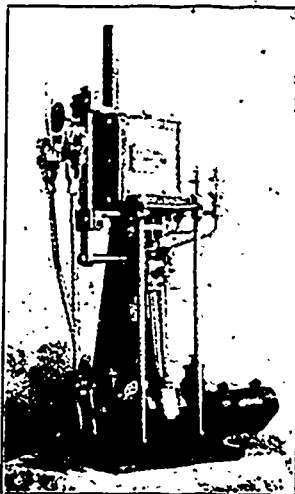
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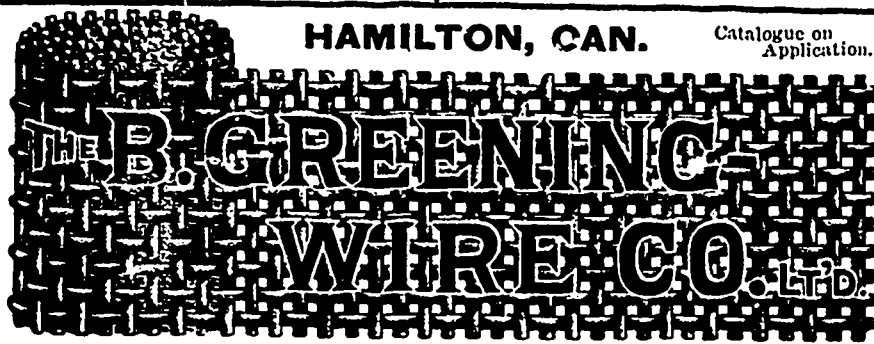
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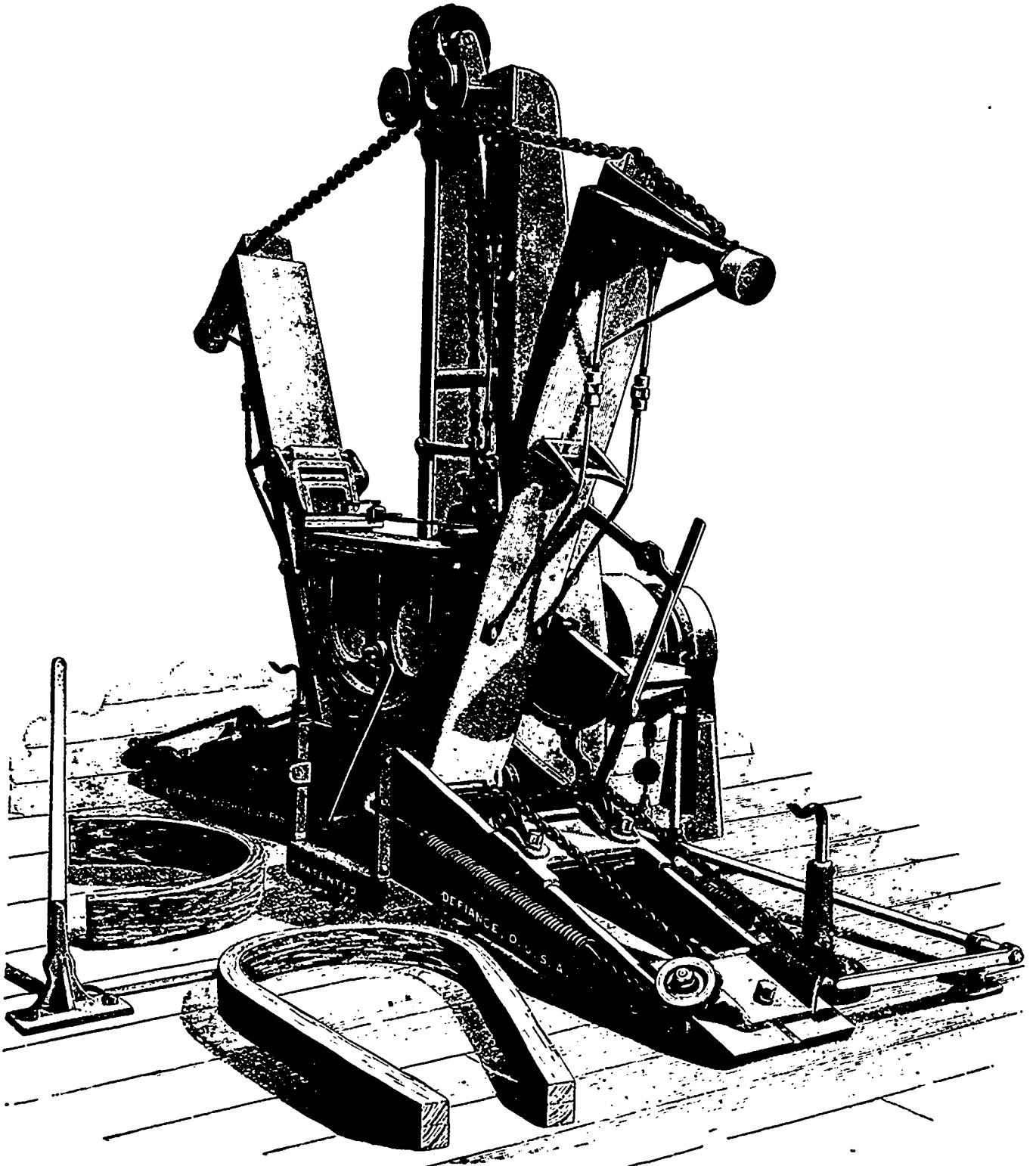
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PATENT AUTOMATIC RIM AND FELLOE BENDING MACHINE.

The accompanying illustration represents an automatic wood bending machine, manufactured by the Defiance Machine Works, Defiance, Ohio. It has been designed to meet all the requirements for the successful and economical bending of felloes for carriage and wagon wheels, wagon hounds, reaches, and other similar classes of bent wood stock. It is capable of bending the lightest felloes used for carriage wheels up to the heaviest work required for farm wagon, truck and artillery wheels, bending hard wood as large

as five inches in thickness, twelve inches in width, with adjustments sufficient to accommodate changes from twenty-four to seventy-two inch circles. The frame is a massive casting, substantial in all its parts. Its total height is nine feet, nine inches, and the floor space necessary to accommodate it is, length fourteen feet, greatest width six feet, lesser width four feet. A foundation of masonry is not required under the machine, as an average floor well supported is sufficient. It embodies an entirely new feature in the application of power, the object being a drastic longitudinal stress upon the timber to be bent. This is secured by means of an elastic

cable railway held taut by four powerful springs which are capable of exerting an aggregate energy of six thousand pounds. Upon this railway roll the trucks by which are carried the inner, or lower, ends of the levers, or bending arms, long experience in the art of bending timber proving this action to be necessary to secure a shape in satisfactory agreement with the form upon which the timber is bent. The levers or bending arms form a level table when down, and are covered with a master strap to receive the straight material. They are of cast iron, made hollow and strongly reinforced by trusses. They are planed true on the upper surfaces and



otherwise fitted up with extreme care. The head blocks mounted upon their upper surfaces are furnished with an automatic, eccentric releasing device to release the augmenting end thrust which occurs during the process of bending. This is an office that cannot be properly performed by any other than automatic means; the cable chain which operates the bending arms or levers being fastened to their outer ends, passing over the sheaves at the top of the frame downward to a drum on which the chain is wound. The chain drum is driven by a powerful worm screw and gear. To the outer end of the screw shaft two frictional clutch pulleys are fitted, one used for running the bending levers up, driven with a six inch belt, the other with a four inch belt for backing the arms down, and they should revolve in opposite directions. The vertical lever shown is used to control the frictions, and start, stop or back down the bender arms. The forms for the bending of felloes are of cast iron turned true, and with a collapsible section at each end of the arc to secure the

easy removal of the stock after bending, and enabling the use of stock about nine inches shorter than can be bent with an ordinary form, which effects a large saving in material. A wooden cap is used on top of the form, which is of the same length as the diameter of the form, and it is always taken off with the bent wood, requiring one cap for each batch of timber bent, and it must be left in until the batch of timber is cold and thoroughly set, so as not to spring when the shackle is taken off. The forms are held on a sliding head stock, having a vertical movement, by means of which the timber can be firmly held at the initial point of bending, thus securing it against fracture on the outer arc, and preventing it from retreating from the form at that point. After the operation of bending is completed the machine can be set to run down to the position for the succeeding operation and automatically arrested. The capacity of this machine is sufficient to bend about 2,500 felloes 1 1/2 inches, or about 1,200 wagon hounds in ten hours, and other classes of work in proportion. Timber to

the amount of twelve inches in width, either in one piece or in pieces aggregating that amount, can be bent at one operation. The friction pulleys are as follows: one for running the arms up twenty-four inches by six inches face; pulley for running down eighteen inches by six inches face. Speed of pulleys, 180 to 200 turns a minute. Where heavy timber predominates the lower rate of speed should be used.

For further particulars regarding the machine address The Defiance Machine Works, Defiance, Ohio, or Estate of T. T. Coleman, Seaforth, Ont., general agents for Canada.

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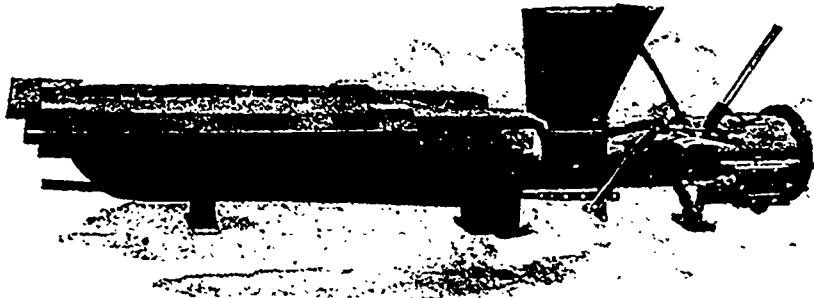
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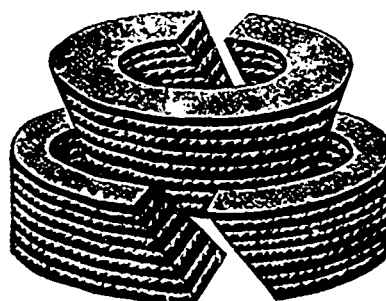
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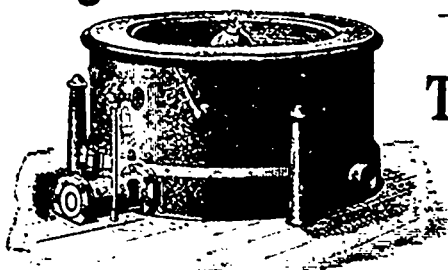
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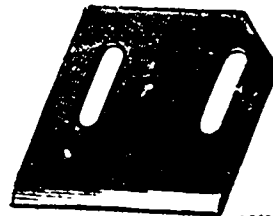
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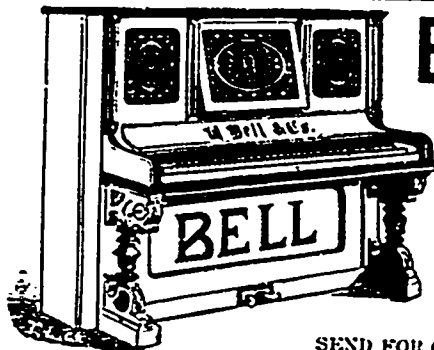
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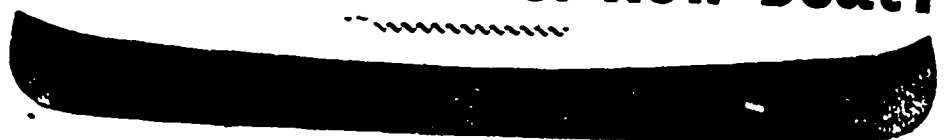
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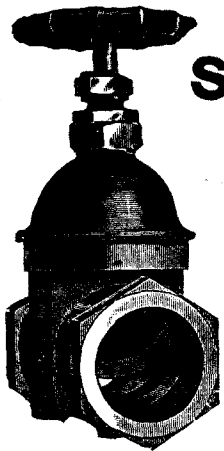
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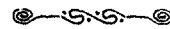
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